24862	239.97	0	0	26.362	-6215.3
24863	240.02	0	0	26.362	-6215.3
24864	239.94	0	0	26.362	-6215.3
24865	239.97	0	0	26.362	-6215.3
24866	240.07	0	0	26.362	-6215.3
24867	239.92	0	0	26.362	-6215.3
24868	239.99	0	0	26.362	-6215.3
24869	239.99	0	0	26.362	-6215.3
24870	239.9	0	0	26.362	-6215.3
24871	239.96	0	0	26.362	-6215.3
24872	239.88	0	0	26.362	-6215.3
24873	239.95	0	0	26.362	-6215.3
24874	239.97	0	0	26.362	-6215.3
24875	240.03	0	0	26.362	-6215.3
24876	239.93	0	0	26.362	-6215.3
24877	240	0	0	26.362	-6215.3
24878	240	0	0	26.362	-6215.3
24879	239.88	0	0	26.362	-6215.3
24880	239.99	0	0	26.362	-6215.3
24881	239.93	0	0	26.362	-6215.3
24882	239.88	0	0	26.362	-6215.3
24883	239.98	0	0	26.362	-6215.3
24884	239.91	0	0	26.362	-6215.3
24885	239.97	0	0	26.362	-6215.3
24886	239.9	0	0	26.362	-6215.3
24887	239.85	0	0	26.362	-6215.3
24888	239.93	0	0	26.362	-6215.3
24889	239.86	0	0	26.362	-6215.3
24890	239.88	0	0	26.362	-6215.3
24891	239.9	0	0	26.362	-6215.3
24892	239.87	0	0	26.362	-6215.3
24893	239.93	0	0	26.362	-6215.3
24894	239.97	0	0	26.362	-6215.3
24895	239.9	0	0	26.362	-6215.3
24896	239.97	0	0	26.362	-6215.3
24897	239.95	0	0	26.362	-6215.3
24898	240.01	0	0	26.362	-6215.3
24899	240	0	0	26.362	-6215.3
24900	239.94	0	0	26.362	-6215.3
24901	239.97	0	0	26.362	-6215.3
24902	239.95	0	0	26.362	-6215.3
24903	239.94	0	0	26.362	-6215.3
24904	239.9	0	0	26.362	-6215.3
24905	240.07	0	0	26.362	-6215.3
24906	239.94	0	0	26.362	-6215.3
24907	240	0	0	26.362	-6215.3
24908	239.99	0	0	26.362	-6215.3

24909	240.02	0	0	26.362	-6215.3
24910	240	0	0	26.362	-6215.3
24911	240.03	0	0	26.362	-6215.3
24912	240.02	0	0	26.362	-6215.3
24913	240.02	0	0	26.362	-6215.3
24914	240.02	0	0	26.362	-6215.3
24915	239.99	0	0	26.362	-6215.3
24916	239.95	0	0	26.362	-6215.3
24917	240.02	0	0	26.362	-6215.3
24918	240	0	0	26.362	-6215.3
24919	240.02	0	0	26.362	-6215.3
24920	240.07	0	0	26.362	-6215.3
24921	240.08	0	0	26.362	-6215.3
24922	240.02	0	0	26.362	-6215.3
24923	240	0	0	26.362	-6215.3
24924	240.03	0	0	26.362	-6215.3
24925	240.05	0	0	26.362	-6215.3
24926	240.06	0	0	26.362	-6215.3
24927	240.06	0	0	26.362	-6215.3
24928	240.09	0	0	26.362	-6215.3
24929	240.1	0	0	26.362	-6215.3
24930	240.08	0	0	26.362	-6215.3
24931	240.08	0	0	26.362	-6215.3
24932	240.14	0	0	26.362	-6215.3
24933	240.09	0	0	26.362	-6215.3
24934	240.07	0	0	26.362	-6215.3
24935	240.01	0	0	26.362	-6215.3
24936	240.04	0	0	26.362	-6215.3
24937	240.03	0	0	26.362	-6215.3
24938	240.13	0	0	26.362	-6215.3
24939	240.06	0	0	26.362	-6215.3
24940	240.14	0	0	26.362	-6215.3
24941	240.14	0	0	26.362	-6215.3
24942	240	0	0	26.362	-6215.3
24943	240.02	0	0	26.362	-6215.3
24944	240.12	0	0	26.362	-6215.3
24945	240.04	0	0	26.362	-6215.3
24946	240.05	0	0	26.362	-6215.3
24947	240.09	0	0	26.362	-6215.3
24948	240.12	0	0	26.362	-6215.3
24949	240.13	0	0	26.362	-6215.3
24950	240.08	0	0	26.362	-6215.3
24951	240.09	0	0	26.362	-6215.3
24952	240.12	0	0	26.362	-6215.3
24953	240.1	0	0	26.362	-6215.3
24954	240.14	0	0	26.362	-6215.3
24955	240.12	0	0	26.362	-6215.3

24956	240.14	0	0	26.362	-6215.3
24957	240.09	0	0	26.362	-6215.3
24958	240.11	0	0	26.362	-6215.3
24959	240.14	0	0	26.362	-6215.3
24960	240.04	0	0	26.362	-6215.3
24961	240.05	0	0	26.362	-6215.3
24962	240.04	0	0	26.362	-6215.3
24963	240.01	0	0	26.362	-6215.3
24964	240.02	0	0	26.362	-6215.3
24965	239.98	0	0	26.362	-6215.3
24966	240	0	0	26.362	-6215.3
24967	239.83	0	0	26.362	-6215.3
24968	239.95	0	0	26.362	-6215.3
24969	239.95	0	0	26.362	-6215.3
24970	239.91	0	0	26.362	-6215.3
24971	239.93	0	0	26.362	-6215.3
24972	239.93	0	0	26.362	-6215.3
24973	239.96	0	0	26.362	-6215.3
24974	239.98	0	0	26.362	-6215.3
24975	239.97	0	0	26.362	-6215.3
24976	239.91	0	0	26.362	-6215.3
24977	240.05	0	0	26.362	-6215.3
24978	240.05	0	0	26.362	-6215.3
24979	240.02	0	0	26.362	-6215.3
24980	240.08	0	0	26.362	-6215.3
24981	240.04	0	0	26.362	-6215.3
24982	240.02	0	0	26.362	-6215.3
24983	240.03	0	0	26.362	-6215.3
24984	240.04	0	0	26.362	-6215.3
24985	240.04	0	0	26.362	-6215.3
24986	240	0	0	26.362	-6215.3
24987	240.04	0	0	26.362	-6215.3
24988	240.03	0	0	26.362	-6215.3
24989	240	0	0	26.362	-6215.3
24990	240.03	0	0	26.362	-6215.3
24991	239.98	0	0	26.362	-6215.3
24992	239.99	0	0	26.362	-6215.3
24993	239.95	0	0	26.362	-6215.3
24994	239.93	0	0	26.362	-6215.3
24995	239.98	0	0	26.362	-6215.3
24996	239.83	0	0	26.362	-6215.3
24997	239.89	0	0	26.362	-6215.3
24998	239.94	0	0	26.362	-6215.3
24999	239.93	0	0	26.362	-6215.3
25000	239.93	0	0	26.362	-6215.3
25001	239.97	0	0	26.362	-6215.3
25002	239.97	0	0	26.362	-6215.3

25003	239.98	0	0	26.362	-6215.3
25004	240.03	0	0	26.362	-6215.3
25005	239.98	0	0	26.362	-6215.3
25006	239.94	0	0	26.362	-6215.3
25007	239.89	0	0	26.362	-6215.3
25008	239.99	0	0	26.362	-6215.3
25009	239.89	0	0	26.362	-6215.3
25010	240.01	0	0	26.362	-6215.3
25011	240.04	0	0	26.362	-6215.3
25012	239.96	0	0	26.362	-6215.3
25013	239.95	0	0	26.362	-6215.3
25014	239.99	0	0	26.362	-6215.3
25015	240.01	0	0	26.362	-6215.3
25016	240.01	0	0	26.362	-6215.3
25017	240.09	0	0	26.362	-6215.3
25018	240.02	0	0	26.362	-6215.3
25019	240.13	0	0	26.362	-6215.3
25020	240.14	0	0	26.362	-6215.3
25021	240.11	0	0	26.362	-6215.3
25022	240.09	0	0	26.362	-6215.3
25023	240.13	0	0	26.362	-6215.3
25024	240.04	0	0	26.362	-6215.3
25025	240.09	0	0	26.362	-6215.3
25026	240.1	0	0	26.362	-6215.3
25027	240.11	0	0	26.362	-6215.3
25028	240.06	0	0	26.362	-6215.3
25029	239.98	0	0	26.362	-6215.3
25030	240.17	0	0	26.362	-6215.3
25031	240.13	0	0	26.362	-6215.3
25032	240.06	0	0	26.362	-6215.3
25033	240.07	0	0	26.362	-6215.3
25034	240.1	0	0	26.362	-6215.3
25035	240.05	0	0	26.362	-6215.3
25036	240.09	0	0	26.362	-6215.3
25037	240.08	0	0	26.362	-6215.3
25038	240.12	0	0	26.362	-6215.3
25039	240.04	0	0	26.362	-6215.3
25040	240.12	0	0	26.362	-6215.3
25041	240.16	0	0	26.362	-6215.3
25042	240.13	0	0	26.362	-6215.3
25043	240.13	0	0	26.362	-6215.3
25044	240.12	0	0	26.362	-6215.3
25045	240.11	0	0	26.362	-6215.3
25046	240.1	0	0	26.362	-6215.3
25047	240.12	0	0	26.362	-6215.3
25048	240.17	0	0	26.362	-6215.3
25049	240.21	0	0	26.362	-6215.3

25050	240.13	0	0	26.362	-6215.3
25051	240.06	0	0	26.362	-6215.3
25052	240.01	0	0	26.362	-6215.3
25053	240.11	0	0	26.362	-6215.3
25054	240.05	0	0	26.362	-6215.3
25055	240.05	0	0	26.362	-6215.3
25056	240.05	0	0	26.362	-6215.3
25057	239.97	0	0	26.362	-6215.3
25058	240.01	0	0	26.362	-6215.3
25059	240.02	0	0	26.362	-6215.3
25060	239.94	0	0	26.362	-6215.3
25061	239.97	0	0	26.362	-6215.3
25062	240.05	0	0	26.362	-6215.3
25063	239.98	0	0	26.362	-6215.3
25064	239.9	0	0	26.362	-6215.3
25065	240.01	0	0	26.362	-6215.3
25066	239.94	0	0	26.362	-6215.3
25067	239.98	0	0	26.362	-6215.3
25068	240.01	0	0	26.362	-6215.3
25069	240.03	0	0	26.362	-6215.3
25070	239.96	0	0	26.362	-6215.3
25071	240.03	0	0	26.362	-6215.3
25072	240	0	0	26.362	-6215.3
25073	239.99	0	0	26.362	-6215.3
25074	240.06	0	0	26.362	-6215.3
25075	239.92	0	0	26.362	-6215.3
25076	239.89	0	0	26.362	-6215.3
25077	239.92	0	0	26.362	-6215.3
25078	239.89	0	0	26.362	-6215.3
25079	239.84	0	0	26.362	-6215.3
25080	239.86	0	0	26.362	-6215.3
25081	239.81	0	0	26.362	-6215.3
25082	239.86	0	0	26.362	-6215.3
25083	239.89	0	0	26.362	-6215.3
25084	239.84	0	0	26.362	-6215.3
25085	239.88	0	0	26.362	-6215.3
25086	239.71	0	0	26.362	-6215.3
25087	239.86	0	0	26.362	-6215.3
25088	239.89	0	0	26.362	-6215.3
25089	239.91	0	0	26.362	-6215.3
25090	239.86	0	0	26.362	-6215.3
25091	239.97	0	0	26.362	-6215.3
25092	239.97	0	0	26.362	-6215.3
25093	239.98	0	0	26.362	-6215.3
25094	239.96	0	0	26.362	-6215.3
25095	240.04	0	0	26.362	-6215.3
25096	240.07	0	0	26.362	-6215.3

25097	240.06	0	0	26.362	-6215.3
25098	240	0	0	26.362	-6215.3
25099	240.01	0	0	26.362	-6215.3
25100	240.09	0	0	26.362	-6215.3
25101	239.95	0	0	26.362	-6215.3
25102	239.91	0	0	26.362	-6215.3
25103	240.06	0	0	26.362	-6215.3
25104	240.02	0	0	26.362	-6215.3
25105	239.98	0	0	26.362	-6215.3
25106	240	0	0	26.362	-6215.3
25107	239.94	0	0	26.362	-6215.3
25108	239.91	0	0	26.362	-6215.3
25109	239.94	0	0	26.362	-6215.3
25110	239.86	0	0	26.362	-6215.3
25111	239.96	0	0	26.362	-6215.3
25112	240.06	0	0	26.362	-6215.3
25113	240.01	0	0	26.362	-6215.3
25114	240.04	0	0	26.362	-6215.3
25115	240.04	0	0	26.362	-6215.3
25116	239.95	0	0	26.362	-6215.3
25117	239.97	0	0	26.362	-6215.3
25118	240.02	0	0	26.362	-6215.3
25119	239.97	0	0	26.362	-6215.3
25120	239.9	0	0	26.362	-6215.3
25121	239.95	0	0	26.362	-6215.3
25122	239.94	0	0	26.362	-6215.3
25123	239.9	0	0	26.362	-6215.3
25124	239.99	0	0	26.362	-6215.3
25125	239.9	0	0	26.362	-6215.3
25126	239.81	0	0	26.362	-6215.3
25127	239.95	0	0	26.362	-6215.3
25128	239.9	0	0	26.362	-6215.3
25129	239.91	0	0	26.362	-6215.3
25130	239.92	0	0	26.362	-6215.3
25131	239.84	0	0	26.362	-6215.3
25132	239.82	0	0	26.362	-6215.3
25133	239.79	0	0	26.362	-6215.3
25134	239.84	0	0	26.362	-6215.3
25135	239.85	0	0	26.362	-6215.3
25136	239.86	0	0	26.362	-6215.3
25137	239.87	0	0	26.362	-6215.3
25138	239.79	0	0	26.362	-6215.3
25139	239.78	0	0	26.362	-6215.3
25140	239.82	0	0	26.362	-6215.3
25141	239.7	0	0	26.362	-6215.3
25142	239.75	0	0	26.362	-6215.3
25143	239.82	0	0	26.362	-6215.3

25144	239.69	0	0	26.362	-6215.3
25145	239.82	0	0	26.362	-6215.3
25146	239.9	0	0	26.362	-6215.3
25147	239.76	0	0	26.362	-6215.3
25148	239.81	0	0	26.362	-6215.3
25149	239.85	0	0	26.362	-6215.3
25150	239.72	0	0	26.362	-6215.3
25151	239.79	0	0	26.362	-6215.3
25152	239.83	0	0	26.362	-6215.3
25153	239.69	0	0	26.362	-6215.3
25154	239.88	0	0	26.362	-6215.3
25155	239.75	0	0	26.362	-6215.3
25156	239.7	0	0	26.362	-6215.3
25157	239.79	0	0	26.362	-6215.3
25158	239.71	0	0	26.362	-6215.3
25159	239.63	0	0	26.362	-6215.3
25160	239.77	0	0	26.362	-6215.3
25161	239.75	0	0	26.362	-6215.3
25162	239.67	0	0	26.362	-6215.3
25163	239.79	0	0	26.362	-6215.3
25164	239.74	0	0	26.362	-6215.3
25165	239.7	0	0	26.362	-6215.3
25166	239.84	0	0	26.362	-6215.3
25167	239.78	0	0	26.362	-6215.3
25168	239.72	0	0	26.362	-6215.3
25169	239.94	0	0	26.362	-6215.3
25170	239.81	0	0	26.362	-6215.3
25171	239.77	0	0	26.362	-6215.3
25172	239.97	0	0	26.362	-6215.3
25173	239.86	0	0	26.362	-6215.3
25174	239.23	0	0	26.362	-6215.3
25175	239.85	0	0	26.362	-6215.3
25176	239.79	0	0	26.362	-6215.3
25177	239.78	0	0	26.362	-6215.3
25178	239.92	0	0	26.362	-6215.3
25179	239.68	0	0	26.362	-6215.3
25180	239.68	0	0	26.362	-6215.3
25181	239.83	0	0	26.362	-6215.3
25182	239.73	0	0	26.362	-6215.3
25183	239.76	0	0	26.362	-6215.3
25184	239.78	0	0	26.362	-6215.3
25185	239.77	0	0	26.362	-6215.3
25186	239.77	0	0	26.362	-6215.3
25187	239.88	0	0	26.362	-6215.3
25188	239.77	0	0	26.362	-6215.3
25189	239.77	0	0	26.362	-6215.3
25190	239.9	0	0	26.362	-6215.3

25191	239.79	0	0	26.362	-6215.3
25192	239.79	0	0	26.362	-6215.3
25193	239.93	0	0	26.362	-6215.3
25194	239.75	0	0	26.362	-6215.3
25195	239.76	0	0	26.362	-6215.3
25196	239.85	0	0	26.362	-6215.3
25197	239.75	0	0	26.362	-6215.3
25198	239.75	0	0	26.362	-6215.3
25199	239.89	0	0	26.362	-6215.3
25200	239.76	0	0	26.362	-6215.3
25201	239.84	0	0	26.362	-6215.3
25202	239.93	0	0	26.362	-6215.3
25203	239.99	0	0	26.362	-6215.3
25204	238.78	0	0	26.362	-6215.3
25205	238.43	0	0	26.362	-6215.3
25206	239.9	0	0	26.362	-6215.3
25207	240.17	0	0	26.362	-6215.3
25208	240.13	0	0	26.362	-6215.3
25209	240.18	0	0	26.362	-6215.3
25210	240.12	0	0	26.362	-6215.3
25211	240.18	0	0	26.362	-6215.3
25212	240.21	0	0	26.362	-6215.3
25213	240.2	0	0	26.362	-6215.3
25214	240.21	0	0	26.362	-6215.3
25215	240.21	0	0	26.362	-6215.3
25216	240.26	0	0	26.362	-6215.3
25217	240.22	0	0	26.362	-6215.3
25218	240.19	0	0	26.362	-6215.3
25219	240.23	0	0	26.362	-6215.3
25220	240.18	0	0	26.362	-6215.3
25221	240.07	0	0	26.362	-6215.3
25222	239.96	0	0	26.362	-6215.3
25223	239.96	0	0	26.362	-6215.3
25224	239.97	0	0	26.362	-6215.3
25225	240.01	0	0	26.362	-6215.3
25226	240	0	0	26.362	-6215.3
25227	240	0	0	26.362	-6215.3
25228	240.03	0	0	26.362	-6215.3
25229	239.99	0	0	26.362	-6215.3
25230	240.03	0	0	26.362	-6215.3
25231	240.05	0	0	26.362	-6215.3
25232	240.01	0	0	26.362	-6215.3
25233	240.07	0	0	26.362	-6215.3
25234	240.01	0	0	26.362	-6215.3
25235	240.07	0	0	26.362	-6215.3
25236	240	0	0	26.362	-6215.3
25237	239.97	0	0	26.362	-6215.3

25238	239.95	0	0	26.362	-6215.3
25239	239.95	0	0	26.362	-6215.3
25240	239.94	0	0	26.362	-6215.3
25241	239.94	0	0	26.362	-6215.3
25242	239.9	0	0	26.362	-6215.3
25243	239.92	0	0	26.362	-6215.3
25244	239.93	0	0	26.362	-6215.3
25245	239.89	0	0	26.362	-6215.3
25246	239.88	0	0	26.362	-6215.3
25247	239.83	0	0	26.362	-6215.3
25248	239.97	0	0	26.362	-6215.3
25249	239.91	0	0	26.362	-6215.3
25250	239.82	0	0	26.362	-6215.3
25251	239.92	0	0	26.362	-6215.3
25252	239.91	0	0	26.362	-6215.3
25253	239.95	0	0	26.362	-6215.3
25254	239.96	0	0	26.362	-6215.3
25255	239.95	0	0	26.362	-6215.3
25256	239.96	0	0	26.362	-6215.3
25257	240.01	0	0	26.362	-6215.3
25258	240	0	0	26.362	-6215.3
25259	239.99	0	0	26.362	-6215.3
25260	239.94	0	0	26.362	-6215.3
25261	239.94	0	0	26.362	-6215.3
25262	239.88	0	0	26.362	-6215.3
25263	239.94	0	0	26.362	-6215.3
25264	239.93	0	0	26.362	-6215.3
25265	239.89	0	0	26.362	-6215.3
25266	239.92	0	0	26.362	-6215.3
25267	239.97	0	0	26.362	-6215.3
25268	239.93	0	0	26.362	-6215.3
25269	239.96	0	0	26.362	-6215.3
25270	240	0	0	26.362	-6215.3
25271	240.01	0	0	26.362	-6215.3
25272	239.98	0	0	26.362	-6215.3
25273	240.03	0	0	26.362	-6215.3
25274	240.06	0	0	26.362	-6215.3
25275	240.05	0	0	26.362	-6215.3
25276	240.09	0	0	26.362	-6215.3
25277	240.1	0	0	26.362	-6215.3
25278	240.05	0	0	26.362	-6215.3
25279	240.04	0	0	26.362	-6215.3
25280	240.04	0	0	26.362	-6215.3
25281	240.02	0	0	26.362	-6215.3
25282	240.04	0	0	26.362	-6215.3
25283	240.15	0	0	26.362	-6215.3
25284	240.09	0	0	26.362	-6215.3

25285	240.1	0	0	26.362	-6215.3
25286	240.11	0	0	26.362	-6215.3
25287	240.16	0	0	26.362	-6215.3
25288	240.11	0	0	26.362	-6215.3
25289	240.15	0	0	26.362	-6215.3
25290	240.16	0	0	26.362	-6215.3
25291	240.22	0	0	26.362	-6215.3
25292	240.24	0	0	26.362	-6215.3
25293	240.2	0	0	26.362	-6215.3
25294	240.24	0	0	26.362	-6215.3
25295	240.26	0	0	26.362	-6215.3
25296	240.25	0	0	26.362	-6215.3
25297	240.26	0	0	26.362	-6215.3
25298	240.31	0	0	26.362	-6215.3
25299	240.31	0	0	26.362	-6215.3
25300	240.29	0	0	26.362	-6215.3
25301	240.27	0	0	26.362	-6215.3
25302	240.29	0	0	26.362	-6215.3
25303	240.35	0	0	26.362	-6215.3
25304	240.26	0	0	26.362	-6215.3
25305	240.14	0	0	26.362	-6215.3
25306	240.18	0	0	26.362	-6215.3
25307	240.27	0	0	26.362	-6215.3
25308	240.37	0	0	26.362	-6215.3
25309	240.31	0	0	26.362	-6215.3
25310	240.28	0	0	26.362	-6215.3
25311	240.34	0	0	26.362	-6215.3
25312	240.39	0	0	26.362	-6215.3
25313	240.41	0	0	26.362	-6215.3
25314	240.37	0	0	26.362	-6215.3
25315	240.39	0	0	26.362	-6215.3
25316	240.4	0	0	26.362	-6215.3
25317	240.35	0	0	26.362	-6215.3
25318	240.37	0	0	26.362	-6215.3
25319	240.37	0	0	26.362	-6215.3
25320	240.34	0	0	26.362	-6215.3
25321	240.37	0	0	26.362	-6215.3
25322	240.36	0	0	26.362	-6215.3
25323	240.4	0	0	26.362	-6215.3
25324	240.35	0	0	26.362	-6215.3
25325	240.33	0	0	26.362	-6215.3
25326	240.33	0	0	26.362	-6215.3
25327	240.36	0	0	26.362	-6215.3
25328	240.35	0	0	26.362	-6215.3
25329	240.37	0	0	26.362	-6215.3
25330	240.34	0	0	26.362	-6215.3
25331	240.38	0	0	26.362	-6215.3

25332	240.38	0	0	26.362	-6215.3
25333	240.44	0	0	26.362	-6215.3
25334	240.46	0	0	26.362	-6215.3
25335	240.44	0	0	26.362	-6215.3
25336	240.45	0	0	26.362	-6215.3
25337	240.46	0	0	26.362	-6215.3
25338	240.47	0	0	26.362	-6215.3
25339	240.47	0	0	26.362	-6215.3
25340	240.51	0	0	26.362	-6215.3
25341	240.41	0	0	26.362	-6215.3
25342	240.48	0	0	26.362	-6215.3
25343	240.44	0	0	26.362	-6215.3
25344	240.44	0	0	26.362	-6215.3
25345	240.49	0	0	26.362	-6215.3
25346	240.42	0	0	26.362	-6215.3
25347	240.4	0	0	26.362	-6215.3
25348	240.43	0	0	26.362	-6215.3
25349	240.41	0	0	26.362	-6215.3
25350	240.42	0	0	26.362	-6215.3
25351	240.43	0	0	26.362	-6215.3
25352	240.43	0	0	26.362	-6215.3
25353	240.48	0	0	26.362	-6215.3
25354	240.47	0	0	26.362	-6215.3
25355	240.44	0	0	26.362	-6215.3
25356	240.43	0	0	26.362	-6215.3
25357	240.46	0	0	26.362	-6215.3
25358	240.51	0	0	26.362	-6215.3
25359	240.43	0	0	26.362	-6215.3
25360	240.47	0	0	26.362	-6215.3
25361	240.4	0	0	26.362	-6215.3
25362	240.41	0	0	26.362	-6215.3
25363	240.33	0	0	26.362	-6215.3
25364	240.41	0	0	26.362	-6215.3
25365	240.36	0	0	26.362	-6215.3
25366	240.36	0	0	26.362	-6215.3
25367	240.34	0	0	26.362	-6215.3
25368	240.39	0	0	26.362	-6215.3
25369	240.35	0	0	26.362	-6215.3
25370	240.23	0	0	26.362	-6215.3
25371	240.28	0	0	26.362	-6215.3
25372	240.3	0	0	26.362	-6215.3
25373	240.25	0	0	26.362	-6215.3
25374	240.33	0	0	26.362	-6215.3
25375	240.36	0	0	26.362	-6215.3
25376	240.26	0	0	26.362	-6215.3
25377	240.28	0	0	26.362	-6215.3
25378	240.32	0	0	26.362	-6215.3

25379	239.6	0	0	26.362	-6215.3
25380	240.01	0	0	26.362	-6215.3
25381	240.02	0	0	26.362	-6215.3
25382	239.96	0	0	26.362	-6215.3
25383	239.99	0	0	26.362	-6215.3
25384	240	0	0	26.362	-6215.3
25385	239.96	0	0	26.362	-6215.3
25386	239.96	0	0	26.362	-6215.3
25387	240.02	0	0	26.362	-6215.3
25388	239.94	0	0	26.362	-6215.3
25389	239.97	0	0	26.362	-6215.3
25390	239.96	0	0	26.362	-6215.3
25391	239.97	0	0	26.362	-6215.3
25392	239.95	0	0	26.362	-6215.3
25393	239.96	0	0	26.362	-6215.3
25394	239.94	0	0	26.362	-6215.3
25395	240.03	0	0	26.362	-6215.3
25396	240.04	0	0	26.362	-6215.3
25397	239.96	0	0	26.362	-6215.3
25398	239.98	0	0	26.362	-6215.3
25399	240.04	0	0	26.362	-6215.3
25400	240	0	0	26.362	-6215.3
25401	239.99	0	0	26.362	-6215.3
25402	240.21	0	0	26.362	-6215.3
25403	240.19	0	0	26.362	-6215.3
25404	240.17	0	0	26.362	-6215.3
25405	240.18	0	0	26.362	-6215.3
25406	240.12	0	0	26.362	-6215.3
25407	240.09	0	0	26.362	-6215.3
25408	240.12	0	0	26.362	-6215.3
25409	240.13	0	0	26.362	-6215.3
25410	240.14	0	0	26.362	-6215.3
25411	240.13	0	0	26.362	-6215.3
25412	240.16	0	0	26.362	-6215.3
25413	240.14	0	0	26.362	-6215.3
25414	240.12	0	0	26.362	-6215.3
25415	240.11	0	0	26.362	-6215.3
25416	240.14	0	0	26.362	-6215.3
25417	240.15	0	0	26.362	-6215.3
25418	240.15	0	0	26.362	-6215.3
25419	240.15	0	0	26.362	-6215.3
25420	240.16	0	0	26.362	-6215.3
25421	240.17	0	0	26.362	-6215.3
25422	240.12	0	0	26.362	-6215.3
25423	240.04	0	0	26.362	-6215.3
25424	240.15	0	0	26.362	-6215.3
25425	240.21	0	0	26.362	-6215.3

25426	240.13	0	0	26.362	-6215.3
25427	240.1	0	0	26.362	-6215.3
25428	240.17	0	0	26.362	-6215.3
25429	240.17	0	0	26.362	-6215.3
25430	240.1	0	0	26.362	-6215.3
25431	240.06	0	0	26.362	-6215.3
25432	240.19	0	0	26.362	-6215.3
25433	240.19	0	0	26.362	-6215.3
25434	240.19	0	0	26.362	-6215.3
25435	240.24	0	0	26.362	-6215.3
25436	240.22	0	0	26.362	-6215.3
25437	240.24	0	0	26.362	-6215.3
25438	240.25	0	0	26.362	-6215.3
25439	240.24	0	0	26.362	-6215.3
25440	240.22	0	0	26.362	-6215.3
25441	240.24	0	0	26.362	-6215.3
25442	240.18	0	0	26.362	-6215.3
25443	240.26	0	0	26.362	-6215.3
25444	240.23	0	0	26.362	-6215.3
25445	240.13	0	0	26.362	-6215.3
25446	240.2	0	0	26.362	-6215.3
25447	240.16	0	0	26.362	-6215.3
25448	240.21	0	0	26.362	-6215.3
25449	240.18	0	0	26.362	-6215.3
25450	240.21	0	0	26.362	-6215.3
25451	240.22	0	0	26.362	-6215.3
25452	240.22	0	0	26.362	-6215.3
25453	240.16	0	0	26.362	-6215.3
25454	240.12	0	0	26.362	-6215.3
25455	240.21	0	0	26.362	-6215.3
25456	240.18	0	0	26.362	-6215.3
25457	240.22	0	0	26.362	-6215.3
25458	240.23	0	0	26.362	-6215.3
25459	240.21	0	0	26.362	-6215.3
25460	240.23	0	0	26.362	-6215.3
25461	240.23	0	0	26.362	-6215.3
25462	240.21	0	0	26.362	-6215.3
25463	240.27	0	0	26.362	-6215.3
25464	240.19	0	0	26.362	-6215.3
25465	240.17	0	0	26.362	-6215.3
25466	240.2	0	0	26.362	-6215.3
25467	240.31	0	0	26.362	-6215.3
25468	240.39	0	0	26.362	-6215.3
25469	240.37	0	0	26.362	-6215.3
25470	240.33	0	0	26.362	-6215.3
25471	240.3	0	0	26.362	-6215.3
25472	240.25	0	0	26.362	-6215.3

25473	240.26	0	0	26.362	-6215.3
25474	240.23	0	0	26.362	-6215.3
25475	240.27	0	0	26.362	-6215.3
25476	240.27	0	0	26.362	-6215.3
25477	240.28	0	0	26.362	-6215.3
25478	240.29	0	0	26.362	-6215.3
25479	240.25	0	0	26.362	-6215.3
25480	240.26	0	0	26.362	-6215.3
25481	240.19	0	0	26.362	-6215.3
25482	240.21	0	0	26.362	-6215.3
25483	240.25	0	0	26.362	-6215.3
25484	240.25	0	0	26.362	-6215.3
25485	240.2	0	0	26.362	-6215.3
25486	240.21	0	0	26.362	-6215.3
25487	240.18	0	0	26.362	-6215.3
25488	240.13	0	0	26.362	-6215.3
25489	239.9	0	0	26.362	-6215.3
25490	240.04	0	0	26.362	-6215.3
25491	240.1	0	0	26.362	-6215.3
25492	240.08	0	0	26.362	-6215.3
25493	240.13	0	0	26.362	-6215.3
25494	240.1	0	0	26.362	-6215.3
25495	240.02	0	0	26.362	-6215.3
25496	239.98	0	0	26.362	-6215.3
25497	239.94	0	0	26.362	-6215.3
25498	239.97	0	0	26.362	-6215.3
25499	240.07	0	0	26.362	-6215.3
25500	240.14	0	0	26.362	-6215.3
25501	240.13	0	0	26.362	-6215.3
25502	240.12	0	0	26.362	-6215.3
25503	240.16	0	0	26.362	-6215.3
25504	240.13	0	0	26.362	-6215.3
25505	240.17	0	0	26.362	-6215.3
25506	240.13	0	0	26.362	-6215.3
25507	240.23	0	0	26.362	-6215.3
25508	240.07	0	0	26.362	-6215.3
25509	240.02	0	0	26.362	-6215.3
25510	240.1	0	0	26.362	-6215.3
25511	240.14	0	0	26.362	-6215.3
25512	240.1	0	0	26.362	-6215.3
25513	240.2	0	0	26.362	-6215.3
25514	240.16	0	0	26.362	-6215.3
25515	240.09	0	0	26.362	-6215.3
25516	240.09	0	0	26.362	-6215.3
25517	240.07	0	0	26.362	-6215.3
25518	240.02	0	0	26.362	-6215.3
25519	240.05	0	0	26.362	-6215.3

25520	240.11	0	0	26.362	-6215.3
25521	240.08	0	0	26.362	-6215.3
25522	240.12	0	0	26.362	-6215.3
25523	240.1	0	0	26.362	-6215.3
25524	240.07	0	0	26.362	-6215.3
25525	240.07	0	0	26.362	-6215.3
25526	240.13	0	0	26.362	-6215.3
25527	240.13	0	0	26.362	-6215.3
25528	240.11	0	0	26.362	-6215.3
25529	240.13	0	0	26.362	-6215.3
25530	240.22	0	0	26.362	-6215.3
25531	240.25	0	0	26.362	-6215.3
25532	240.19	0	0	26.362	-6215.3
25533	240.14	0	0	26.362	-6215.3
25534	240.15	0	0	26.362	-6215.3
25535	240.12	0	0	26.362	-6215.3
25536	240.06	0	0	26.362	-6215.3
25537	240.07	0	0	26.362	-6215.3
25538	240.12	0	0	26.362	-6215.3
25539	240.11	0	0	26.362	-6215.3
25540	240.16	0	0	26.362	-6215.3
25541	240.15	0	0	26.362	-6215.3
25542	240.13	0	0	26.362	-6215.3
25543	240.15	0	0	26.362	-6215.3
25544	240.11	0	0	26.362	-6215.3
25545	240.22	0	0	26.362	-6215.3
25546	240.17	0	0	26.362	-6215.3
25547	240.2	0	0	26.362	-6215.3
25548	240.21	0	0	26.362	-6215.3
25549	240.17	0	0	26.362	-6215.3
25550	240.19	0	0	26.362	-6215.3
25551	240.19	0	0	26.362	-6215.3
25552	240.23	0	0	26.362	-6215.3
25553	240.21	0	0	26.362	-6215.3
25554	240.21	0	0	26.362	-6215.3
25555	240.2	0	0	26.362	-6215.3
25556	240.18	0	0	26.362	-6215.3
25557	240.14	0	0	26.362	-6215.3
25558	240.19	0	0	26.362	-6215.3
25559	240.16	0	0	26.362	-6215.3
25560	240.16	0	0	26.362	-6215.3
25561	240.14	0	0	26.362	-6215.3
25562	240.22	0	0	26.362	-6215.3
25563	240.24	0	0	26.362	-6215.3
25564	240.48	0	0	26.362	-6215.3
25565	240.42	0	0	26.362	-6215.3
25566	240.41	0	0	26.362	-6215.3

25567	240.48	0	0	26.362	-6215.3
25568	240.39	0	0	26.362	-6215.3
25569	240.42	0	0	26.362	-6215.3
25570	240.45	0	0	26.362	-6215.3
25571	240.44	0	0	26.362	-6215.3
25572	240.41	0	0	26.362	-6215.3
25573	240.41	0	0	26.362	-6215.3
25574	240.4	0	0	26.362	-6215.3
25575	240.38	0	0	26.362	-6215.3
25576	240.43	0	0	26.362	-6215.3
25577	240.45	0	0	26.362	-6215.3
25578	240.38	0	0	26.362	-6215.3
25579	240.42	0	0	26.362	-6215.3
25580	240.4	0	0	26.362	-6215.3
25581	239.63	0	0	26.362	-6215.3
25582	240.15	0	0	26.362	-6215.3
25583	240.34	0	0	26.362	-6215.3
25584	240.29	0	0	26.362	-6215.3
25585	240.28	0	0	26.362	-6215.3
25586	240.14	0	0	26.362	-6215.3
25587	240.25	0	0	26.362	-6215.3
25588	240.23	0	0	26.362	-6215.3
25589	240.2	0	0	26.362	-6215.3
25590	240.17	0	0	26.362	-6215.3
25591	240.21	0	0	26.362	-6215.3
25592	240.19	0	0	26.362	-6215.3
25593	240.14	0	0	26.362	-6215.3
25594	240.14	0	0	26.362	-6215.3
25595	240.18	0	0	26.362	-6215.3
25596	240.19	0	0	26.362	-6215.3
25597	240.22	0	0	26.362	-6215.3
25598	240.23	0	0	26.362	-6215.3
25599	240.2	0	0	26.362	-6215.3
25600	240.3	0	0	26.362	-6215.3
25601	240.25	0	0	26.362	-6215.3
25602	240.26	0	0	26.362	-6215.3
25603	240.31	0	0	26.362	-6215.3
25604	240.39	0	0	26.362	-6215.3
25605	240.32	0	0	26.362	-6215.3
25606	240.38	0	0	26.362	-6215.3
25607	240.15	0	0	26.362	-6215.3
25608	240.31	0	0	26.362	-6215.3
25609	240.33	0	0	26.362	-6215.3
25610	240.35	0	0	26.362	-6215.3
25611	240.4	0	0	26.362	-6215.3
25612	240.38	0	0	26.362	-6215.3
25613	240.3	0	0	26.362	-6215.3

25614	240.14	0	0	26.362	-6215.3
25615	240.24	0	0	26.362	-6215.3
25616	240.19	0	0	26.362	-6215.3
25617	240.11	0	0	26.362	-6215.3
25618	240.2	0	0	26.362	-6215.3
25619	240.21	0	0	26.362	-6215.3
25620	240.12	0	0	26.362	-6215.3
25621	240.22	0	0	26.362	-6215.3
25622	240.17	0	0	26.362	-6215.3
25623	240.17	0	0	26.362	-6215.3
25624	240.17	0	0	26.362	-6215.3
25625	240.17	0	0	26.362	-6215.3
25626	240.21	0	0	26.362	-6215.3
25627	240.23	0	0	26.362	-6215.3
25628	240.27	0	0	26.362	-6215.3
25629	240.31	0	0	26.362	-6215.3
25630	240.29	0	0	26.362	-6215.3
25631	240.28	0	0	26.362	-6215.3
25632	240.37	0	0	26.362	-6215.3
25633	240.26	0	0	26.362	-6215.3
25634	240.23	0	0	26.362	-6215.3
25635	240.22	0	0	26.362	-6215.3
25636	240.2	0	0	26.362	-6215.3
25637	240.23	0	0	26.362	-6215.3
25638	240.15	0	0	26.362	-6215.3
25639	240.16	0	0	26.362	-6215.3
25640	240.18	0	0	26.362	-6215.3
25641	240.27	0	0	26.362	-6215.3
25642	240.21	0	0	26.362	-6215.3
25643	240.23	0	0	26.362	-6215.3
25644	240.2	0	0	26.362	-6215.3
25645	240.18	0	0	26.362	-6215.3
25646	240.19	0	0	26.362	-6215.3
25647	240.21	0	0	26.362	-6215.3
25648	240.23	0	0	26.362	-6215.3
25649	240.2	0	0	26.362	-6215.3
25650	240.18	0	0	26.362	-6215.3
25651	240.23	0	0	26.362	-6215.3
25652	240.15	0	0	26.362	-6215.3
25653	240.1	0	0	26.362	-6215.3
25654	240.24	0	0	26.362	-6215.3
25655	240.14	0	0	26.362	-6215.3
25656	240.12	0	0	26.362	-6215.3
25657	240.12	0	0	26.362	-6215.3
25658	240.13	0	0	26.362	-6215.3
25659	240.15	0	0	26.362	-6215.3
25660	240.1	0	0	26.362	-6215.3

25661	240.09	0	0	26.362	-6215.3
25662	240.13	0	0	26.362	-6215.3
25663	240.05	0	0	26.362	-6215.3
25664	240.04	0	0	26.362	-6215.3
25665	240.11	0	0	26.362	-6215.3
25666	240.11	0	0	26.362	-6215.3
25667	240.01	0	0	26.362	-6215.3
25668	240.04	0	0	26.362	-6215.3
25669	240.07	0	0	26.362	-6215.3
25670	240.03	0	0	26.362	-6215.3
25671	240.08	0	0	26.362	-6215.3
25672	240.08	0	0	26.362	-6215.3
25673	240.04	0	0	26.362	-6215.3
25674	240.08	0	0	26.362	-6215.3
25675	239.99	0	0	26.362	-6215.3
25676	240.07	0	0	26.362	-6215.3
25677	240.01	0	0	26.362	-6215.3
25678	240.16	0	0	26.362	-6215.3
25679	240.18	0	0	26.362	-6215.3
25680	240.09	0	0	26.362	-6215.3
25681	240.06	0	0	26.362	-6215.3
25682	240.05	0	0	26.362	-6215.3
25683	240.11	0	0	26.362	-6215.3
25684	240.03	0	0	26.362	-6215.3
25685	240.06	0	0	26.362	-6215.3
25686	240.02	0	0	26.362	-6215.3
25687	240.07	0	0	26.362	-6215.3
25688	240.22	0	0	26.362	-6215.3
25689	240.22	0	0	26.362	-6215.3
25690	240.21	0	0	26.362	-6215.3
25691	240.23	0	0	26.362	-6215.3
25692	240.19	0	0	26.362	-6215.3
25693	240.08	0	0	26.362	-6215.3
25694	240.26	0	0	26.362	-6215.3
25695	240.24	0	0	26.362	-6215.3
25696	240.2	0	0	26.362	-6215.3
25697	240.18	0	0	26.362	-6215.3
25698	240.26	0	0	26.362	-6215.3
25699	240.29	0	0	26.362	-6215.3
25700	240.25	0	0	26.362	-6215.3
25701	240.26	0	0	26.362	-6215.3
25702	240.29	0	0	26.362	-6215.3
25703	240.25	0	0	26.362	-6215.3
25704	240.25	0	0	26.362	-6215.3
25705	240.26	0	0	26.362	-6215.3
25706	240.26	0	0	26.362	-6215.3
25707	240.35	0	0	26.362	-6215.3

25708	240.36	0	0	26.362	-6215.3
25709	240.25	0	0	26.362	-6215.3
25710	240.29	0	0	26.362	-6215.3
25711	240.36	0	0	26.362	-6215.3
25712	240.34	0	0	26.362	-6215.3
25713	240.35	0	0	26.362	-6215.3
25714	240.3	0	0	26.362	-6215.3
25715	240.34	0	0	26.362	-6215.3
25716	240.34	0	0	26.362	-6215.3
25717	240.66	0	0	26.362	-6215.3
25718	240.64	0	0	26.362	-6215.3
25719	240.71	0	0	26.362	-6215.3
25720	240.7	0	0	26.362	-6215.3
25721	240.61	0	0	26.362	-6215.3
25722	240.67	0	0	26.362	-6215.3
25723	240.71	0	0	26.362	-6215.3
25724	240.68	0	0	26.362	-6215.3
25725	240.76	0	0	26.362	-6215.3
25726	240.62	0	0	26.362	-6215.3
25727	240.66	0	0	26.362	-6215.3
25728	240.65	0	0	26.362	-6215.3
25729	240.69	0	0	26.362	-6215.3
25730	240.7	0	0	26.362	-6215.3
25731	240.62	0	0	26.362	-6215.3
25732	240.6	0	0	26.362	-6215.3
25733	240.67	0	0	26.362	-6215.3
25734	240.66	0	0	26.362	-6215.3
25735	240.64	0	0	26.362	-6215.3
25736	240.67	0	0	26.362	-6215.3
25737	240.57	0	0	26.362	-6215.3
25738	240.52	0	0	26.362	-6215.3
25739	240.53	0	0	26.362	-6215.3
25740	240.49	0	0	26.362	-6215.3
25741	240.53	0	0	26.362	-6215.3
25742	240.46	0	0	26.362	-6215.3
25743	240.45	0	0	26.362	-6215.3
25744	240.42	0	0	26.362	-6215.3
25745	240.41	0	0	26.362	-6215.3
25746	240.33	0	0	26.362	-6215.3
25747	240.36	0	0	26.362	-6215.3
25748	240.41	0	0	26.362	-6215.3
25749	240.38	0	0	26.362	-6215.3
25750	240.38	0	0	26.362	-6215.3
25751	240.44	0	0	26.362	-6215.3
25752	240.37	0	0	26.362	-6215.3
25753	240.47	0	0	26.362	-6215.3
25754	240.44	0	0	26.362	-6215.3

25755	240.43	0	0	26.362	-6215.3
25756	240.53	0	0	26.362	-6215.3
25757	240.52	0	0	26.362	-6215.3
25758	240.44	0	0	26.362	-6215.3
25759	240.39	0	0	26.362	-6215.3
25760	240.51	0	0	26.362	-6215.3
25761	240.4	0	0	26.362	-6215.3
25762	240.42	0	0	26.362	-6215.3
25763	240.35	0	0	26.362	-6215.3
25764	240.39	0	0	26.362	-6215.3
25765	240.38	0	0	26.362	-6215.3
25766	240.39	0	0	26.362	-6215.3
25767	240.41	0	0	26.362	-6215.3
25768	240.4	0	0	26.362	-6215.3
25769	240.45	0	0	26.362	-6215.3
25770	240.42	0	0	26.362	-6215.3
25771	240.39	0	0	26.362	-6215.3
25772	240.5	0	0	26.362	-6215.3
25773	240.52	0	0	26.362	-6215.3
25774	240.48	0	0	26.362	-6215.3
25775	240.46	0	0	26.362	-6215.3
25776	240.48	0	0	26.362	-6215.3
25777	240.36	0	0	26.362	-6215.3
25778	240.44	0	0	26.362	-6215.3
25779	240.47	0	0	26.362	-6215.3
25780	240.39	0	0	26.362	-6215.3
25781	240.39	0	0	26.362	-6215.3
25782	240.4	0	0	26.362	-6215.3
25783	240.45	0	0	26.362	-6215.3
25784	240.45	0	0	26.362	-6215.3
25785	240.46	0	0	26.362	-6215.3
25786	240.5	0	0	26.362	-6215.3
25787	240.45	0	0	26.362	-6215.3
25788	240.54	0	0	26.362	-6215.3
25789	240.46	0	0	26.362	-6215.3
25790	240.49	0	0	26.362	-6215.3
25791	240.48	0	0	26.362	-6215.3
25792	240.55	0	0	26.362	-6215.3
25793	240.58	0	0	26.362	-6215.3
25794	240.55	0	0	26.362	-6215.3
25795	240.59	0	0	26.362	-6215.3
25796	240.54	0	0	26.362	-6215.3
25797	240.57	0	0	26.362	-6215.3
25798	240.56	0	0	26.362	-6215.3
25799	240.58	0	0	26.362	-6215.3
25800	240.61	0	0	26.362	-6215.3
25801	240.64	0	0	26.362	-6215.3

25802	240.63	0	0	26.362	-6215.3
25803	240.57	0	0	26.362	-6215.3
25804	240.63	0	0	26.362	-6215.3
25805	240.52	0	0	26.362	-6215.3
25806	240.57	0	0	26.362	-6215.3
25807	240.57	0	0	26.362	-6215.3
25808	240.59	0	0	26.362	-6215.3
25809	240.68	0	0	26.362	-6215.3
25810	240.63	0	0	26.362	-6215.3
25811	240.59	0	0	26.362	-6215.3
25812	240.56	0	0	26.362	-6215.3
25813	240.65	0	0	26.362	-6215.3
25814	240.61	0	0	26.362	-6215.3
25815	240.59	0	0	26.362	-6215.3
25816	240.69	0	0	26.362	-6215.3
25817	240.62	0	0	26.362	-6215.3
25818	240.71	0	0	26.362	-6215.3
25819	240.69	0	0	26.362	-6215.3
25820	240.61	0	0	26.362	-6215.3
25821	240.71	0	0	26.362	-6215.3
25822	240.71	0	0	26.362	-6215.3
25823	240.66	0	0	26.362	-6215.3
25824	240.65	0	0	26.362	-6215.3
25825	240.67	0	0	26.362	-6215.3
25826	240.63	0	0	26.362	-6215.3
25827	240.65	0	0	26.362	-6215.3
25828	240.67	0	0	26.362	-6215.3
25829	240.6	0	0	26.362	-6215.3
25830	240.72	0	0	26.362	-6215.3
25831	240.68	0	0	26.362	-6215.3
25832	240.63	0	0	26.362	-6215.3
25833	240.68	0	0	26.362	-6215.3
25834	240.68	0	0	26.362	-6215.3
25835	240.68	0	0	26.362	-6215.3
25836	240.64	0	0	26.362	-6215.3
25837	240.65	0	0	26.362	-6215.3
25838	240.64	0	0	26.362	-6215.3
25839	240.64	0	0	26.362	-6215.3
25840	240.63	0	0	26.362	-6215.3
25841	240.65	0	0	26.362	-6215.3
25842	240.62	0	0	26.362	-6215.3
25843	240.7	0	0	26.362	-6215.3
25844	240.7	0	0	26.362	-6215.3
25845	240.62	0	0	26.362	-6215.3
25846	240.74	0	0	26.362	-6215.3
25847	240.67	0	0	26.362	-6215.3
25848	240.66	0	0	26.362	-6215.3

25849	240.68	0	0	26.362	-6215.3
25850	240.59	0	0	26.362	-6215.3
25851	240.46	0	0	26.362	-6215.3
25852	240.45	0	0	26.362	-6215.3
25853	240.47	0	0	26.362	-6215.3
25854	240.49	0	0	26.362	-6215.3
25855	240.39	0	0	26.362	-6215.3
25856	240.49	0	0	26.362	-6215.3
25857	240.51	0	0	26.362	-6215.3
25858	240.58	0	0	26.362	-6215.3
25859	240.48	0	0	26.362	-6215.3
25860	240.57	0	0	26.362	-6215.3
25861	240.53	0	0	26.362	-6215.3
25862	240.46	0	0	26.362	-6215.3
25863	240.48	0	0	26.362	-6215.3
25864	240.54	0	0	26.362	-6215.3
25865	240.47	0	0	26.362	-6215.3
25866	240.41	0	0	26.362	-6215.3
25867	240.52	0	0	26.362	-6215.3
25868	240.48	0	0	26.362	-6215.3
25869	240.59	0	0	26.362	-6215.3
25870	240.46	0	0	26.362	-6215.3
25871	240.51	0	0	26.362	-6215.3
25872	240.35	0	0	26.362	-6215.3
25873	240.44	0	0	26.362	-6215.3
25874	240.41	0	0	26.362	-6215.3
25875	240.57	0	0	26.362	-6215.3
25876	240.64	0	0	26.362	-6215.3
25877	240.52	0	0	26.362	-6215.3
25878	240.65	0	0	26.362	-6215.3
25879	240.49	0	0	26.362	-6215.3
25880	240.49	0	0	26.362	-6215.3
25881	240.64	0	0	26.362	-6215.3
25882	240.56	0	0	26.362	-6215.3
25883	240.65	0	0	26.362	-6215.3
25884	240.59	0	0	26.362	-6215.3
25885	240.54	0	0	26.362	-6215.3
25886	240.55	0	0	26.362	-6215.3
25887	240.6	0	0	26.362	-6215.3
25888	240.58	0	0	26.362	-6215.3
25889	240.51	0	0	26.362	-6215.3
25890	240.59	0	0	26.362	-6215.3
25891	240.45	0	0	26.362	-6215.3
25892	240.49	0	0	26.362	-6215.3
25893	240.46	0	0	26.362	-6215.3
25894	240.41	0	0	26.362	-6215.3
25895	240.42	0	0	26.362	-6215.3

25896	240.44	0	0	26.362	-6215.3
25897	240.5	0	0	26.362	-6215.3
25898	240.52	0	0	26.362	-6215.3
25899	240.44	0	0	26.362	-6215.3
25900	240.48	0	0	26.362	-6215.3
25901	240.61	0	0	26.362	-6215.3
25902	240.47	0	0	26.362	-6215.3
25903	240.36	0	0	26.362	-6215.3
25904	240.42	0	0	26.362	-6215.3
25905	240.47	0	0	26.362	-6215.3
25906	240.5	0	0	26.362	-6215.3
25907	240.55	0	0	26.362	-6215.3
25908	240.59	0	0	26.362	-6215.3
25909	240.52	0	0	26.362	-6215.3
25910	240.56	0	0	26.362	-6215.3
25911	240.56	0	0	26.362	-6215.3
25912	240.58	0	0	26.362	-6215.3
25913	240.6	0	0	26.362	-6215.3
25914	240.6	0	0	26.362	-6215.3
25915	240.56	0	0	26.362	-6215.3
25916	240.56	0	0	26.362	-6215.3
25917	240.59	0	0	26.362	-6215.3
25918	240.56	0	0	26.362	-6215.3
25919	240.58	0	0	26.362	-6215.3
25920	240.59	0	0	26.362	-6215.3
25921	240.58	0	0	26.362	-6215.3
25922	240.5	0	0	26.362	-6215.3
25923	240.58	0	0	26.362	-6215.3
25924	240.66	0	0	26.362	-6215.3
25925	240.58	0	0	26.362	-6215.3
25926	240.59	0	0	26.362	-6215.3
25927	240.62	0	0	26.362	-6215.3
25928	240.63	0	0	26.362	-6215.3
25929	240.65	0	0	26.362	-6215.3
25930	240.62	0	0	26.362	-6215.3
25931	240.6	0	0	26.362	-6215.3
25932	240.48	0	0	26.362	-6215.3
25933	240.59	0	0	26.362	-6215.3
25934	240.56	0	0	26.362	-6215.3
25935	240.62	0	0	26.362	-6215.3
25936	240.53	0	0	26.362	-6215.3
25937	240.56	0	0	26.362	-6215.3
25938	240.68	0	0	26.362	-6215.3
25939	240.59	0	0	26.362	-6215.3
25940	240.56	0	0	26.362	-6215.3
25941	240.57	0	0	26.362	-6215.3
25942	240.46	0	0	26.362	-6215.3

25943	240.58	0	0	26.362	-6215.3
25944	240.64	0	0	26.362	-6215.3
25945	240.58	0	0	26.362	-6215.3
25946	240.68	0	0	26.362	-6215.3
25947	240.58	0	0	26.362	-6215.3
25948	240.68	0	0	26.362	-6215.3
25949	240.67	0	0	26.362	-6215.3
25950	240.66	0	0	26.362	-6215.3
25951	240.62	0	0	26.362	-6215.3
25952	240.63	0	0	26.362	-6215.3
25953	240.69	0	0	26.362	-6215.3
25954	240.12	0	0	26.362	-6215.3
25955	240.55	0	0	26.362	-6215.3
25956	240.53	0	0	26.362	-6215.3
25957	240.53	0	0	26.362	-6215.3
25958	240.53	0	0	26.362	-6215.3
25959	240.47	0	0	26.362	-6215.3
25960	240.52	0	0	26.362	-6215.3
25961	240.53	0	0	26.362	-6215.3
25962	240.53	0	0	26.362	-6215.3
25963	240.56	0	0	26.362	-6215.3
25964	240.57	0	0	26.362	-6215.3
25965	240.55	0	0	26.362	-6215.3
25966	240.53	0	0	26.362	-6215.3
25967	240.54	0	0	26.362	-6215.3
25968	240.5	0	0	26.362	-6215.3
25969	240.51	0	0	26.362	-6215.3
25970	240.57	0	0	26.362	-6215.3
25971	240.55	0	0	26.362	-6215.3
25972	240.53	0	0	26.362	-6215.3
25973	240.55	0	0	26.362	-6215.3
25974	240.6	0	0	26.362	-6215.3
25975	240.54	0	0	26.362	-6215.3
25976	240.56	0	0	26.362	-6215.3
25977	240.61	0	0	26.362	-6215.3
25978	240.59	0	0	26.362	-6215.3
25979	240.63	0	0	26.362	-6215.3
25980	240.58	0	0	26.362	-6215.3
25981	240.58	0	0	26.362	-6215.3
25982	240.63	0	0	26.362	-6215.3
25983	240.53	0	0	26.362	-6215.3
25984	240.62	0	0	26.362	-6215.3
25985	240.55	0	0	26.362	-6215.3
25986	240.49	0	0	26.362	-6215.3
25987	240.51	0	0	26.362	-6215.3
25988	240.57	0	0	26.362	-6215.3
25989	240.5	0	0	26.362	-6215.3

25990	240.56	0	0	26.362	-6215.3
25991	240.55	0	0	26.362	-6215.3
25992	240.58	0	0	26.362	-6215.3
25993	240.51	0	0	26.362	-6215.3
25994	240.54	0	0	26.362	-6215.3
25995	239.81	0	0	26.362	-6215.3
25996	240.42	0	0	26.362	-6215.3
25997	240.45	0	0	26.362	-6215.3
25998	240.43	0	0	26.362	-6215.3
25999	240.47	0	0	26.362	-6215.3
26000	240.4	0	0	26.362	-6215.3
26001	240.47	0	0	26.362	-6215.3
26002	240.49	0	0	26.362	-6215.3
26003	240.41	0	0	26.362	-6215.3
26004	240.53	0	0	26.362	-6215.3
26005	240.52	0	0	26.362	-6215.3
26006	240.46	0	0	26.362	-6215.3
26007	240.38	0	0	26.362	-6215.3
26008	240.45	0	0	26.362	-6215.3
26009	240.49	0	0	26.362	-6215.3
26010	240.4	0	0	26.362	-6215.3
26011	240.42	0	0	26.362	-6215.3
26012	240.39	0	0	26.362	-6215.3
26013	240.4	0	0	26.362	-6215.3
26014	240.49	0	0	26.362	-6215.3
26015	240.4	0	0	26.362	-6215.3
26016	240.43	0	0	26.362	-6215.3
26017	240.49	0	0	26.362	-6215.3
26018	240.35	0	0	26.362	-6215.3
26019	240.45	0	0	26.362	-6215.3
26020	240.46	0	0	26.362	-6215.3
26021	240.57	0	0	26.362	-6215.3
26022	240.55	0	0	26.362	-6215.3
26023	240.55	0	0	26.362	-6215.3
26024	240.44	0	0	26.362	-6215.3
26025	240.47	0	0	26.362	-6215.3
26026	240.54	0	0	26.362	-6215.3
26027	240.54	0	0	26.362	-6215.3
26028	240.54	0	0	26.362	-6215.3
26029	240.5	0	0	26.362	-6215.3
26030	240.5	0	0	26.362	-6215.3
26031	240.56	0	0	26.362	-6215.3
26032	240.52	0	0	26.362	-6215.3
26033	240.45	0	0	26.362	-6215.3
26034	240.53	0	0	26.362	-6215.3
26035	240.55	0	0	26.362	-6215.3
26036	240.5	0	0	26.362	-6215.3

26037	240.5	0	0	26.362	-6215.3
26038	240.46	0	0	26.362	-6215.3
26039	240.53	0	0	26.362	-6215.3
26040	240.55	0	0	26.362	-6215.3
26041	240.51	0	0	26.362	-6215.3
26042	240.49	0	0	26.362	-6215.3
26043	240.47	0	0	26.362	-6215.3
26044	240.47	0	0	26.362	-6215.3
26045	240.58	0	0	26.362	-6215.3
26046	240.56	0	0	26.362	-6215.3
26047	240.51	0	0	26.362	-6215.3
26048	240.55	0	0	26.362	-6215.3
26049	240.55	0	0	26.362	-6215.3
26050	240.5	0	0	26.362	-6215.3
26051	240.46	0	0	26.362	-6215.3
26052	240.49	0	0	26.362	-6215.3
26053	240.48	0	0	26.362	-6215.3
26054	240.5	0	0	26.362	-6215.3
26055	240.48	0	0	26.362	-6215.3
26056	240.51	0	0	26.362	-6215.3
26057	240.49	0	0	26.362	-6215.3
26058	240.39	0	0	26.362	-6215.3
26059	240.47	0	0	26.362	-6215.3
26060	240.39	0	0	26.362	-6215.3
26061	240.47	0	0	26.362	-6215.3
26062	240.5	0	0	26.362	-6215.3
26063	240.55	0	0	26.362	-6215.3
26064	240.48	0	0	26.362	-6215.3
26065	240.47	0	0	26.362	-6215.3
26066	240.56	0	0	26.362	-6215.3
26067	240.53	0	0	26.362	-6215.3
26068	240.59	0	0	26.362	-6215.3
26069	240.57	0	0	26.362	-6215.3
26070	240.55	0	0	26.362	-6215.3
26071	240.6	0	0	26.362	-6215.3
26072	240.6	0	0	26.362	-6215.3
26073	240.63	0	0	26.362	-6215.3
26074	240.6	0	0	26.362	-6215.3
26075	240.54	0	0	26.362	-6215.3
26076	240.57	0	0	26.362	-6215.3
26077	240.54	0	0	26.362	-6215.3
26078	240.61	0	0	26.362	-6215.3
26079	240.6	0	0	26.362	-6215.3
26080	240.42	0	0	26.362	-6215.3
26081	240.49	0	0	26.362	-6215.3
26082	240.5	0	0	26.362	-6215.3
26083	240.58	0	0	26.362	-6215.3

26084	240.57	0	0	26.362	-6215.3
26085	240.64	0	0	26.362	-6215.3
26086	240.69	0	0	26.362	-6215.3
26087	240.62	0	0	26.362	-6215.3
26088	240.66	0	0	26.362	-6215.3
26089	240.58	0	0	26.362	-6215.3
26090	240.57	0	0	26.362	-6215.3
26091	240.62	0	0	26.362	-6215.3
26092	240.66	0	0	26.362	-6215.3
26093	240.61	0	0	26.362	-6215.3
26094	240.63	0	0	26.362	-6215.3
26095	240.57	0	0	26.362	-6215.3
26096	240.61	0	0	26.362	-6215.3
26097	240.65	0	0	26.362	-6215.3
26098	240.59	0	0	26.362	-6215.3
26099	240.56	0	0	26.362	-6215.3
26100	240.54	0	0	26.362	-6215.3
26101	240.42	0	0	26.362	-6215.3
26102	240.5	0	0	26.362	-6215.3
26103	240.55	0	0	26.362	-6215.3
26104	240.5	0	0	26.362	-6215.3
26105	240.57	0	0	26.362	-6215.3
26106	240.69	0	0	26.362	-6215.3
26107	240.63	0	0	26.362	-6215.3
26108	240.69	0	0	26.362	-6215.3
26109	240.77	0	0	26.362	-6215.3
26110	240.7	0	0	26.362	-6215.3
26111	240.7	0	0	26.362	-6215.3
26112	240.71	0	0	26.362	-6215.3
26113	240.65	0	0	26.362	-6215.3
26114	240.62	0	0	26.362	-6215.3
26115	240.7	0	0	26.362	-6215.3
26116	240.71	0	0	26.362	-6215.3
26117	240.71	0	0	26.362	-6215.3
26118	240.65	0	0	26.362	-6215.3
26119	240.66	0	0	26.362	-6215.3
26120	240.66	0	0	26.362	-6215.3
26121	240.54	0	0	26.362	-6215.3
26122	240.61	0	0	26.362	-6215.3
26123	240.57	0	0	26.362	-6215.3
26124	240.6	0	0	26.362	-6215.3
26125	240.56	0	0	26.362	-6215.3
26126	240.67	0	0	26.362	-6215.3
26127	240.63	0	0	26.362	-6215.3
26128	240.56	0	0	26.362	-6215.3
26129	240.59	0	0	26.362	-6215.3
26130	240.67	0	0	26.362	-6215.3

26131	240.59	0	0	26.362	-6215.3
26132	240.68	0	0	26.362	-6215.3
26133	240.6	0	0	26.362	-6215.3
26134	240.6	0	0	26.362	-6215.3
26135	240.6	0	0	26.362	-6215.3
26136	240.53	0	0	26.362	-6215.3
26137	240.56	0	0	26.362	-6215.3
26138	240.6	0	0	26.362	-6215.3
26139	240.59	0	0	26.362	-6215.3
26140	240.52	0	0	26.362	-6215.3
26141	240.49	0	0	26.362	-6215.3
26142	240.56	0	0	26.362	-6215.3
26143	240.58	0	0	26.362	-6215.3
26144	240.62	0	0	26.362	-6215.3
26145	240.54	0	0	26.362	-6215.3
26146	240.55	0	0	26.362	-6215.3
26147	240.57	0	0	26.362	-6215.3
26148	240.6	0	0	26.362	-6215.3
26149	240.56	0	0	26.362	-6215.3
26150	240.55	0	0	26.362	-6215.3
26151	240.58	0	0	26.362	-6215.3
26152	240.56	0	0	26.362	-6215.3
26153	240.57	0	0	26.362	-6215.3
26154	240.47	0	0	26.362	-6215.3
26155	240.5	0	0	26.362	-6215.3
26156	240.47	0	0	26.362	-6215.3
26157	240.57	0	0	26.362	-6215.3
26158	240.57	0	0	26.362	-6215.3
26159	240.62	0	0	26.362	-6215.3
26160	240.58	0	0	26.362	-6215.3
26161	240.51	0	0	26.362	-6215.3
26162	240.52	0	0	26.362	-6215.3
26163	240.49	0	0	26.362	-6215.3
26164	240.52	0	0	26.362	-6215.3
26165	240.45	0	0	26.362	-6215.3
26166	240.45	0	0	26.362	-6215.3
26167	240.53	0	0	26.362	-6215.3
26168	240.59	0	0	26.362	-6215.3
26169	240.57	0	0	26.362	-6215.3
26170	240.55	0	0	26.362	-6215.3
26171	240.56	0	0	26.362	-6215.3
26172	240.61	0	0	26.362	-6215.3
26173	240.64	0	0	26.362	-6215.3
26174	240.59	0	0	26.362	-6215.3
26175	240.62	0	0	26.362	-6215.3
26176	240.64	0	0	26.362	-6215.3
26177	240.69	0	0	26.362	-6215.3

26178	240.68	0	0	26.362	-6215.3
26179	240.71	0	0	26.362	-6215.3
26180	240.6	0	0	26.362	-6215.3
26181	240.55	0	0	26.362	-6215.3
26182	240.66	0	0	26.362	-6215.3
26183	240.63	0	0	26.362	-6215.3
26184	240.61	0	0	26.362	-6215.3
26185	240.63	0	0	26.362	-6215.3
26186	240.64	0	0	26.362	-6215.3
26187	240.62	0	0	26.362	-6215.3
26188	240.65	0	0	26.362	-6215.3
26189	240.72	0	0	26.362	-6215.3
26190	240.65	0	0	26.362	-6215.3
26191	240.7	0	0	26.362	-6215.3
26192	240.75	0	0	26.362	-6215.3
26193	240.81	0	0	26.362	-6215.3
26194	240.72	0	0	26.362	-6215.3
26195	240.79	0	0	26.362	-6215.3
26196	240.73	0	0	26.362	-6215.3
26197	240.57	0	0	26.362	-6215.3
26198	240.6	0	0	26.362	-6215.3
26199	240.61	0	0	26.362	-6215.3
26200	240.65	0	0	26.362	-6215.3
26201	240.59	0	0	26.362	-6215.3
26202	240.52	0	0	26.362	-6215.3
26203	240.59	0	0	26.362	-6215.3
26204	240.64	0	0	26.362	-6215.3
26205	240.49	0	0	26.362	-6215.3
26206	240.53	0	0	26.362	-6215.3
26207	240.54	0	0	26.362	-6215.3
26208	240.5	0	0	26.362	-6215.3
26209	240.56	0	0	26.362	-6215.3
26210	240.59	0	0	26.362	-6215.3
26211	240.54	0	0	26.362	-6215.3
26212	240.56	0	0	26.362	-6215.3
26213	240.55	0	0	26.362	-6215.3
26214	240.67	0	0	26.362	-6215.3
26215	240.6	0	0	26.362	-6215.3
26216	240.68	0	0	26.362	-6215.3
26217	240.71	0	0	26.362	-6215.3
26218	240.61	0	0	26.362	-6215.3
26219	240.6	0	0	26.362	-6215.3
26220	240.53	0	0	26.362	-6215.3
26221	240.45	0	0	26.362	-6215.3
26222	240.47	0	0	26.362	-6215.3
26223	240.36	0	0	26.362	-6215.3
26224	240.34	0	0	26.362	-6215.3

26225	240.36	0	0	26.362	-6215.3
26226	240.38	0	0	26.362	-6215.3
26227	240.43	0	0	26.362	-6215.3
26228	240.31	0	0	26.362	-6215.3
26229	240.34	0	0	26.362	-6215.3
26230	240.29	0	0	26.362	-6215.3
26231	240.39	0	0	26.362	-6215.3
26232	240.28	0	0	26.362	-6215.3
26233	240.34	0	0	26.362	-6215.3
26234	240.43	0	0	26.362	-6215.3
26235	240.34	0	0	26.362	-6215.3
26236	240.5	0	0	26.362	-6215.3
26237	240.36	0	0	26.362	-6215.3
26238	240.45	0	0	26.362	-6215.3
26239	240.33	0	0	26.362	-6215.3
26240	240.29	0	0	26.362	-6215.3
26241	240.3	0	0	26.362	-6215.3
26242	240.37	0	0	26.362	-6215.3
26243	240.41	0	0	26.362	-6215.3
26244	240.31	0	0	26.362	-6215.3
26245	240.41	0	0	26.362	-6215.3
26246	240.45	0	0	26.362	-6215.3
26247	240.37	0	0	26.362	-6215.3
26248	240.47	0	0	26.362	-6215.3
26249	240.46	0	0	26.362	-6215.3
26250	240.24	0	0	26.362	-6215.3
26251	240.55	0	0	26.362	-6215.3
26252	240.45	0	0	26.362	-6215.3
26253	240.51	0	0	26.362	-6215.3
26254	240.51	0	0	26.362	-6215.3
26255	240.48	0	0	26.362	-6215.3
26256	240.5	0	0	26.362	-6215.3
26257	240.54	0	0	26.362	-6215.3
26258	240.47	0	0	26.362	-6215.3
26259	240.47	0	0	26.362	-6215.3
26260	240.52	0	0	26.362	-6215.3
26261	240.41	0	0	26.362	-6215.3
26262	240.4	0	0	26.362	-6215.3
26263	240.38	0	0	26.362	-6215.3
26264	240.48	0	0	26.362	-6215.3
26265	240.38	0	0	26.362	-6215.3
26266	240.39	0	0	26.362	-6215.3
26267	240.37	0	0	26.362	-6215.3
26268	240.39	0	0	26.362	-6215.3
26269	240.38	0	0	26.362	-6215.3
26270	240.39	0	0	26.362	-6215.3
26271	240.52	0	0	26.362	-6215.3

26272	240.61	0	0	26.362	-6215.3
26273	240.57	0	0	26.362	-6215.3
26274	240.67	0	0	26.362	-6215.3
26275	240.59	0	0	26.362	-6215.3
26276	240.52	0	0	26.362	-6215.3
26277	240.55	0	0	26.362	-6215.3
26278	240.7	0	0	26.362	-6215.3
26279	240.67	0	0	26.362	-6215.3
26280	240.64	0	0	26.362	-6215.3
26281	240.58	0	0	26.362	-6215.3
26282	240.56	0	0	26.362	-6215.3
26283	240.55	0	0	26.362	-6215.3
26284	240.54	0	0	26.362	-6215.3
26285	240.57	0	0	26.362	-6215.3
26286	240.56	0	0	26.362	-6215.3
26287	240.53	0	0	26.362	-6215.3
26288	240.55	0	0	26.362	-6215.3
26289	240.63	0	0	26.362	-6215.3
26290	240.57	0	0	26.362	-6215.3
26291	240.64	0	0	26.362	-6215.3
26292	240.63	0	0	26.362	-6215.3
26293	240.72	0	0	26.362	-6215.3
26294	240.63	0	0	26.362	-6215.3
26295	240.66	0	0	26.362	-6215.3
26296	240.63	0	0	26.362	-6215.3
26297	240.64	0	0	26.362	-6215.3
26298	240.69	0	0	26.362	-6215.3
26299	240.7	0	0	26.362	-6215.3
26300	240.76	0	0	26.362	-6215.3
26301	240.71	0	0	26.362	-6215.3
26302	240.66	0	0	26.362	-6215.3
26303	240.74	0	0	26.362	-6215.3
26304	240.68	0	0	26.362	-6215.3
26305	240.62	0	0	26.362	-6215.3
26306	240.61	0	0	26.362	-6215.3
26307	240.76	0	0	26.362	-6215.3
26308	240.63	0	0	26.362	-6215.3
26309	240.72	0	0	26.362	-6215.3
26310	240.64	0	0	26.362	-6215.3
26311	240.61	0	0	26.362	-6215.3
26312	240.76	0	0	26.362	-6215.3
26313	240.75	0	0	26.362	-6215.3
26314	240.72	0	0	26.362	-6215.3
26315	240.68	0	0	26.362	-6215.3
26316	240.73	0	0	26.362	-6215.3
26317	240.62	0	0	26.362	-6215.3
26318	240.67	0	0	26.362	-6215.3

26319	240.75	0	0	26.362	-6215.3
26320	240.76	0	0	26.362	-6215.3
26321	240.71	0	0	26.362	-6215.3
26322	240.72	0	0	26.362	-6215.3
26323	240.53	0	0	26.362	-6215.3
26324	240.69	0	0	26.362	-6215.3
26325	240.69	0	0	26.362	-6215.3
26326	240.56	0	0	26.362	-6215.3
26327	240.7	0	0	26.362	-6215.3
26328	240.67	0	0	26.362	-6215.3
26329	240.68	0	0	26.362	-6215.3
26330	240.6	0	0	26.362	-6215.3
26331	240.68	0	0	26.362	-6215.3
26332	240.65	0	0	26.362	-6215.3
26333	240.66	0	0	26.362	-6215.3
26334	240.63	0	0	26.362	-6215.3
26335	240.61	0	0	26.362	-6215.3
26336	240.65	0	0	26.362	-6215.3
26337	240.62	0	0	26.362	-6215.3
26338	240.65	0	0	26.362	-6215.3
26339	240.59	0	0	26.362	-6215.3
26340	240.5	0	0	26.362	-6215.3
26341	240.6	0	0	26.362	-6215.3
26342	240.58	0	0	26.362	-6215.3
26343	240.66	0	0	26.362	-6215.3
26344	240.56	0	0	26.362	-6215.3
26345	240.48	0	0	26.362	-6215.3
26346	240.49	0	0	26.362	-6215.3
26347	240.51	0	0	26.362	-6215.3
26348	240.54	0	0	26.362	-6215.3
26349	240.56	0	0	26.362	-6215.3
26350	240.6	0	0	26.362	-6215.3
26351	240.55	0	0	26.362	-6215.3
26352	240.63	0	0	26.362	-6215.3
26353	240.58	0	0	26.362	-6215.3
26354	240.6	0	0	26.362	-6215.3
26355	240.59	0	0	26.362	-6215.3
26356	240.59	0	0	26.362	-6215.3
26357	240.58	0	0	26.362	-6215.3
26358	240.65	0	0	26.362	-6215.3
26359	240.62	0	0	26.362	-6215.3
26360	240.59	0	0	26.362	-6215.3
26361	240.6	0	0	26.362	-6215.3
26362	240.59	0	0	26.362	-6215.3
26363	240.46	0	0	26.362	-6215.3
26364	240.52	0	0	26.362	-6215.3
26365	240.55	0	0	26.362	-6215.3

26366	240.43	0	0	26.362	-6215.3
26367	240.43	0	0	26.362	-6215.3
26368	240.52	0	0	26.362	-6215.3
26369	240.38	0	0	26.362	-6215.3
26370	240.47	0	0	26.362	-6215.3
26371	240.45	0	0	26.362	-6215.3
26372	240.46	0	0	26.362	-6215.3
26373	240.47	0	0	26.362	-6215.3
26374	240.81	0	0	26.362	-6215.3
26375	240.72	0	0	26.362	-6215.3
26376	240.74	0	0	26.362	-6215.3
26377	240.78	0	0	26.362	-6215.3
26378	240.77	0	0	26.362	-6215.3
26379	240.76	0	0	26.362	-6215.3
26380	240.71	0	0	26.362	-6215.3
26381	240.76	0	0	26.362	-6215.3
26382	240.79	0	0	26.362	-6215.3
26383	240.72	0	0	26.362	-6215.3
26384	240.75	0	0	26.362	-6215.3
26385	240.7	0	0	26.362	-6215.3
26386	240.69	0	0	26.362	-6215.3
26387	240.75	0	0	26.362	-6215.3
26388	240.72	0	0	26.362	-6215.3
26389	240.7	0	0	26.362	-6215.3
26390	240.68	0	0	26.362	-6215.3
26391	240.58	0	0	26.362	-6215.3
26392	240.67	0	0	26.362	-6215.3
26393	240.65	0	0	26.362	-6215.3
26394	240.63	0	0	26.362	-6215.3
26395	240.66	0	0	26.362	-6215.3
26396	240.57	0	0	26.362	-6215.3
26397	240.62	0	0	26.362	-6215.3
26398	240.63	0	0	26.362	-6215.3
26399	240.7	0	0	26.362	-6215.3
26400	240.71	0	0	26.362	-6215.3
26401	240.65	0	0	26.362	-6215.3
26402	240.66	0	0	26.362	-6215.3
26403	240.68	0	0	26.362	-6215.3
26404	240.67	0	0	26.362	-6215.3
26405	240.56	0	0	26.362	-6215.3
26406	240.64	0	0	26.362	-6215.3
26407	240.53	0	0	26.362	-6215.3
26408	240.64	0	0	26.362	-6215.3
26409	240.67	0	0	26.362	-6215.3
26410	240.63	0	0	26.362	-6215.3
26411	240.71	0	0	26.362	-6215.3
26412	240.57	0	0	26.362	-6215.3

26413	240.48	0	0	26.362	-6215.3
26414	240.57	0	0	26.362	-6215.3
26415	240.5	0	0	26.362	-6215.3
26416	240.49	0	0	26.362	-6215.3
26417	239.85	0	0	26.362	-6215.3
26418	240.36	0	0	26.362	-6215.3
26419	240.53	0	0	26.362	-6215.3
26420	240.56	0	0	26.362	-6215.3
26421	240.52	0	0	26.362	-6215.3
26422	240.55	0	0	26.362	-6215.3
26423	240.54	0	0	26.362	-6215.3
26424	240.57	0	0	26.362	-6215.3
26425	240.45	0	0	26.362	-6215.3
26426	240.52	0	0	26.362	-6215.3
26427	240.65	0	0	26.362	-6215.3
26428	240.53	0	0	26.362	-6215.3
26429	240.61	0	0	26.362	-6215.3
26430	240.61	0	0	26.362	-6215.3
26431	240.56	0	0	26.362	-6215.3
26432	240.56	0	0	26.362	-6215.3
26433	240.62	0	0	26.362	-6215.3
26434	240.64	0	0	26.362	-6215.3
26435	240.57	0	0	26.362	-6215.3
26436	240.68	0	0	26.362	-6215.3
26437	240.58	0	0	26.362	-6215.3
26438	240.73	0	0	26.362	-6215.3
26439	240.7	0	0	26.362	-6215.3
26440	240.7	0	0	26.362	-6215.3
26441	240.8	0	0	26.362	-6215.3
26442	240.72	0	0	26.362	-6215.3
26443	240.7	0	0	26.362	-6215.3
26444	240.66	0	0	26.362	-6215.3
26445	240.68	0	0	26.362	-6215.3
26446	240.76	0	0	26.362	-6215.3
26447	240.7	0	0	26.362	-6215.3
26448	240.75	0	0	26.362	-6215.3
26449	240.74	0	0	26.362	-6215.3
26450	240.71	0	0	26.362	-6215.3
26451	240.64	0	0	26.362	-6215.3
26452	240.81	0	0	26.362	-6215.3
26453	240.62	0	0	26.362	-6215.3
26454	240.78	0	0	26.362	-6215.3
26455	240.83	0	0	26.362	-6215.3
26456	240.8	0	0	26.362	-6215.3
26457	240.82	0	0	26.362	-6215.3
26458	240.72	0	0	26.362	-6215.3
26459	240.77	0	0	26.362	-6215.3

26460	240.66	0	0	26.362	-6215.3
26461	240.72	0	0	26.362	-6215.3
26462	240.73	0	0	26.362	-6215.3
26463	240.74	0	0	26.362	-6215.3
26464	240.77	0	0	26.362	-6215.3
26465	240.7	0	0	26.362	-6215.3
26466	240.72	0	0	26.362	-6215.3
26467	240.8	0	0	26.362	-6215.3
26468	240.57	0	0	26.362	-6215.3
26469	240.61	0	0	26.362	-6215.3
26470	240.65	0	0	26.362	-6215.3
26471	240.67	0	0	26.362	-6215.3
26472	240.59	0	0	26.362	-6215.3
26473	240.58	0	0	26.362	-6215.3
26474	240.62	0	0	26.362	-6215.3
26475	240.69	0	0	26.362	-6215.3
26476	240.71	0	0	26.362	-6215.3
26477	240.52	0	0	26.362	-6215.3
26478	240.53	0	0	26.362	-6215.3
26479	240.6	0	0	26.362	-6215.3
26480	240.61	0	0	26.362	-6215.3
26481	240.61	0	0	26.362	-6215.3
26482	240.62	0	0	26.362	-6215.3
26483	240.57	0	0	26.362	-6215.3
26484	240.59	0	0	26.362	-6215.3
26485	240.57	0	0	26.362	-6215.3
26486	240.58	0	0	26.362	-6215.3
26487	240.47	0	0	26.362	-6215.3
26488	240.51	0	0	26.362	-6215.3
26489	240.73	0	0	26.362	-6215.3
26490	240.69	0	0	26.362	-6215.3
26491	240.64	0	0	26.362	-6215.3
26492	240.57	0	0	26.362	-6215.3
26493	240.65	0	0	26.362	-6215.3
26494	240.65	0	0	26.362	-6215.3
26495	240.78	0	0	26.362	-6215.3
26496	240.68	0	0	26.362	-6215.3
26497	240.79	0	0	26.362	-6215.3
26498	240.71	0	0	26.362	-6215.3
26499	240.68	0	0	26.362	-6215.3
26500	240.57	0	0	26.362	-6215.3
26501	240.7	0	0	26.362	-6215.3
26502	240.73	0	0	26.362	-6215.3
26503	240.77	0	0	26.362	-6215.3
26504	240.7	0	0	26.362	-6215.3
26505	240.76	0	0	26.362	-6215.3
26506	240.66	0	0	26.362	-6215.3

26507	240.61	0	0	26.362	-6215.3
26508	240.64	0	0	26.362	-6215.3
26509	240.78	0	0	26.362	-6215.3
26510	240.6	0	0	26.362	-6215.3
26511	240.64	0	0	26.362	-6215.3
26512	240.65	0	0	26.362	-6215.3
26513	240.7	0	0	26.362	-6215.3
26514	240.61	0	0	26.362	-6215.3
26515	240.69	0	0	26.362	-6215.3
26516	240.64	0	0	26.362	-6215.3
26517	240.73	0	0	26.362	-6215.3
26518	240.7	0	0	26.362	-6215.3
26519	240.71	0	0	26.362	-6215.3
26520	240.6	0	0	26.362	-6215.3
26521	240.65	0	0	26.362	-6215.3
26522	240.71	0	0	26.362	-6215.3
26523	240.72	0	0	26.362	-6215.3
26524	240.62	0	0	26.362	-6215.3
26525	240.74	0	0	26.362	-6215.3
26526	240.74	0	0	26.362	-6215.3
26527	240.63	0	0	26.362	-6215.3
26528	240.57	0	0	26.362	-6215.3
26529	240.65	0	0	26.362	-6215.3
26530	240.62	0	0	26.362	-6215.3
26531	240.5	0	0	26.362	-6215.3
26532	240.63	0	0	26.362	-6215.3
26533	240.53	0	0	26.362	-6215.3
26534	240.66	0	0	26.362	-6215.3
26535	240.63	0	0	26.362	-6215.3
26536	240.52	0	0	26.362	-6215.3
26537	240.65	0	0	26.362	-6215.3
26538	240.65	0	0	26.362	-6215.3
26539	240.79	0	0	26.362	-6215.3
26540	240.68	0	0	26.362	-6215.3
26541	240.74	0	0	26.362	-6215.3
26542	240.67	0	0	26.362	-6215.3
26543	240.71	0	0	26.362	-6215.3
26544	240.74	0	0	26.362	-6215.3
26545	240.7	0	0	26.362	-6215.3
26546	240.7	0	0	26.362	-6215.3
26547	240.78	0	0	26.362	-6215.3
26548	240.75	0	0	26.362	-6215.3
26549	240.82	0	0	26.362	-6215.3
26550	240.72	0	0	26.362	-6215.3
26551	240.76	0	0	26.362	-6215.3
26552	240.72	0	0	26.362	-6215.3
26553	240.67	0	0	26.362	-6215.3

26554	240.55	0	0	26.362	-6215.3
26555	240.54	0	0	26.362	-6215.3
26556	240.52	0	0	26.362	-6215.3
26557	240.52	0	0	26.362	-6215.3
26558	240.45	0	0	26.362	-6215.3
26559	240.52	0	0	26.362	-6215.3
26560	240.49	0	0	26.362	-6215.3
26561	240.49	0	0	26.362	-6215.3
26562	240.61	0	0	26.362	-6215.3
26563	240.56	0	0	26.362	-6215.3
26564	240.62	0	0	26.362	-6215.3
26565	240.63	0	0	26.362	-6215.3
26566	240.63	0	0	26.362	-6215.3
26567	240.67	0	0	26.362	-6215.3
26568	240.61	0	0	26.362	-6215.3
26569	240.59	0	0	26.362	-6215.3
26570	240.61	0	0	26.362	-6215.3
26571	240.62	0	0	26.362	-6215.3
26572	240.69	0	0	26.362	-6215.3
26573	240.6	0	0	26.362	-6215.3
26574	240.74	0	0	26.362	-6215.3
26575	240.69	0	0	26.362	-6215.3
26576	240.65	0	0	26.362	-6215.3
26577	240.54	0	0	26.362	-6215.3
26578	240.65	0	0	26.362	-6215.3
26579	240.75	0	0	26.362	-6215.3
26580	240.65	0	0	26.362	-6215.3
26581	240.64	0	0	26.362	-6215.3
26582	240.98	0	0	26.362	-6215.3
26583	240.9	0	0	26.362	-6215.3
26584	240.84	0	0	26.362	-6215.3
26585	240.94	0	0	26.362	-6215.3
26586	241.01	0	0	26.362	-6215.3
26587	241.03	0	0	26.362	-6215.3
26588	241.02	0	0	26.362	-6215.3
26589	240.99	0	0	26.362	-6215.3
26590	240.97	0	0	26.362	-6215.3
26591	240.92	0	0	26.362	-6215.3
26592	240.93	0	0	26.362	-6215.3
26593	241.03	0	0	26.362	-6215.3
26594	241	0	0	26.362	-6215.3
26595	241	0	0	26.362	-6215.3
26596	241.07	0	0	26.362	-6215.3
26597	241.06	0	0	26.362	-6215.3
26598	241.03	0	0	26.362	-6215.3
26599	240.92	0	0	26.362	-6215.3
26600	240.91	0	0	26.362	-6215.3

26601	240.89	0	0	26.362	-6215.3
26602	241.01	0	0	26.362	-6215.3
26603	240.94	0	0	26.362	-6215.3
26604	240.9	0	0	26.362	-6215.3
26605	240.78	0	0	26.362	-6215.3
26606	240.86	0	0	26.362	-6215.3
26607	240.82	0	0	26.362	-6215.3
26608	240.82	0	0	26.362	-6215.3
26609	240.81	0	0	26.362	-6215.3
26610	240.87	0	0	26.362	-6215.3
26611	240.84	0	0	26.362	-6215.3
26612	240.79	0	0	26.362	-6215.3
26613	240.79	0	0	26.362	-6215.3
26614	240.81	0	0	26.362	-6215.3
26615	240.82	0	0	26.362	-6215.3
26616	240.81	0	0	26.362	-6215.3
26617	240.78	0	0	26.362	-6215.3
26618	240.8	0	0	26.362	-6215.3
26619	240.72	0	0	26.362	-6215.3
26620	240.73	0	0	26.362	-6215.3
26621	240.79	0	0	26.362	-6215.3
26622	240.79	0	0	26.362	-6215.3
26623	240.77	0	0	26.362	-6215.3
26624	240.8	0	0	26.362	-6215.3
26625	240.78	0	0	26.362	-6215.3
26626	240.78	0	0	26.362	-6215.3
26627	240.85	0	0	26.362	-6215.3
26628	240.82	0	0	26.362	-6215.3
26629	240.82	0	0	26.362	-6215.3
26630	240.76	0	0	26.362	-6215.3
26631	240.76	0	0	26.362	-6215.3
26632	240.76	0	0	26.362	-6215.3
26633	240.87	0	0	26.362	-6215.3
26634	240.72	0	0	26.362	-6215.3
26635	240.76	0	0	26.362	-6215.3
26636	240.86	0	0	26.362	-6215.3
26637	240.81	0	0	26.362	-6215.3
26638	240.83	0	0	26.362	-6215.3
26639	240.82	0	0	26.362	-6215.3
26640	240.8	0	0	26.362	-6215.3
26641	240.81	0	0	26.362	-6215.3
26642	240.81	0	0	26.362	-6215.3
26643	240.7	0	0	26.362	-6215.3
26644	240.8	0	0	26.362	-6215.3
26645	240.8	0	0	26.362	-6215.3
26646	240.82	0	0	26.362	-6215.3
26647	240.73	0	0	26.362	-6215.3

26648	240.8	0	0	26.362	-6215.3
26649	240.72	0	0	26.362	-6215.3
26650	240.67	0	0	26.362	-6215.3
26651	240.83	0	0	26.362	-6215.3
26652	240.79	0	0	26.362	-6215.3
26653	240.77	0	0	26.362	-6215.3
26654	240.8	0	0	26.362	-6215.3
26655	240.81	0	0	26.362	-6215.3
26656	240.81	0	0	26.362	-6215.3
26657	240.81	0	0	26.362	-6215.3
26658	240.79	0	0	26.362	-6215.3
26659	240.83	0	0	26.362	-6215.3
26660	240.84	0	0	26.362	-6215.3
26661	240.79	0	0	26.362	-6215.3
26662	240.79	0	0	26.362	-6215.3
26663	240.81	0	0	26.362	-6215.3
26664	240.79	0	0	26.362	-6215.3
26665	240.79	0	0	26.362	-6215.3
26666	240.81	0	0	26.362	-6215.3
26667	240.79	0	0	26.362	-6215.3
26668	240.75	0	0	26.362	-6215.3
26669	240.85	0	0	26.362	-6215.3
26670	240.89	0	0	26.362	-6215.3
26671	240.96	0	0	26.362	-6215.3
26672	240.96	0	0	26.362	-6215.3
26673	240.94	0	0	26.362	-6215.3
26674	240.93	0	0	26.362	-6215.3
26675	240.93	0	0	26.362	-6215.3
26676	240.97	0	0	26.362	-6215.3
26677	240.94	0	0	26.362	-6215.3
26678	240.94	0	0	26.362	-6215.3
26679	240.95	0	0	26.362	-6215.3
26680	240.95	0	0	26.362	-6215.3
26681	240.92	0	0	26.362	-6215.3
26682	240.92	0	0	26.362	-6215.3
26683	240.93	0	0	26.362	-6215.3
26684	240.89	0	0	26.362	-6215.3
26685	240.92	0	0	26.362	-6215.3
26686	240.97	0	0	26.362	-6215.3
26687	240.89	0	0	26.362	-6215.3
26688	240.93	0	0	26.362	-6215.3
26689	241	0	0	26.362	-6215.3
26690	240.94	0	0	26.362	-6215.3
26691	240.95	0	0	26.362	-6215.3
26692	240.98	0	0	26.362	-6215.3
26693	240.91	0	0	26.362	-6215.3
26694	240.96	0	0	26.362	-6215.3

26695	240.98	0	0	26.362	-6215.3
26696	240.96	0	0	26.362	-6215.3
26697	240.91	0	0	26.362	-6215.3
26698	240.95	0	0	26.362	-6215.3
26699	240.79	0	0	26.362	-6215.3
26700	240.9	0	0	26.362	-6215.3
26701	240.94	0	0	26.362	-6215.3
26702	240.85	0	0	26.362	-6215.3
26703	240.86	0	0	26.362	-6215.3
26704	240.87	0	0	26.362	-6215.3
26705	240.8	0	0	26.362	-6215.3
26706	240.82	0	0	26.362	-6215.3
26707	240.87	0	0	26.362	-6215.3
26708	240.79	0	0	26.362	-6215.3
26709	240.8	0	0	26.362	-6215.3
26710	240.85	0	0	26.362	-6215.3
26711	240.83	0	0	26.362	-6215.3
26712	240.86	0	0	26.362	-6215.3
26713	240.85	0	0	26.362	-6215.3
26714	240.87	0	0	26.362	-6215.3
26715	240.85	0	0	26.362	-6215.3
26716	240.83	0	0	26.362	-6215.3
26717	240.86	0	0	26.362	-6215.3
26718	240.85	0	0	26.362	-6215.3
26719	240.82	0	0	26.362	-6215.3
26720	240.87	0	0	26.362	-6215.3
26721	240.87	0	0	26.362	-6215.3
26722	240.86	0	0	26.362	-6215.3
26723	240.84	0	0	26.362	-6215.3
26724	240.86	0	0	26.362	-6215.3
26725	240.9	0	0	26.362	-6215.3
26726	240.85	0	0	26.362	-6215.3
26727	240.85	0	0	26.362	-6215.3
26728	240.87	0	0	26.362	-6215.3
26729	240.8	0	0	26.362	-6215.3
26730	240.86	0	0	26.362	-6215.3
26731	240.87	0	0	26.362	-6215.3
26732	240.88	0	0	26.362	-6215.3
26733	240.89	0	0	26.362	-6215.3
26734	240.85	0	0	26.362	-6215.3
26735	240.81	0	0	26.362	-6215.3
26736	240.85	0	0	26.362	-6215.3
26737	240.76	0	0	26.362	-6215.3
26738	240.79	0	0	26.362	-6215.3
26739	240.82	0	0	26.362	-6215.3
26740	240.76	0	0	26.362	-6215.3
26741	240.75	0	0	26.362	-6215.3

26742	240.76	0	0	26.362	-6215.3
26743	240.78	0	0	26.362	-6215.3
26744	240.72	0	0	26.362	-6215.3
26745	240.75	0	0	26.362	-6215.3
26746	240.77	0	0	26.362	-6215.3
26747	240.75	0	0	26.362	-6215.3
26748	240.78	0	0	26.362	-6215.3
26749	240.77	0	0	26.362	-6215.3
26750	240.81	0	0	26.362	-6215.3
26751	240.8	0	0	26.362	-6215.3
26752	240.78	0	0	26.362	-6215.3
26753	240.81	0	0	26.362	-6215.3
26754	240.83	0	0	26.362	-6215.3
26755	240.77	0	0	26.362	-6215.3
26756	240.78	0	0	26.362	-6215.3
26757	240.8	0	0	26.362	-6215.3
26758	240.81	0	0	26.362	-6215.3
26759	240.82	0	0	26.362	-6215.3
26760	240.88	0	0	26.362	-6215.3
26761	240.96	0	0	26.362	-6215.3
26762	240.96	0	0	26.362	-6215.3
26763	240.96	0	0	26.362	-6215.3
26764	241	0	0	26.362	-6215.3
26765	241.01	0	0	26.362	-6215.3
26766	241.07	0	0	26.362	-6215.3
26767	241.01	0	0	26.362	-6215.3
26768	241.01	0	0	26.362	-6215.3
26769	241.14	0	0	26.362	-6215.3
26770	241.08	0	0	26.362	-6215.3
26771	241.11	0	0	26.362	-6215.3
26772	241.16	0	0	26.362	-6215.3
26773	241.14	0	0	26.362	-6215.3
26774	241.18	0	0	26.362	-6215.3
26775	241.13	0	0	26.362	-6215.3
26776	241.13	0	0	26.362	-6215.3
26777	241.17	0	0	26.362	-6215.3
26778	241.2	0	0	26.362	-6215.3
26779	241.11	0	0	26.362	-6215.3
26780	241.14	0	0	26.362	-6215.3
26781	241.09	0	0	26.362	-6215.3
26782	241.09	0	0	26.362	-6215.3
26783	241.05	0	0	26.362	-6215.3
26784	241.12	0	0	26.362	-6215.3
26785	241.03	0	0	26.362	-6215.3
26786	241.16	0	0	26.362	-6215.3
26787	241.12	0	0	26.362	-6215.3
26788	241.12	0	0	26.362	-6215.3

26789	241.11	0	0	26.362	-6215.3
26790	241.17	0	0	26.362	-6215.3
26791	241.11	0	0	26.362	-6215.3
26792	241.12	0	0	26.362	-6215.3
26793	241.14	0	0	26.362	-6215.3
26794	241.17	0	0	26.362	-6215.3
26795	241.12	0	0	26.362	-6215.3
26796	241.13	0	0	26.362	-6215.3
26797	241.15	0	0	26.362	-6215.3
26798	241.18	0	0	26.362	-6215.3
26799	241.21	0	0	26.362	-6215.3
26800	241.19	0	0	26.362	-6215.3
26801	241.15	0	0	26.362	-6215.3
26802	241.15	0	0	26.362	-6215.3
26803	241.22	0	0	26.362	-6215.3
26804	241.19	0	0	26.362	-6215.3
26805	241.24	0	0	26.362	-6215.3
26806	241.2	0	0	26.362	-6215.3
26807	241.2	0	0	26.362	-6215.3
26808	241.23	0	0	26.362	-6215.3
26809	241.24	0	0	26.362	-6215.3
26810	241.22	0	0	26.362	-6215.3
26811	241.23	0	0	26.362	-6215.3
26812	241.24	0	0	26.362	-6215.3
26813	241.24	0	0	26.362	-6215.3
26814	241.25	0	0	26.362	-6215.3
26815	241.3	0	0	26.362	-6215.3
26816	241.31	0	0	26.362	-6215.3
26817	241.27	0	0	26.362	-6215.3
26818	241.28	0	0	26.362	-6215.3
26819	241.34	0	0	26.362	-6215.3
26820	241.34	0	0	26.362	-6215.3
26821	241.29	0	0	26.362	-6215.3
26822	241.32	0	0	26.362	-6215.3
26823	241.33	0	0	26.362	-6215.3
26824	241.24	0	0	26.362	-6215.3
26825	241.26	0	0	26.362	-6215.3
26826	241.27	0	0	26.362	-6215.3
26827	240.59	0	0	26.362	-6215.3
26828	241.19	0	0	26.362	-6215.3
26829	241.21	0	0	26.362	-6215.3
26830	241.21	0	0	26.362	-6215.3
26831	241.18	0	0	26.362	-6215.3
26832	241.21	0	0	26.362	-6215.3
26833	241.21	0	0	26.362	-6215.3
26834	241.22	0	0	26.362	-6215.3
26835	241.2	0	0	26.362	-6215.3

26836	241.16	0	0	26.362	-6215.3
26837	241.2	0	0	26.362	-6215.3
26838	240.9	0	0	26.362	-6215.3
26839	240.9	0	0	26.362	-6215.3
26840	240.91	0	0	26.362	-6215.3
26841	240.86	0	0	26.362	-6215.3
26842	240.86	0	0	26.362	-6215.3
26843	240.89	0	0	26.362	-6215.3
26844	240.88	0	0	26.362	-6215.3
26845	240.81	0	0	26.362	-6215.3
26846	240.86	0	0	26.362	-6215.3
26847	240.82	0	0	26.362	-6215.3
26848	240.69	0	0	26.362	-6215.3
26849	240.84	0	0	26.362	-6215.3
26850	240.78	0	0	26.362	-6215.3
26851	240.86	0	0	26.362	-6215.3
26852	240.86	0	0	26.362	-6215.3
26853	240.83	0	0	26.362	-6215.3
26854	240.91	0	0	26.362	-6215.3
26855	240.82	0	0	26.362	-6215.3
26856	240.84	0	0	26.362	-6215.3
26857	240.85	0	0	26.362	-6215.3
26858	240.86	0	0	26.362	-6215.3
26859	240.82	0	0	26.362	-6215.3
26860	240.85	0	0	26.362	-6215.3
26861	240.83	0	0	26.362	-6215.3
26862	240.75	0	0	26.362	-6215.3
26863	240.9	0	0	26.362	-6215.3
26864	240.82	0	0	26.362	-6215.3
26865	240.83	0	0	26.362	-6215.3
26866	240.9	0	0	26.362	-6215.3
26867	240.75	0	0	26.362	-6215.3
26868	240.74	0	0	26.362	-6215.3
26869	240.81	0	0	26.362	-6215.3
26870	240.87	0	0	26.362	-6215.3
26871	240.93	0	0	26.362	-6215.3
26872	240.86	0	0	26.362	-6215.3
26873	240.88	0	0	26.362	-6215.3
26874	240.92	0	0	26.362	-6215.3
26875	240.94	0	0	26.362	-6215.3
26876	240.93	0	0	26.362	-6215.3
26877	240.91	0	0	26.362	-6215.3
26878	240.97	0	0	26.362	-6215.3
26879	241	0	0	26.362	-6215.3
26880	240.71	0	0	26.362	-6215.3
26881	240.84	0	0	26.362	-6215.3
26882	240.93	0	0	26.362	-6215.3

26883	240.95	0	0	26.362	-6215.3
26884	240.96	0	0	26.362	-6215.3
26885	240.93	0	0	26.362	-6215.3
26886	240.95	0	0	26.362	-6215.3
26887	240.94	0	0	26.362	-6215.3
26888	241.01	0	0	26.362	-6215.3
26889	240.95	0	0	26.362	-6215.3
26890	241.05	0	0	26.362	-6215.3
26891	240.98	0	0	26.362	-6215.3
26892	240.98	0	0	26.362	-6215.3
26893	240.98	0	0	26.362	-6215.3
26894	240.95	0	0	26.362	-6215.3
26895	240.99	0	0	26.362	-6215.3
26896	241	0	0	26.362	-6215.3
26897	240.92	0	0	26.362	-6215.3
26898	240.63	0	0	26.362	-6215.3
26899	240.7	0	0	26.362	-6215.3
26900	240.63	0	0	26.362	-6215.3
26901	240.59	0	0	26.362	-6215.3
26902	240.56	0	0	26.362	-6215.3
26903	240.51	0	0	26.362	-6215.3
26904	240.56	0	0	26.362	-6215.3
26905	240.52	0	0	26.362	-6215.3
26906	240.5	0	0	26.362	-6215.3
26907	240.53	0	0	26.362	-6215.3
26908	240.54	0	0	26.362	-6215.3
26909	240.53	0	0	26.362	-6215.3
26910	240.51	0	0	26.362	-6215.3
26911	240.52	0	0	26.362	-6215.3
26912	240.51	0	0	26.362	-6215.3
26913	240.52	0	0	26.362	-6215.3
26914	240.48	0	0	26.362	-6215.3
26915	240.49	0	0	26.362	-6215.3
26916	240.54	0	0	26.362	-6215.3
26917	240.55	0	0	26.362	-6215.3
26918	240.53	0	0	26.362	-6215.3
26919	240.53	0	0	26.362	-6215.3
26920	240.52	0	0	26.362	-6215.3
26921	240.5	0	0	26.362	-6215.3
26922	240.51	0	0	26.362	-6215.3
26923	240.53	0	0	26.362	-6215.3
26924	240.46	0	0	26.362	-6215.3
26925	240.53	0	0	26.362	-6215.3
26926	240.49	0	0	26.362	-6215.3
26927	240.46	0	0	26.362	-6215.3
26928	240.49	0	0	26.362	-6215.3
26929	240.45	0	0	26.362	-6215.3

26930	240.47	0	0	26.362	-6215.3
26931	240.47	0	0	26.362	-6215.3
26932	240.48	0	0	26.362	-6215.3
26933	240.47	0	0	26.362	-6215.3
26934	240.48	0	0	26.362	-6215.3
26935	240.48	0	0	26.362	-6215.3
26936	240.38	0	0	26.362	-6215.3
26937	240.54	0	0	26.362	-6215.3
26938	240.51	0	0	26.362	-6215.3
26939	240.49	0	0	26.362	-6215.3
26940	240.56	0	0	26.362	-6215.3
26941	240.53	0	0	26.362	-6215.3
26942	240.5	0	0	26.362	-6215.3
26943	240.53	0	0	26.362	-6215.3
26944	240.6	0	0	26.362	-6215.3
26945	240.55	0	0	26.362	-6215.3
26946	240.57	0	0	26.362	-6215.3
26947	240.58	0	0	26.362	-6215.3
26948	240.6	0	0	26.362	-6215.3
26949	240.64	0	0	26.362	-6215.3
26950	240.61	0	0	26.362	-6215.3
26951	240.62	0	0	26.362	-6215.3
26952	240.61	0	0	26.362	-6215.3
26953	240.59	0	0	26.362	-6215.3
26954	240.61	0	0	26.362	-6215.3
26955	240.62	0	0	26.362	-6215.3
26956	240.45	0	0	26.362	-6215.3
26957	240.45	0	0	26.362	-6215.3
26958	240.46	0	0	26.362	-6215.3
26959	240.44	0	0	26.362	-6215.3
26960	240.46	0	0	26.362	-6215.3
26961	240.45	0	0	26.362	-6215.3
26962	240.41	0	0	26.362	-6215.3
26963	240.63	0	0	26.362	-6215.3
26964	240.59	0	0	26.362	-6215.3
26965	240.6	0	0	26.362	-6215.3
26966	240.64	0	0	26.362	-6215.3
26967	240.66	0	0	26.362	-6215.3
26968	240.63	0	0	26.362	-6215.3
26969	240.63	0	0	26.362	-6215.3
26970	240.65	0	0	26.362	-6215.3
26971	240.58	0	0	26.362	-6215.3
26972	240.64	0	0	26.362	-6215.3
26973	240.64	0	0	26.362	-6215.3
26974	240.59	0	0	26.362	-6215.3
26975	240.5	0	0	26.362	-6215.3
26976	240.53	0	0	26.362	-6215.3

26977	240.53	0	0	26.362	-6215.3
26978	240.54	0	0	26.362	-6215.3
26979	240.55	0	0	26.362	-6215.3
26980	240.54	0	0	26.362	-6215.3
26981	240.55	0	0	26.362	-6215.3
26982	240.55	0	0	26.362	-6215.3
26983	240.53	0	0	26.362	-6215.3
26984	240.51	0	0	26.362	-6215.3
26985	240.57	0	0	26.362	-6215.3
26986	240.54	0	0	26.362	-6215.3
26987	240.51	0	0	26.362	-6215.3
26988	240.65	0	0	26.362	-6215.3
26989	240.59	0	0	26.362	-6215.3
26990	240.51	0	0	26.362	-6215.3
26991	240.65	0	0	26.362	-6215.3
26992	240.6	0	0	26.362	-6215.3
26993	240.54	0	0	26.362	-6215.3
26994	240.54	0	0	26.362	-6215.3
26995	240.46	0	0	26.362	-6215.3
26996	240.56	0	0	26.362	-6215.3
26997	240.56	0	0	26.362	-6215.3
26998	240.48	0	0	26.362	-6215.3
26999	240.48	0	0	26.362	-6215.3
27000	240.52	0	0	26.362	-6215.3
27001	240.47	0	0	26.362	-6215.3
27002	240.54	0	0	26.362	-6215.3
27003	240.57	0	0	26.362	-6215.3
27004	240.55	0	0	26.362	-6215.3
27005	240.54	0	0	26.362	-6215.3
27006	240.57	0	0	26.362	-6215.3
27007	240.52	0	0	26.362	-6215.3
27008	240.56	0	0	26.362	-6215.3
27009	240.57	0	0	26.362	-6215.3
27010	240.51	0	0	26.362	-6215.3
27011	240.54	0	0	26.362	-6215.3
27012	240.47	0	0	26.362	-6215.3
27013	240.38	0	0	26.362	-6215.3
27014	240.47	0	0	26.362	-6215.3
27015	240.45	0	0	26.362	-6215.3
27016	240.41	0	0	26.362	-6215.3
27017	240.43	0	0	26.362	-6215.3
27018	240.5	0	0	26.362	-6215.3
27019	240.47	0	0	26.362	-6215.3
27020	240.48	0	0	26.362	-6215.3
27021	240.45	0	0	26.362	-6215.3
27022	240.46	0	0	26.362	-6215.3
27023	240.47	0	0	26.362	-6215.3

27024	240.49	0	0	26.362	-6215.3
27025	240.52	0	0	26.362	-6215.3
27026	240.54	0	0	26.362	-6215.3
27027	240.47	0	0	26.362	-6215.3
27028	240.52	0	0	26.362	-6215.3
27029	240.49	0	0	26.362	-6215.3
27030	240.42	0	0	26.362	-6215.3
27031	240.48	0	0	26.362	-6215.3
27032	240.44	0	0	26.362	-6215.3
27033	240.4	0	0	26.362	-6215.3
27034	240.53	0	0	26.362	-6215.3
27035	240.58	0	0	26.362	-6215.3
27036	240.49	0	0	26.362	-6215.3
27037	240.54	0	0	26.362	-6215.3
27038	240.5	0	0	26.362	-6215.3
27039	240.51	0	0	26.362	-6215.3
27040	240.52	0	0	26.362	-6215.3
27041	240.43	0	0	26.362	-6215.3
27042	240.45	0	0	26.362	-6215.3
27043	240.59	0	0	26.362	-6215.3
27044	240.52	0	0	26.362	-6215.3
27045	240.53	0	0	26.362	-6215.3
27046	240.55	0	0	26.362	-6215.3
27047	240.53	0	0	26.362	-6215.3
27048	240.54	0	0	26.362	-6215.3
27049	238.26	0	0	26.362	-6215.3
27050	238.27	0	0	26.362	-6215.3
27051	238.28	0	0	26.362	-6215.3
27052	238.15	0	0	26.362	-6215.3
27053	238.16	0	0	26.362	-6215.3
27054	238.13	0	0	26.362	-6215.3
27055	238.11	0	0	26.362	-6215.3
27056	238.13	0	0	26.362	-6215.3
27057	238.08	0	0	26.362	-6215.3
27058	238.09	0	0	26.362	-6215.3
27059	238.1	0	0	26.362	-6215.3
27060	238.06	0	0	26.362	-6215.3
27061	238.01	0	0	26.362	-6215.3
27062	238.04	0	0	26.362	-6215.3
27063	238	0	0	26.362	-6215.3
27064	238.01	0	0	26.362	-6215.3
27065	238.06	0	0	26.362	-6215.3
27066	238.08	0	0	26.362	-6215.3
27067	238.04	0	0	26.362	-6215.3
27068	238.06	0	0	26.362	-6215.3
27069	238.03	0	0	26.362	-6215.3
27070	238.05	0	0	26.362	-6215.3

27071	238.08	0	0	26.362	-6215.3
27072	238	0	0	26.362	-6215.3
27073	238.06	0	0	26.362	-6215.3
27074	238.11	0	0	26.362	-6215.3
27075	238.09	0	0	26.362	-6215.3
27076	238.08	0	0	26.362	-6215.3
27077	238.12	0	0	26.362	-6215.3
27078	238.09	0	0	26.362	-6215.3
27079	238.12	0	0	26.362	-6215.3
27080	238.15	0	0	26.362	-6215.3
27081	238.07	0	0	26.362	-6215.3
27082	238.13	0	0	26.362	-6215.3
27083	238.13	0	0	26.362	-6215.3
27084	238.13	0	0	26.362	-6215.3
27085	238.13	0	0	26.362	-6215.3
27086	238.19	0	0	26.362	-6215.3
27087	238.18	0	0	26.362	-6215.3
27088	238.17	0	0	26.362	-6215.3
27089	238.16	0	0	26.362	-6215.3
27090	238.19	0	0	26.362	-6215.3
27091	238.26	0	0	26.362	-6215.3
27092	238.22	0	0	26.362	-6215.3
27093	238.2	0	0	26.362	-6215.3
27094	238.21	0	0	26.362	-6215.3
27095	238.16	0	0	26.362	-6215.3
27096	238.14	0	0	26.362	-6215.3
27097	238.11	0	0	26.362	-6215.3
27098	238.12	0	0	26.362	-6215.3
27099	238.11	0	0	26.362	-6215.3
27100	238.06	0	0	26.362	-6215.3
27101	238.14	0	0	26.362	-6215.3
27102	238.08	0	0	26.362	-6215.3
27103	238.08	0	0	26.362	-6215.3
27104	238.1	0	0	26.362	-6215.3
27105	238.14	0	0	26.362	-6215.3
27106	238.14	0	0	26.362	-6215.3
27107	238.19	0	0	26.362	-6215.3
27108	238.42	0	0	26.362	-6215.3
27109	238.51	0	0	26.362	-6215.3
27110	238.55	0	0	26.362	-6215.3
27111	238.52	0	0	26.362	-6215.3
27112	238.51	0	0	26.362	-6215.3
27113	238.5	0	0	26.362	-6215.3
27114	238.55	0	0	26.362	-6215.3
27115	238.47	0	0	26.362	-6215.3
27116	238.54	0	0	26.362	-6215.3
27117	238.53	0	0	26.362	-6215.3

27118	238.52	0	0	26.362	-6215.3
27119	238.49	0	0	26.362	-6215.3
27120	238.53	0	0	26.362	-6215.3
27121	238.54	0	0	26.362	-6215.3
27122	238.52	0	0	26.362	-6215.3
27123	238.48	0	0	26.362	-6215.3
27124	238.56	0	0	26.362	-6215.3
27125	238.62	0	0	26.362	-6215.3
27126	238.54	0	0	26.362	-6215.3
27127	238.53	0	0	26.362	-6215.3
27128	238.68	0	0	26.362	-6215.3
27129	238.58	0	0	26.362	-6215.3
27130	238.67	0	0	26.362	-6215.3
27131	238.61	0	0	26.362	-6215.3
27132	238.69	0	0	26.362	-6215.3
27133	238.7	0	0	26.362	-6215.3
27134	238.69	0	0	26.362	-6215.3
27135	238.58	0	0	26.362	-6215.3
27136	238.64	0	0	26.362	-6215.3
27137	238.9	0	0	26.362	-6215.3
27138	238.95	0	0	26.362	-6215.3
27139	238.96	0	0	26.362	-6215.3
27140	238.94	0	0	26.362	-6215.3
27141	238.91	0	0	26.362	-6215.3
27142	238.85	0	0	26.362	-6215.3
27143	238.82	0	0	26.362	-6215.3
27144	238.9	0	0	26.362	-6215.3
27145	238.8	0	0	26.362	-6215.3
27146	238.72	0	0	26.362	-6215.3
27147	238.84	0	0	26.362	-6215.3
27148	238.83	0	0	26.362	-6215.3
27149	238.79	0	0	26.362	-6215.3
27150	238.83	0	0	26.362	-6215.3
27151	238.85	0	0	26.362	-6215.3
27152	238.88	0	0	26.362	-6215.3
27153	238.84	0	0	26.362	-6215.3
27154	238.81	0	0	26.362	-6215.3
27155	238.75	0	0	26.362	-6215.3
27156	238.79	0	0	26.362	-6215.3
27157	238.76	0	0	26.362	-6215.3
27158	238.79	0	0	26.362	-6215.3
27159	238.74	0	0	26.362	-6215.3
27160	238.74	0	0	26.362	-6215.3
27161	238.68	0	0	26.362	-6215.3
27162	238.74	0	0	26.362	-6215.3
27163	238.71	0	0	26.362	-6215.3
27164	238.65	0	0	26.362	-6215.3

27165	238.67	0	0	26.362	-6215.3
27166	238.64	0	0	26.362	-6215.3
27167	238.59	0	0	26.362	-6215.3
27168	238.68	0	0	26.362	-6215.3
27169	238.67	0	0	26.362	-6215.3
27170	238.73	0	0	26.362	-6215.3
27171	238.67	0	0	26.362	-6215.3
27172	238.76	0	0	26.362	-6215.3
27173	238.7	0	0	26.362	-6215.3
27174	238.67	0	0	26.362	-6215.3
27175	238.7	0	0	26.362	-6215.3
27176	238.81	0	0	26.362	-6215.3
27177	238.73	0	0	26.362	-6215.3
27178	238.72	0	0	26.362	-6215.3
27179	238.67	0	0	26.362	-6215.3
27180	238.7	0	0	26.362	-6215.3
27181	238.78	0	0	26.362	-6215.3
27182	238.84	0	0	26.362	-6215.3
27183	238.76	0	0	26.362	-6215.3
27184	238.56	0	0	26.362	-6215.3
27185	238.68	0	0	26.362	-6215.3
27186	238.6	0	0	26.362	-6215.3
27187	238.51	0	0	26.362	-6215.3
27188	238.47	0	0	26.362	-6215.3
27189	238.67	0	0	26.362	-6215.3
27190	238.43	0	0	26.362	-6215.3
27191	238.49	0	0	26.362	-6215.3
27192	238.59	0	0	26.362	-6215.3
27193	238.48	0	0	26.362	-6215.3
27194	238.59	0	0	26.362	-6215.3
27195	238.7	0	0	26.362	-6215.3
27196	238.59	0	0	26.362	-6215.3
27197	238.63	0	0	26.362	-6215.3
27198	238.55	0	0	26.362	-6215.3
27199	238.69	0	0	26.362	-6215.3
27200	238.43	0	0	26.362	-6215.3
27201	238.64	0	0	26.362	-6215.3
27202	238.46	0	0	26.362	-6215.3
27203	238.52	0	0	26.362	-6215.3
27204	238.5	0	0	26.362	-6215.3
27205	238.93	0	0	26.362	-6215.3
27206	238.7	0	0	26.362	-6215.3
27207	238.91	0	0	26.362	-6215.3
27208	238.68	0	0	26.362	-6215.3
27209	238.92	0	0	26.362	-6215.3
27210	238.97	0	0	26.362	-6215.3
27211	238.9	0	0	26.362	-6215.3

27212	238.95	0	0	26.362	-6215.3
27213	238.97	0	0	26.362	-6215.3
27214	238.85	0	0	26.362	-6215.3
27215	239.02	0	0	26.362	-6215.3
27216	238.95	0	0	26.362	-6215.3
27217	239.07	0	0	26.362	-6215.3
27218	239.03	0	0	26.362	-6215.3
27219	239.08	0	0	26.362	-6215.3
27220	239.1	0	0	26.362	-6215.3
27221	239.09	0	0	26.362	-6215.3
27222	238.99	0	0	26.362	-6215.3
27223	239	0	0	26.362	-6215.3
27224	239.05	0	0	26.362	-6215.3
27225	239.05	0	0	26.362	-6215.3
27226	239	0	0	26.362	-6215.3
27227	239	0	0	26.362	-6215.3
27228	239.11	0	0	26.362	-6215.3
27229	238.89	0	0	26.362	-6215.3
27230	239.1	0	0	26.362	-6215.3
27231	238.94	0	0	26.362	-6215.3
27232	238.93	0	0	26.362	-6215.3
27233	239.07	0	0	26.362	-6215.3
27234	239.12	0	0	26.362	-6215.3
27235	238.98	0	0	26.362	-6215.3
27236	238.93	0	0	26.362	-6215.3
27237	239.05	0	0	26.362	-6215.3
27238	239.1	0	0	26.362	-6215.3
27239	239.13	0	0	26.362	-6215.3
27240	239.03	0	0	26.362	-6215.3
27241	239.08	0	0	26.362	-6215.3
27242	239.07	0	0	26.362	-6215.3
27243	239.07	0	0	26.362	-6215.3
27244	238.26	0	0	26.362	-6215.3
27245	238.62	0	0	26.362	-6215.3
27246	238.97	0	0	26.362	-6215.3
27247	238.91	0	0	26.362	-6215.3
27248	238.84	0	0	26.362	-6215.3
27249	238.91	0	0	26.362	-6215.3
27250	238.9	0	0	26.362	-6215.3
27251	238.92	0	0	26.362	-6215.3
27252	238.99	0	0	26.362	-6215.3
27253	238.75	0	0	26.362	-6215.3
27254	238.84	0	0	26.362	-6215.3
27255	238.98	0	0	26.362	-6215.3
27256	239	0	0	26.362	-6215.3
27257	239.03	0	0	26.362	-6215.3
27258	239	0	0	26.362	-6215.3

27259	238.87	0	0	26.362	-6215.3
27260	238.73	0	0	26.362	-6215.3
27261	238.97	0	0	26.362	-6215.3
27262	239.07	0	0	26.362	-6215.3
27263	238.85	0	0	26.362	-6215.3
27264	238.87	0	0	26.362	-6215.3
27265	239.28	0	0	26.362	-6215.3
27266	239.33	0	0	26.362	-6215.3
27267	239.37	0	0	26.362	-6215.3
27268	239.36	0	0	26.362	-6215.3
27269	239.45	0	0	26.362	-6215.3
27270	239.43	0	0	26.362	-6215.3
27271	239.34	0	0	26.362	-6215.3
27272	239.39	0	0	26.362	-6215.3
27273	239.23	0	0	26.362	-6215.3
27274	239.16	0	0	26.362	-6215.3
27275	239.34	0	0	26.362	-6215.3
27276	239.36	0	0	26.362	-6215.3
27277	239.44	0	0	26.362	-6215.3
27278	239.35	0	0	26.362	-6215.3
27279	239.25	0	0	26.362	-6215.3
27280	239.5	0	0	26.362	-6215.3
27281	239.23	0	0	26.362	-6215.3
27282	239.09	0	0	26.362	-6215.3
27283	239.53	0	0	26.362	-6215.3
27284	239.38	0	0	26.362	-6215.3
27285	239.15	0	0	26.362	-6215.3
27286	239.22	0	0	26.362	-6215.3
27287	239.48	0	0	26.362	-6215.3
27288	239.37	0	0	26.362	-6215.3
27289	239.25	0	0	26.362	-6215.3
27290	239.26	0	0	26.362	-6215.3
27291	239.26	0	0	26.362	-6215.3
27292	239.35	0	0	26.362	-6215.3
27293	239.28	0	0	26.362	-6215.3
27294	239.38	0	0	26.362	-6215.3
27295	239.42	0	0	26.362	-6215.3
27296	239.44	0	0	26.362	-6215.3
27297	239.48	0	0	26.362	-6215.3
27298	239.4	0	0	26.362	-6215.3
27299	239.4	0	0	26.362	-6215.3
27300	239.35	0	0	26.362	-6215.3
27301	239.44	0	0	26.362	-6215.3
27302	239.2	0	0	26.362	-6215.3
27303	239.32	0	0	26.362	-6215.3
27304	239.27	0	0	26.362	-6215.3
27305	239.26	0	0	26.362	-6215.3

27306	239.2	0	0	26.362	-6215.3
27307	239.27	0	0	26.362	-6215.3
27308	239.39	0	0	26.362	-6215.3
27309	239.17	0	0	26.362	-6215.3
27310	239.43	0	0	26.362	-6215.3
27311	239.13	0	0	26.362	-6215.3
27312	239.28	0	0	26.362	-6215.3
27313	239.23	0	0	26.362	-6215.3
27314	239.26	0	0	26.362	-6215.3
27315	239.4	0	0	26.362	-6215.3
27316	239.23	0	0	26.362	-6215.3
27317	239.2	0	0	26.362	-6215.3
27318	239.36	0	0	26.362	-6215.3
27319	239.41	0	0	26.362	-6215.3
27320	239.4	0	0	26.362	-6215.3
27321	239.46	0	0	26.362	-6215.3
27322	239.28	0	0	26.362	-6215.3
27323	239.36	0	0	26.362	-6215.3
27324	239.21	0	0	26.362	-6215.3
27325	239.35	0	0	26.362	-6215.3
27326	239.27	0	0	26.362	-6215.3
27327	239.23	0	0	26.362	-6215.3
27328	239.35	0	0	26.362	-6215.3
27329	239.34	0	0	26.362	-6215.3
27330	239.07	0	0	26.362	-6215.3
27331	239.42	0	0	26.362	-6215.3
27332	239.27	0	0	26.362	-6215.3
27333	239.19	0	0	26.362	-6215.3
27334	239.41	0	0	26.362	-6215.3
27335	239.26	0	0	26.362	-6215.3
27336	239.47	0	0	26.362	-6215.3
27337	239.42	0	0	26.362	-6215.3
27338	239.5	0	0	26.362	-6215.3
27339	239.53	0	0	26.362	-6215.3
27340	239.4	0	0	26.362	-6215.3
27341	239.49	0	0	26.362	-6215.3
27342	239.54	0	0	26.362	-6215.3
27343	239.37	0	0	26.362	-6215.3
27344	239.51	0	0	26.362	-6215.3
27345	239.34	0	0	26.362	-6215.3
27346	239.57	0	0	26.362	-6215.3
27347	239.57	0	0	26.362	-6215.3
27348	239.44	0	0	26.362	-6215.3
27349	239.47	0	0	26.362	-6215.3
27350	239.74	0	0	26.362	-6215.3
27351	239.48	0	0	26.362	-6215.3
27352	239.78	0	0	26.362	-6215.3

27353	239.46	0	0	26.362	-6215.3
27354	239.31	0	0	26.362	-6215.3
27355	239.65	0	0	26.362	-6215.3
27356	239.68	0	0	26.362	-6215.3
27357	239.71	0	0	26.362	-6215.3
27358	239.56	0	0	26.362	-6215.3
27359	239.76	0	0	26.362	-6215.3
27360	239.78	0	0	26.362	-6215.3
27361	239.71	0	0	26.362	-6215.3
27362	239.73	0	0	26.362	-6215.3
27363	239.76	0	0	26.362	-6215.3
27364	239.72	0	0	26.362	-6215.3
27365	239.69	0	0	26.362	-6215.3
27366	239.74	0	0	26.362	-6215.3
27367	239.79	0	0	26.362	-6215.3
27368	239.63	0	0	26.362	-6215.3
27369	239.85	0	0	26.362	-6215.3
27370	239.8	0	0	26.362	-6215.3
27371	239.73	0	0	26.362	-6215.3
27372	239.84	0	0	26.362	-6215.3
27373	239.73	0	0	26.362	-6215.3
27374	239.73	0	0	26.362	-6215.3
27375	239.76	0	0	26.362	-6215.3
27376	239.7	0	0	26.362	-6215.3
27377	239.65	0	0	26.362	-6215.3
27378	239.86	0	0	26.362	-6215.3
27379	239.79	0	0	26.362	-6215.3
27380	239.63	0	0	26.362	-6215.3
27381	239.8	0	0	26.362	-6215.3
27382	239.8	0	0	26.362	-6215.3
27383	239.8	0	0	26.362	-6215.3
27384	239.8	0	0	26.362	-6215.3
27385	239.72	0	0	26.362	-6215.3
27386	239.66	0	0	26.362	-6215.3
27387	239.59	0	0	26.362	-6215.3
27388	239.82	0	0	26.362	-6215.3
27389	239.83	0	0	26.362	-6215.3
27390	239.86	0	0	26.362	-6215.3
27391	239.58	0	0	26.362	-6215.3
27392	239.81	0	0	26.362	-6215.3
27393	239.75	0	0	26.362	-6215.3
27394	239.72	0	0	26.362	-6215.3
27395	239.79	0	0	26.362	-6215.3
27396	239.64	0	0	26.362	-6215.3
27397	239.33	0	0	26.362	-6215.3
27398	239.69	0	0	26.362	-6215.3
27399	239.66	0	0	26.362	-6215.3

27400	239.81	0	0	26.362	-6215.3
27401	239.77	0	0	26.362	-6215.3
27402	239.76	0	0	26.362	-6215.3
27403	239.7	0	0	26.362	-6215.3
27404	239.68	0	0	26.362	-6215.3
27405	239.69	0	0	26.362	-6215.3
27406	239.74	0	0	26.362	-6215.3
27407	239.71	0	0	26.362	-6215.3
27408	239.63	0	0	26.362	-6215.3
27409	239.76	0	0	26.362	-6215.3
27410	239.74	0	0	26.362	-6215.3
27411	239.71	0	0	26.362	-6215.3
27412	239.67	0	0	26.362	-6215.3
27413	239.71	0	0	26.362	-6215.3
27414	239.62	0	0	26.362	-6215.3
27415	239.58	0	0	26.362	-6215.3
27416	239.85	0	0	26.362	-6215.3
27417	239.55	0	0	26.362	-6215.3
27418	239.63	0	0	26.362	-6215.3
27419	239.68	0	0	26.362	-6215.3
27420	239.24	0	0	26.362	-6215.3
27421	239.76	0	0	26.362	-6215.3
27422	239.51	0	0	26.362	-6215.3
27423	239.62	0	0	26.362	-6215.3
27424	239.59	0	0	26.362	-6215.3
27425	239.53	0	0	26.362	-6215.3
27426	239.69	0	0	26.362	-6215.3
27427	239.55	0	0	26.362	-6215.3
27428	239.76	0	0	26.362	-6215.3
27429	239.6	0	0	26.362	-6215.3
27430	239.72	0	0	26.362	-6215.3
27431	239.71	0	0	26.362	-6215.3
27432	239.73	0	0	26.362	-6215.3
27433	239.59	0	0	26.362	-6215.3
27434	239.62	0	0	26.362	-6215.3
27435	239.6	0	0	26.362	-6215.3
27436	239.55	0	0	26.362	-6215.3
27437	239.54	0	0	26.362	-6215.3
27438	239.58	0	0	26.362	-6215.3
27439	239.6	0	0	26.362	-6215.3
27440	239.69	0	0	26.362	-6215.3
27441	239.57	0	0	26.362	-6215.3
27442	239.71	0	0	26.362	-6215.3
27443	239.57	0	0	26.362	-6215.3
27444	239.63	0	0	26.362	-6215.3
27445	239.73	0	0	26.362	-6215.3
27446	239.81	0	0	26.362	-6215.3

27447	239.85	0	0	26.362	-6215.3
27448	239.7	0	0	26.362	-6215.3
27449	239.7	0	0	26.362	-6215.3
27450	239.71	0	0	26.362	-6215.3
27451	239.68	0	0	26.362	-6215.3
27452	239.6	0	0	26.362	-6215.3
27453	239.79	0	0	26.362	-6215.3
27454	239.71	0	0	26.362	-6215.3
27455	239.48	0	0	26.362	-6215.3
27456	239.78	0	0	26.362	-6215.3
27457	239.81	0	0	26.362	-6215.3
27458	239.78	0	0	26.362	-6215.3
27459	239.77	0	0	26.362	-6215.3
27460	239.75	0	0	26.362	-6215.3
27461	239.69	0	0	26.362	-6215.3
27462	239.66	0	0	26.362	-6215.3
27463	239.56	0	0	26.362	-6215.3
27464	239.7	0	0	26.362	-6215.3
27465	239.79	0	0	26.362	-6215.3
27466	239.72	0	0	26.362	-6215.3
27467	239.8	0	0	26.362	-6215.3
27468	239.9	0	0	26.362	-6215.3
27469	239.96	0	0	26.362	-6215.3
27470	239.82	0	0	26.362	-6215.3
27471	239.81	0	0	26.362	-6215.3
27472	239.72	0	0	26.362	-6215.3
27473	239.81	0	0	26.362	-6215.3
27474	239.51	0	0	26.362	-6215.3
27475	239.92	0	0	26.362	-6215.3
27476	239.78	0	0	26.362	-6215.3
27477	239.68	0	0	26.362	-6215.3
27478	239.37	0	0	26.362	-6215.3
27479	239.85	0	0	26.362	-6215.3
27480	239.77	0	0	26.362	-6215.3
27481	239.57	0	0	26.362	-6215.3
27482	239.88	0	0	26.362	-6215.3
27483	239.77	0	0	26.362	-6215.3
27484	239.6	0	0	26.362	-6215.3
27485	239.68	0	0	26.362	-6215.3
27486	239.71	0	0	26.362	-6215.3
27487	239.77	0	0	26.362	-6215.3
27488	239.85	0	0	26.362	-6215.3
27489	239.59	0	0	26.362	-6215.3
27490	239.7	0	0	26.362	-6215.3
27491	239.76	0	0	26.362	-6215.3
27492	239.85	0	0	26.362	-6215.3
27493	239.74	0	0	26.362	-6215.3

27494	239.74	0	0	26.362	-6215.3
27495	239.82	0	0	26.362	-6215.3
27496	239.58	0	0	26.362	-6215.3
27497	239.59	0	0	26.362	-6215.3
27498	239.71	0	0	26.362	-6215.3
27499	239.69	0	0	26.362	-6215.3
27500	239.55	0	0	26.362	-6215.3
27501	239.59	0	0	26.362	-6215.3
27502	239.62	0	0	26.362	-6215.3
27503	239.69	0	0	26.362	-6215.3
27504	239.69	0	0	26.362	-6215.3
27505	239.73	0	0	26.362	-6215.3
27506	239.61	0	0	26.362	-6215.3
27507	239.6	0	0	26.362	-6215.3
27508	239.73	0	0	26.362	-6215.3
27509	239.67	0	0	26.362	-6215.3
27510	239.7	0	0	26.362	-6215.3
27511	239.77	0	0	26.362	-6215.3
27512	239.8	0	0	26.362	-6215.3
27513	239.85	0	0	26.362	-6215.3
27514	239.8	0	0	26.362	-6215.3
27515	239.85	0	0	26.362	-6215.3
27516	239.84	0	0	26.362	-6215.3
27517	239.75	0	0	26.362	-6215.3
27518	239.71	0	0	26.362	-6215.3
27519	239.55	0	0	26.362	-6215.3
27520	239.47	0	0	26.362	-6215.3
27521	239.6	0	0	26.362	-6215.3
27522	239.67	0	0	26.362	-6215.3
27523	239.79	0	0	26.362	-6215.3
27524	239.75	0	0	26.362	-6215.3
27525	239.79	0	0	26.362	-6215.3
27526	239.79	0	0	26.362	-6215.3
27527	239.9	0	0	26.362	-6215.3
27528	239.85	0	0	26.362	-6215.3
27529	239.7	0	0	26.362	-6215.3
27530	239.68	0	0	26.362	-6215.3
27531	239.77	0	0	26.362	-6215.3
27532	239.75	0	0	26.362	-6215.3
27533	239.89	0	0	26.362	-6215.3
27534	239.8	0	0	26.362	-6215.3
27535	239.77	0	0	26.362	-6215.3
27536	239.58	0	0	26.362	-6215.3
27537	239.7	0	0	26.362	-6215.3
27538	239.75	0	0	26.362	-6215.3
27539	239.85	0	0	26.362	-6215.3
27540	239.8	0	0	26.362	-6215.3

27541	239.88	0	0	26.362	-6215.3
27542	239.83	0	0	26.362	-6215.3
27543	239.79	0	0	26.362	-6215.3
27544	239.8	0	0	26.362	-6215.3
27545	239.79	0	0	26.362	-6215.3
27546	239.77	0	0	26.362	-6215.3
27547	239.82	0	0	26.362	-6215.3
27548	239.78	0	0	26.362	-6215.3
27549	239.81	0	0	26.362	-6215.3
27550	239.83	0	0	26.362	-6215.3
27551	239.82	0	0	26.362	-6215.3
27552	239.82	0	0	26.362	-6215.3
27553	239.78	0	0	26.362	-6215.3
27554	239.78	0	0	26.362	-6215.3
27555	239.66	0	0	26.362	-6215.3
27556	239.79	0	0	26.362	-6215.3
27557	239.72	0	0	26.362	-6215.3
27558	239.56	0	0	26.362	-6215.3
27559	239.73	0	0	26.362	-6215.3
27560	239.7	0	0	26.362	-6215.3
27561	239.62	0	0	26.362	-6215.3
27562	239.96	0	0	26.362	-6215.3
27563	239.64	0	0	26.362	-6215.3
27564	239.95	0	0	26.362	-6215.3
27565	239.72	0	0	26.362	-6215.3
27566	239.86	0	0	26.362	-6215.3
27567	239.9	0	0	26.362	-6215.3
27568	239.83	0	0	26.362	-6215.3
27569	239.94	0	0	26.362	-6215.3
27570	239.68	0	0	26.362	-6215.3
27571	239.71	0	0	26.362	-6215.3
27572	239.73	0	0	26.362	-6215.3
27573	239.86	0	0	26.362	-6215.3
27574	239.69	0	0	26.362	-6215.3
27575	239.85	0	0	26.362	-6215.3
27576	239.65	0	0	26.362	-6215.3
27577	239.83	0	0	26.362	-6215.3
27578	239.81	0	0	26.362	-6215.3
27579	239.79	0	0	26.362	-6215.3
27580	239.75	0	0	26.362	-6215.3
27581	239.77	0	0	26.362	-6215.3
27582	239.84	0	0	26.362	-6215.3
27583	239.91	0	0	26.362	-6215.3
27584	239.73	0	0	26.362	-6215.3
27585	240.05	0	0	26.362	-6215.3
27586	239.89	0	0	26.362	-6215.3
27587	239.92	0	0	26.362	-6215.3

27588	239.92	0	0	26.362	-6215.3
27589	239.86	0	0	26.362	-6215.3
27590	239.84	0	0	26.362	-6215.3
27591	239.82	0	0	26.362	-6215.3
27592	239.88	0	0	26.362	-6215.3
27593	239.89	0	0	26.362	-6215.3
27594	239.85	0	0	26.362	-6215.3
27595	239.89	0	0	26.362	-6215.3
27596	239.72	0	0	26.362	-6215.3
27597	239.86	0	0	26.362	-6215.3
27598	239.94	0	0	26.362	-6215.3
27599	239.96	0	0	26.362	-6215.3
27600	239.93	0	0	26.362	-6215.3
27601	239.87	0	0	26.362	-6215.3
27602	239.97	0	0	26.362	-6215.3
27603	239.86	0	0	26.362	-6215.3
27604	239.95	0	0	26.362	-6215.3
27605	239.93	0	0	26.362	-6215.3
27606	239.87	0	0	26.362	-6215.3
27607	239.84	0	0	26.362	-6215.3
27608	239.95	0	0	26.362	-6215.3
27609	239.88	0	0	26.362	-6215.3
27610	240	0	0	26.362	-6215.3
27611	239.94	0	0	26.362	-6215.3
27612	239.95	0	0	26.362	-6215.3
27613	239.85	0	0	26.362	-6215.3
27614	239.93	0	0	26.362	-6215.3
27615	239.96	0	0	26.362	-6215.3
27616	239.94	0	0	26.362	-6215.3
27617	239.94	0	0	26.362	-6215.3
27618	239.9	0	0	26.362	-6215.3
27619	240	0	0	26.362	-6215.3
27620	239.94	0	0	26.362	-6215.3
27621	239.91	0	0	26.362	-6215.3
27622	239.81	0	0	26.362	-6215.3
27623	239.95	0	0	26.362	-6215.3
27624	240.01	0	0	26.362	-6215.3
27625	240.03	0	0	26.362	-6215.3
27626	239.87	0	0	26.362	-6215.3
27627	239.9	0	0	26.362	-6215.3
27628	239.91	0	0	26.362	-6215.3
27629	239.7	0	0	26.362	-6215.3
27630	239.88	0	0	26.362	-6215.3
27631	239.93	0	0	26.362	-6215.3
27632	239.85	0	0	26.362	-6215.3
27633	239.93	0	0	26.362	-6215.3
27634	239.9	0	0	26.362	-6215.3

27635	239.97	0	0	26.362	-6215.3
27636	239.91	0	0	26.362	-6215.3
27637	239.76	0	0	26.362	-6215.3
27638	239.84	0	0	26.362	-6215.3
27639	239.84	0	0	26.362	-6215.3
27640	239.83	0	0	26.362	-6215.3
27641	239.81	0	0	26.362	-6215.3
27642	239.85	0	0	26.362	-6215.3
27643	239.76	0	0	26.362	-6215.3
27644	239.77	0	0	26.362	-6215.3
27645	239.73	0	0	26.362	-6215.3
27646	239.76	0	0	26.362	-6215.3
27647	239.7	0	0	26.362	-6215.3
27648	239.66	0	0	26.362	-6215.3
27649	239.59	0	0	26.362	-6215.3
27650	239.67	0	0	26.362	-6215.3
27651	239.74	0	0	26.362	-6215.3
27652	239.72	0	0	26.362	-6215.3
27653	239.57	0	0	26.362	-6215.3
27654	239.79	0	0	26.362	-6215.3
27655	239.77	0	0	26.362	-6215.3
27656	239.71	0	0	26.362	-6215.3
27657	239.66	0	0	26.362	-6215.3
27658	239.83	0	0	26.362	-6215.3
27659	239.18	0	0	26.362	-6215.3
27660	239.39	0	0	26.362	-6215.3
27661	239.7	0	0	26.362	-6215.3
27662	239.64	0	0	26.362	-6215.3
27663	239.62	0	0	26.362	-6215.3
27664	239.72	0	0	26.362	-6215.3
27665	239.59	0	0	26.362	-6215.3
27666	239.59	0	0	26.362	-6215.3
27667	239.71	0	0	26.362	-6215.3
27668	239.59	0	0	26.362	-6215.3
27669	239.54	0	0	26.362	-6215.3
27670	239.79	0	0	26.362	-6215.3
27671	239.64	0	0	26.362	-6215.3
27672	239.74	0	0	26.362	-6215.3
27673	239.75	0	0	26.362	-6215.3
27674	239.5	0	0	26.362	-6215.3
27675	239.72	0	0	26.362	-6215.3
27676	239.53	0	0	26.362	-6215.3
27677	239.64	0	0	26.362	-6215.3
27678	239.84	0	0	26.362	-6215.3
27679	239.24	0	0	26.362	-6215.3
27680	239.56	0	0	26.362	-6215.3
27681	239.7	0	0	26.362	-6215.3

27682	239.5	0	0	26.362	-6215.3
27683	239.53	0	0	26.362	-6215.3
27684	239.53	0	0	26.362	-6215.3
27685	239.57	0	0	26.362	-6215.3
27686	239.56	0	0	26.362	-6215.3
27687	239.47	0	0	26.362	-6215.3
27688	239.51	0	0	26.362	-6215.3
27689	239.59	0	0	26.362	-6215.3
27690	239.56	0	0	26.362	-6215.3
27691	239.48	0	0	26.362	-6215.3
27692	239.42	0	0	26.362	-6215.3
27693	239.7	0	0	26.362	-6215.3
27694	239.68	0	0	26.362	-6215.3
27695	239.61	0	0	26.362	-6215.3
27696	239.6	0	0	26.362	-6215.3
27697	239.7	0	0	26.362	-6215.3
27698	239.67	0	0	26.362	-6215.3
27699	239.73	0	0	26.362	-6215.3
27700	239.75	0	0	26.362	-6215.3
27701	239.69	0	0	26.362	-6215.3
27702	239.82	0	0	26.362	-6215.3
27703	239.89	0	0	26.362	-6215.3
27704	239.81	0	0	26.362	-6215.3
27705	239.79	0	0	26.362	-6215.3
27706	239.86	0	0	26.362	-6215.3
27707	239.87	0	0	26.362	-6215.3
27708	239.83	0	0	26.362	-6215.3
27709	239.79	0	0	26.362	-6215.3
27710	239.79	0	0	26.362	-6215.3
27711	239.81	0	0	26.362	-6215.3
27712	239.83	0	0	26.362	-6215.3
27713	239.89	0	0	26.362	-6215.3
27714	239.77	0	0	26.362	-6215.3
27715	239.85	0	0	26.362	-6215.3
27716	239.89	0	0	26.362	-6215.3
27717	239.91	0	0	26.362	-6215.3
27718	239.88	0	0	26.362	-6215.3
27719	239.77	0	0	26.362	-6215.3
27720	239.9	0	0	26.362	-6215.3
27721	239.96	0	0	26.362	-6215.3
27722	239.93	0	0	26.362	-6215.3
27723	239.83	0	0	26.362	-6215.3
27724	239.86	0	0	26.362	-6215.3
27725	239.79	0	0	26.362	-6215.3
27726	239.91	0	0	26.362	-6215.3
27727	239.84	0	0	26.362	-6215.3
27728	239.85	0	0	26.362	-6215.3

27729	239.85	0	0	26.362	-6215.3
27730	239.83	0	0	26.362	-6215.3
27731	239.78	0	0	26.362	-6215.3
27732	239.85	0	0	26.362	-6215.3
27733	239.85	0	0	26.362	-6215.3
27734	239.86	0	0	26.362	-6215.3
27735	239.86	0	0	26.362	-6215.3
27736	239.84	0	0	26.362	-6215.3
27737	239.87	0	0	26.362	-6215.3
27738	239.89	0	0	26.362	-6215.3
27739	239.91	0	0	26.362	-6215.3
27740	239.93	0	0	26.362	-6215.3
27741	239.89	0	0	26.362	-6215.3
27742	239.91	0	0	26.362	-6215.3
27743	239.91	0	0	26.362	-6215.3
27744	239.79	0	0	26.362	-6215.3
27745	239.79	0	0	26.362	-6215.3
27746	239.96	0	0	26.362	-6215.3
27747	239.82	0	0	26.362	-6215.3
27748	239.84	0	0	26.362	-6215.3
27749	239.88	0	0	26.362	-6215.3
27750	239.76	0	0	26.362	-6215.3
27751	239.83	0	0	26.362	-6215.3
27752	239.8	0	0	26.362	-6215.3
27753	239.72	0	0	26.362	-6215.3
27754	239.84	0	0	26.362	-6215.3
27755	239.79	0	0	26.362	-6215.3
27756	239.73	0	0	26.362	-6215.3
27757	239.8	0	0	26.362	-6215.3
27758	239.83	0	0	26.362	-6215.3
27759	239.86	0	0	26.362	-6215.3
27760	239.85	0	0	26.362	-6215.3
27761	239.81	0	0	26.362	-6215.3
27762	239.85	0	0	26.362	-6215.3
27763	239.9	0	0	26.362	-6215.3
27764	239.84	0	0	26.362	-6215.3
27765	239.79	0	0	26.362	-6215.3
27766	239.89	0	0	26.362	-6215.3
27767	239.81	0	0	26.362	-6215.3
27768	239.81	0	0	26.362	-6215.3
27769	239.61	0	0	26.362	-6215.3
27770	239.68	0	0	26.362	-6215.3
27771	239.82	0	0	26.362	-6215.3
27772	239.79	0	0	26.362	-6215.3
27773	239.85	0	0	26.362	-6215.3
27774	239.63	0	0	26.362	-6215.3
27775	239.76	0	0	26.362	-6215.3

27776	239.85	0	0	26.362	-6215.3
27777	239.86	0	0	26.362	-6215.3
27778	239.8	0	0	26.362	-6215.3
27779	239.86	0	0	26.362	-6215.3
27780	239.86	0	0	26.362	-6215.3
27781	239.88	0	0	26.362	-6215.3
27782	239.86	0	0	26.362	-6215.3
27783	239.73	0	0	26.362	-6215.3
27784	239.77	0	0	26.362	-6215.3
27785	239.84	0	0	26.362	-6215.3
27786	239.75	0	0	26.362	-6215.3
27787	239.83	0	0	26.362	-6215.3
27788	239.67	0	0	26.362	-6215.3
27789	239.78	0	0	26.362	-6215.3
27790	239.8	0	0	26.362	-6215.3
27791	239.83	0	0	26.362	-6215.3
27792	239.86	0	0	26.362	-6215.3
27793	239.83	0	0	26.362	-6215.3
27794	239.73	0	0	26.362	-6215.3
27795	239.75	0	0	26.362	-6215.3
27796	239.74	0	0	26.362	-6215.3
27797	239.64	0	0	26.362	-6215.3
27798	239.76	0	0	26.362	-6215.3
27799	239.78	0	0	26.362	-6215.3
27800	239.72	0	0	26.362	-6215.3
27801	239.71	0	0	26.362	-6215.3
27802	239.78	0	0	26.362	-6215.3
27803	239.82	0	0	26.362	-6215.3
27804	239.8	0	0	26.362	-6215.3
27805	239.82	0	0	26.362	-6215.3
27806	239.77	0	0	26.362	-6215.3
27807	239.87	0	0	26.362	-6215.3
27808	239.74	0	0	26.362	-6215.3
27809	239.82	0	0	26.362	-6215.3
27810	239.77	0	0	26.362	-6215.3
27811	239.79	0	0	26.362	-6215.3
27812	239.78	0	0	26.362	-6215.3
27813	239.83	0	0	26.362	-6215.3
27814	239.94	0	0	26.362	-6215.3
27815	239.91	0	0	26.362	-6215.3
27816	239.97	0	0	26.362	-6215.3
27817	240.05	0	0	26.362	-6215.3
27818	239.73	0	0	26.362	-6215.3
27819	239.92	0	0	26.362	-6215.3
27820	240.12	0	0	26.362	-6215.3
27821	240.06	0	0	26.362	-6215.3
27822	239.84	0	0	26.362	-6215.3

27823	239.8	0	0	26.362	-6215.3
27824	239.95	0	0	26.362	-6215.3
27825	239.85	0	0	26.362	-6215.3
27826	239.67	0	0	26.362	-6215.3
27827	239.78	0	0	26.362	-6215.3
27828	239.62	0	0	26.362	-6215.3
27829	240.01	0	0	26.362	-6215.3
27830	240	0	0	26.362	-6215.3
27831	240.06	0	0	26.362	-6215.3
27832	239.97	0	0	26.362	-6215.3
27833	240.02	0	0	26.362	-6215.3
27834	239.76	0	0	26.362	-6215.3
27835	239.81	0	0	26.362	-6215.3
27836	240.01	0	0	26.362	-6215.3
27837	240.05	0	0	26.362	-6215.3
27838	240.05	0	0	26.362	-6215.3
27839	239.97	0	0	26.362	-6215.3
27840	239.91	0	0	26.362	-6215.3
27841	239.95	0	0	26.362	-6215.3
27842	239.94	0	0	26.362	-6215.3
27843	239.9	0	0	26.362	-6215.3
27844	240.04	0	0	26.362	-6215.3
27845	239.99	0	0	26.362	-6215.3
27846	239.95	0	0	26.362	-6215.3
27847	239.85	0	0	26.362	-6215.3
27848	239.86	0	0	26.362	-6215.3
27849	239.78	0	0	26.362	-6215.3
27850	239.9	0	0	26.362	-6215.3
27851	239.9	0	0	26.362	-6215.3
27852	239.87	0	0	26.362	-6215.3
27853	239.79	0	0	26.362	-6215.3
27854	239.96	0	0	26.362	-6215.3
27855	239.96	0	0	26.362	-6215.3
27856	239.95	0	0	26.362	-6215.3
27857	239.86	0	0	26.362	-6215.3
27858	239.92	0	0	26.362	-6215.3
27859	239.91	0	0	26.362	-6215.3
27860	240	0	0	26.362	-6215.3
27861	239.97	0	0	26.362	-6215.3
27862	239.99	0	0	26.362	-6215.3
27863	240.02	0	0	26.362	-6215.3
27864	240.04	0	0	26.362	-6215.3
27865	240.04	0	0	26.362	-6215.3
27866	239.97	0	0	26.362	-6215.3
27867	239.95	0	0	26.362	-6215.3
27868	240.02	0	0	26.362	-6215.3
27869	239.99	0	0	26.362	-6215.3

27870	240.06	0	0	26.362	-6215.3
27871	240.03	0	0	26.362	-6215.3
27872	240.06	0	0	26.362	-6215.3
27873	240.07	0	0	26.362	-6215.3
27874	240.06	0	0	26.362	-6215.3
27875	240	0	0	26.362	-6215.3
27876	240.06	0	0	26.362	-6215.3
27877	240.03	0	0	26.362	-6215.3
27878	240	0	0	26.362	-6215.3
27879	239.99	0	0	26.362	-6215.3
27880	239.95	0	0	26.362	-6215.3
27881	240.08	0	0	26.362	-6215.3
27882	240.06	0	0	26.362	-6215.3
27883	240.08	0	0	26.362	-6215.3
27884	240	0	0	26.362	-6215.3
27885	240.05	0	0	26.362	-6215.3
27886	239.98	0	0	26.362	-6215.3
27887	240.01	0	0	26.362	-6215.3
27888	239.97	0	0	26.362	-6215.3
27889	239.92	0	0	26.362	-6215.3
27890	239.93	0	0	26.362	-6215.3
27891	239.85	0	0	26.362	-6215.3
27892	239.94	0	0	26.362	-6215.3
27893	239.88	0	0	26.362	-6215.3
27894	239.9	0	0	26.362	-6215.3
27895	239.89	0	0	26.362	-6215.3
27896	239.93	0	0	26.362	-6215.3
27897	239.94	0	0	26.362	-6215.3
27898	240	0	0	26.362	-6215.3
27899	239.94	0	0	26.362	-6215.3
27900	239.92	0	0	26.362	-6215.3
27901	239.96	0	0	26.362	-6215.3
27902	239.93	0	0	26.362	-6215.3
27903	239.81	0	0	26.362	-6215.3
27904	239.91	0	0	26.362	-6215.3
27905	239.84	0	0	26.362	-6215.3
27906	239.87	0	0	26.362	-6215.3
27907	239.89	0	0	26.362	-6215.3
27908	239.85	0	0	26.362	-6215.3
27909	239.77	0	0	26.362	-6215.3
27910	239.87	0	0	26.362	-6215.3
27911	239.77	0	0	26.362	-6215.3
27912	239.97	0	0	26.362	-6215.3
27913	239.81	0	0	26.362	-6215.3
27914	239.7	0	0	26.362	-6215.3
27915	239.78	0	0	26.362	-6215.3
27916	239.93	0	0	26.362	-6215.3

27917	239.71	0	0	26.362	-6215.3
27918	240.05	0	0	26.362	-6215.3
27919	240.01	0	0	26.362	-6215.3
27920	239.92	0	0	26.362	-6215.3
27921	240.05	0	0	26.362	-6215.3
27922	240.02	0	0	26.362	-6215.3
27923	240.04	0	0	26.362	-6215.3
27924	240.02	0	0	26.362	-6215.3
27925	240.03	0	0	26.362	-6215.3
27926	239.96	0	0	26.362	-6215.3
27927	239.95	0	0	26.362	-6215.3
27928	239.91	0	0	26.362	-6215.3
27929	239.83	0	0	26.362	-6215.3
27930	239.87	0	0	26.362	-6215.3
27931	239.81	0	0	26.362	-6215.3
27932	239.85	0	0	26.362	-6215.3
27933	239.87	0	0	26.362	-6215.3
27934	239.92	0	0	26.362	-6215.3
27935	239.67	0	0	26.362	-6215.3
27936	239.75	0	0	26.362	-6215.3
27937	239.83	0	0	26.362	-6215.3
27938	239.72	0	0	26.362	-6215.3
27939	239.88	0	0	26.362	-6215.3
27940	239.87	0	0	26.362	-6215.3
27941	239.85	0	0	26.362	-6215.3
27942	239.92	0	0	26.362	-6215.3
27943	239.98	0	0	26.362	-6215.3
27944	239.95	0	0	26.362	-6215.3
27945	239.95	0	0	26.362	-6215.3
27946	239.99	0	0	26.362	-6215.3
27947	239.99	0	0	26.362	-6215.3
27948	239.94	0	0	26.362	-6215.3
27949	239.81	0	0	26.362	-6215.3
27950	240.04	0	0	26.362	-6215.3
27951	240.05	0	0	26.362	-6215.3
27952	240.03	0	0	26.362	-6215.3
27953	240.06	0	0	26.362	-6215.3
27954	240.07	0	0	26.362	-6215.3
27955	239.89	0	0	26.362	-6215.3
27956	240.08	0	0	26.362	-6215.3
27957	240	0	0	26.362	-6215.3
27958	240.12	0	0	26.362	-6215.3
27959	240.01	0	0	26.362	-6215.3
27960	239.97	0	0	26.362	-6215.3
27961	240.14	0	0	26.362	-6215.3
27962	240.02	0	0	26.362	-6215.3
27963	240.02	0	0	26.362	-6215.3

27964	239.97	0	0	26.362	-6215.3
27965	240.09	0	0	26.362	-6215.3
27966	239.9	0	0	26.362	-6215.3
27967	239.97	0	0	26.362	-6215.3
27968	239.98	0	0	26.362	-6215.3
27969	239.98	0	0	26.362	-6215.3
27970	239.95	0	0	26.362	-6215.3
27971	240.03	0	0	26.362	-6215.3
27972	239.99	0	0	26.362	-6215.3
27973	239.92	0	0	26.362	-6215.3
27974	240.01	0	0	26.362	-6215.3
27975	239.95	0	0	26.362	-6215.3
27976	240.1	0	0	26.362	-6215.3
27977	240.04	0	0	26.362	-6215.3
27978	240.05	0	0	26.362	-6215.3
27979	240.02	0	0	26.362	-6215.3
27980	240.03	0	0	26.362	-6215.3
27981	239.98	0	0	26.362	-6215.3
27982	239.96	0	0	26.362	-6215.3
27983	240.04	0	0	26.362	-6215.3
27984	240.02	0	0	26.362	-6215.3
27985	240.08	0	0	26.362	-6215.3
27986	240.16	0	0	26.362	-6215.3
27987	240.12	0	0	26.362	-6215.3
27988	240.12	0	0	26.362	-6215.3
27989	240.18	0	0	26.362	-6215.3
27990	240.13	0	0	26.362	-6215.3
27991	240.21	0	0	26.362	-6215.3
27992	240.01	0	0	26.362	-6215.3
27993	240.07	0	0	26.362	-6215.3
27994	240.21	0	0	26.362	-6215.3
27995	240.05	0	0	26.362	-6215.3
27996	240.08	0	0	26.362	-6215.3
27997	240.15	0	0	26.362	-6215.3
27998	240.14	0	0	26.362	-6215.3
27999	240.08	0	0	26.362	-6215.3
28000	240.05	0	0	26.362	-6215.3
28001	240.08	0	0	26.362	-6215.3
28002	240.07	0	0	26.362	-6215.3
28003	240.18	0	0	26.362	-6215.3
28004	240.09	0	0	26.362	-6215.3
28005	240.24	0	0	26.362	-6215.3
28006	240.16	0	0	26.362	-6215.3
28007	240.18	0	0	26.362	-6215.3
28008	240.1	0	0	26.362	-6215.3
28009	240	0	0	26.362	-6215.3
28010	240.13	0	0	26.362	-6215.3

28011	240.05	0	0	26.362	-6215.3
28012	240.14	0	0	26.362	-6215.3
28013	240.16	0	0	26.362	-6215.3
28014	240.12	0	0	26.362	-6215.3
28015	240.2	0	0	26.362	-6215.3
28016	240.14	0	0	26.362	-6215.3
28017	240.02	0	0	26.362	-6215.3
28018	240.21	0	0	26.362	-6215.3
28019	240.05	0	0	26.362	-6215.3
28020	239.94	0	0	26.362	-6215.3
28021	240	0	0	26.362	-6215.3
28022	239.92	0	0	26.362	-6215.3
28023	239.93	0	0	26.362	-6215.3
28024	239.63	0	0	26.362	-6215.3
28025	240.01	0	0	26.362	-6215.3
28026	239.77	0	0	26.362	-6215.3
28027	240.06	0	0	26.362	-6215.3
28028	239.97	0	0	26.362	-6215.3
28029	239.9	0	0	26.362	-6215.3
28030	240.04	0	0	26.362	-6215.3
28031	240.04	0	0	26.362	-6215.3
28032	239.91	0	0	26.362	-6215.3
28033	239.88	0	0	26.362	-6215.3
28034	239.96	0	0	26.362	-6215.3
28035	239.98	0	0	26.362	-6215.3
28036	239.89	0	0	26.362	-6215.3
28037	239.88	0	0	26.362	-6215.3
28038	239.92	0	0	26.362	-6215.3
28039	239.94	0	0	26.362	-6215.3
28040	240	0	0	26.362	-6215.3
28041	239.83	0	0	26.362	-6215.3
28042	239.96	0	0	26.362	-6215.3
28043	239.93	0	0	26.362	-6215.3
28044	239.72	0	0	26.362	-6215.3
28045	239.92	0	0	26.362	-6215.3
28046	239.88	0	0	26.362	-6215.3
28047	239.92	0	0	26.362	-6215.3
28048	239.9	0	0	26.362	-6215.3
28049	239.94	0	0	26.362	-6215.3
28050	239.88	0	0	26.362	-6215.3
28051	240.11	0	0	26.362	-6215.3
28052	239.92	0	0	26.362	-6215.3
28053	240.08	0	0	26.362	-6215.3
28054	240	0	0	26.362	-6215.3
28055	239.92	0	0	26.362	-6215.3
28056	239.91	0	0	26.362	-6215.3
28057	239.81	0	0	26.362	-6215.3

28058	239.85	0	0	26.362	-6215.3
28059	239.91	0	0	26.362	-6215.3
28060	239.96	0	0	26.362	-6215.3
28061	239.93	0	0	26.362	-6215.3
28062	239.8	0	0	26.362	-6215.3
28063	239.81	0	0	26.362	-6215.3
28064	239.14	0	0	26.362	-6215.3
28065	239.48	0	0	26.362	-6215.3
28066	239.73	0	0	26.362	-6215.3
28067	239.74	0	0	26.362	-6215.3
28068	239.91	0	0	26.362	-6215.3
28069	239.91	0	0	26.362	-6215.3
28070	239.9	0	0	26.362	-6215.3
28071	239.87	0	0	26.362	-6215.3
28072	239.88	0	0	26.362	-6215.3
28073	239.88	0	0	26.362	-6215.3
28074	239.85	0	0	26.362	-6215.3
28075	239.86	0	0	26.362	-6215.3
28076	239.76	0	0	26.362	-6215.3
28077	239.89	0	0	26.362	-6215.3
28078	239.79	0	0	26.362	-6215.3
28079	239.92	0	0	26.362	-6215.3
28080	239.93	0	0	26.362	-6215.3
28081	239.8	0	0	26.362	-6215.3
28082	239.82	0	0	26.362	-6215.3
28083	239.81	0	0	26.362	-6215.3
28084	239.96	0	0	26.362	-6215.3
28085	239.78	0	0	26.362	-6215.3
28086	239.92	0	0	26.362	-6215.3
28087	239.85	0	0	26.362	-6215.3
28088	239.87	0	0	26.362	-6215.3
28089	240.08	0	0	26.362	-6215.3
28090	240.03	0	0	26.362	-6215.3
28091	239.88	0	0	26.362	-6215.3
28092	240.02	0	0	26.362	-6215.3
28093	239.9	0	0	26.362	-6215.3
28094	239.73	0	0	26.362	-6215.3
28095	239.88	0	0	26.362	-6215.3
28096	239.9	0	0	26.362	-6215.3
28097	239.87	0	0	26.362	-6215.3
28098	239.95	0	0	26.362	-6215.3
28099	239.88	0	0	26.362	-6215.3
28100	239.82	0	0	26.362	-6215.3
28101	239.91	0	0	26.362	-6215.3
28102	239.82	0	0	26.362	-6215.3
28103	239.92	0	0	26.362	-6215.3
28104	239.92	0	0	26.362	-6215.3

28105	239.9	0	0	26.362	-6215.3
28106	239.94	0	0	26.362	-6215.3
28107	239.84	0	0	26.362	-6215.3
28108	239.87	0	0	26.362	-6215.3
28109	240.01	0	0	26.362	-6215.3
28110	239.93	0	0	26.362	-6215.3
28111	239.98	0	0	26.362	-6215.3
28112	239.99	0	0	26.362	-6215.3
28113	240.07	0	0	26.362	-6215.3
28114	239.81	0	0	26.362	-6215.3
28115	239.9	0	0	26.362	-6215.3
28116	239.9	0	0	26.362	-6215.3
28117	239.9	0	0	26.362	-6215.3
28118	239.87	0	0	26.362	-6215.3
28119	240.01	0	0	26.362	-6215.3
28120	239.83	0	0	26.362	-6215.3
28121	239.98	0	0	26.362	-6215.3
28122	240.01	0	0	26.362	-6215.3
28123	239.96	0	0	26.362	-6215.3
28124	240.01	0	0	26.362	-6215.3
28125	239.9	0	0	26.362	-6215.3
28126	239.92	0	0	26.362	-6215.3
28127	239.88	0	0	26.362	-6215.3
28128	239.88	0	0	26.362	-6215.3
28129	239.86	0	0	26.362	-6215.3
28130	239.93	0	0	26.362	-6215.3
28131	239.84	0	0	26.362	-6215.3
28132	239.9	0	0	26.362	-6215.3
28133	239.79	0	0	26.362	-6215.3
28134	239.95	0	0	26.362	-6215.3
28135	239.74	0	0	26.362	-6215.3
28136	239.83	0	0	26.362	-6215.3
28137	239.8	0	0	26.362	-6215.3
28138	239.75	0	0	26.362	-6215.3
28139	239.71	0	0	26.362	-6215.3
28140	239.88	0	0	26.362	-6215.3
28141	239.71	0	0	26.362	-6215.3
28142	239.68	0	0	26.362	-6215.3
28143	239.66	0	0	26.362	-6215.3
28144	239.8	0	0	26.362	-6215.3
28145	239.84	0	0	26.362	-6215.3
28146	239.85	0	0	26.362	-6215.3
28147	239.81	0	0	26.362	-6215.3
28148	239.77	0	0	26.362	-6215.3
28149	239.86	0	0	26.362	-6215.3
28150	239.71	0	0	26.362	-6215.3
28151	239.75	0	0	26.362	-6215.3

28152	239.8	0	0	26.362	-6215.3
28153	239.79	0	0	26.362	-6215.3
28154	239.76	0	0	26.362	-6215.3
28155	239.84	0	0	26.362	-6215.3
28156	239.79	0	0	26.362	-6215.3
28157	239.81	0	0	26.362	-6215.3
28158	239.78	0	0	26.362	-6215.3
28159	239.78	0	0	26.362	-6215.3
28160	239.81	0	0	26.362	-6215.3
28161	239.85	0	0	26.362	-6215.3
28162	239.79	0	0	26.362	-6215.3
28163	239.73	0	0	26.362	-6215.3
28164	239.81	0	0	26.362	-6215.3
28165	239.71	0	0	26.362	-6215.3
28166	239.89	0	0	26.362	-6215.3
28167	239.87	0	0	26.362	-6215.3
28168	239.86	0	0	26.362	-6215.3
28169	239.88	0	0	26.362	-6215.3
28170	239.89	0	0	26.362	-6215.3
28171	239.97	0	0	26.362	-6215.3
28172	239.96	0	0	26.362	-6215.3
28173	239.96	0	0	26.362	-6215.3
28174	239.96	0	0	26.362	-6215.3
28175	239.92	0	0	26.362	-6215.3
28176	239.93	0	0	26.362	-6215.3
28177	239.91	0	0	26.362	-6215.3
28178	240	0	0	26.362	-6215.3
28179	239.92	0	0	26.362	-6215.3
28180	239.94	0	0	26.362	-6215.3
28181	239.9	0	0	26.362	-6215.3
28182	239.89	0	0	26.362	-6215.3
28183	239.98	0	0	26.362	-6215.3
28184	239.84	0	0	26.362	-6215.3
28185	239.85	0	0	26.362	-6215.3
28186	239.78	0	0	26.362	-6215.3
28187	239.82	0	0	26.362	-6215.3
28188	239.94	0	0	26.362	-6215.3
28189	239.88	0	0	26.362	-6215.3
28190	240.05	0	0	26.362	-6215.3
28191	240	0	0	26.362	-6215.3
28192	240.1	0	0	26.362	-6215.3
28193	240.02	0	0	26.362	-6215.3
28194	240.1	0	0	26.362	-6215.3
28195	239.99	0	0	26.362	-6215.3
28196	240.04	0	0	26.362	-6215.3
28197	240.02	0	0	26.362	-6215.3
28198	240.08	0	0	26.362	-6215.3

28199	240.02	0	0	26.362	-6215.3
28200	240.09	0	0	26.362	-6215.3
28201	240.08	0	0	26.362	-6215.3
28202	240.03	0	0	26.362	-6215.3
28203	240.06	0	0	26.362	-6215.3
28204	239.97	0	0	26.362	-6215.3
28205	239.92	0	0	26.362	-6215.3
28206	240	0	0	26.362	-6215.3
28207	239.88	0	0	26.362	-6215.3
28208	240.02	0	0	26.362	-6215.3
28209	239.91	0	0	26.362	-6215.3
28210	239.94	0	0	26.362	-6215.3
28211	239.89	0	0	26.362	-6215.3
28212	239.84	0	0	26.362	-6215.3
28213	239.82	0	0	26.362	-6215.3
28214	239.92	0	0	26.362	-6215.3
28215	239.8	0	0	26.362	-6215.3
28216	239.96	0	0	26.362	-6215.3
28217	239.89	0	0	26.362	-6215.3
28218	239.98	0	0	26.362	-6215.3
28219	239.9	0	0	26.362	-6215.3
28220	239.94	0	0	26.362	-6215.3
28221	239.84	0	0	26.362	-6215.3
28222	239.96	0	0	26.362	-6215.3
28223	239.96	0	0	26.362	-6215.3
28224	239.98	0	0	26.362	-6215.3
28225	239.92	0	0	26.362	-6215.3
28226	239.94	0	0	26.362	-6215.3
28227	239.91	0	0	26.362	-6215.3
28228	239.89	0	0	26.362	-6215.3
28229	239.86	0	0	26.362	-6215.3
28230	239.91	0	0	26.362	-6215.3
28231	239.9	0	0	26.362	-6215.3
28232	239.9	0	0	26.362	-6215.3
28233	239.95	0	0	26.362	-6215.3
28234	239.93	0	0	26.362	-6215.3
28235	240.01	0	0	26.362	-6215.3
28236	239.89	0	0	26.362	-6215.3
28237	239.84	0	0	26.362	-6215.3
28238	239.84	0	0	26.362	-6215.3
28239	239.66	0	0	26.362	-6215.3
28240	239.87	0	0	26.362	-6215.3
28241	239.91	0	0	26.362	-6215.3
28242	239.86	0	0	26.362	-6215.3
28243	239.98	0	0	26.362	-6215.3
28244	239.94	0	0	26.362	-6215.3
28245	239.91	0	0	26.362	-6215.3

28246	239.85	0	0	26.362	-6215.3
28247	239.88	0	0	26.362	-6215.3
28248	239.8	0	0	26.362	-6215.3
28249	239.8	0	0	26.362	-6215.3
28250	239.94	0	0	26.362	-6215.3
28251	239.84	0	0	26.362	-6215.3
28252	239.89	0	0	26.362	-6215.3
28253	239.77	0	0	26.362	-6215.3
28254	239.77	0	0	26.362	-6215.3
28255	239.85	0	0	26.362	-6215.3
28256	239.86	0	0	26.362	-6215.3
28257	239.86	0	0	26.362	-6215.3
28258	239.86	0	0	26.362	-6215.3
28259	239.81	0	0	26.362	-6215.3
28260	239.79	0	0	26.362	-6215.3
28261	239.83	0	0	26.362	-6215.3
28262	239.9	0	0	26.362	-6215.3
28263	239.82	0	0	26.362	-6215.3
28264	239.87	0	0	26.362	-6215.3
28265	239.78	0	0	26.362	-6215.3
28266	239.81	0	0	26.362	-6215.3
28267	239.84	0	0	26.362	-6215.3
28268	239.88	0	0	26.362	-6215.3
28269	239.83	0	0	26.362	-6215.3
28270	239.99	0	0	26.362	-6215.3
28271	239.78	0	0	26.362	-6215.3
28272	240.05	0	0	26.362	-6215.3
28273	239.83	0	0	26.362	-6215.3
28274	239.92	0	0	26.362	-6215.3
28275	239.93	0	0	26.362	-6215.3
28276	239.96	0	0	26.362	-6215.3
28277	239.91	0	0	26.362	-6215.3
28278	239.95	0	0	26.362	-6215.3
28279	240.03	0	0	26.362	-6215.3
28280	239.97	0	0	26.362	-6215.3
28281	239.98	0	0	26.362	-6215.3
28282	240.03	0	0	26.362	-6215.3
28283	239.89	0	0	26.362	-6215.3
28284	239.93	0	0	26.362	-6215.3
28285	239.95	0	0	26.362	-6215.3
28286	239.96	0	0	26.362	-6215.3
28287	239.95	0	0	26.362	-6215.3
28288	240	0	0	26.362	-6215.3
28289	240.03	0	0	26.362	-6215.3
28290	239.78	0	0	26.362	-6215.3
28291	239.95	0	0	26.362	-6215.3
28292	239.91	0	0	26.362	-6215.3

28293	239.9	0	0	26.362	-6215.3
28294	239.8	0	0	26.362	-6215.3
28295	239.81	0	0	26.362	-6215.3
28296	239.88	0	0	26.362	-6215.3
28297	239.94	0	0	26.362	-6215.3
28298	239.84	0	0	26.362	-6215.3
28299	239.95	0	0	26.362	-6215.3
28300	239.89	0	0	26.362	-6215.3
28301	239.86	0	0	26.362	-6215.3
28302	239.93	0	0	26.362	-6215.3
28303	239.87	0	0	26.362	-6215.3
28304	239.85	0	0	26.362	-6215.3
28305	239.94	0	0	26.362	-6215.3
28306	239.88	0	0	26.362	-6215.3
28307	239.94	0	0	26.362	-6215.3
28308	239.82	0	0	26.362	-6215.3
28309	239.83	0	0	26.362	-6215.3
28310	239.95	0	0	26.362	-6215.3
28311	240.1	0	0	26.362	-6215.3
28312	240.06	0	0	26.362	-6215.3
28313	239.97	0	0	26.362	-6215.3
28314	240.01	0	0	26.362	-6215.3
28315	239.96	0	0	26.362	-6215.3
28316	239.94	0	0	26.362	-6215.3
28317	239.97	0	0	26.362	-6215.3
28318	240.02	0	0	26.362	-6215.3
28319	239.99	0	0	26.362	-6215.3
28320	239.97	0	0	26.362	-6215.3
28321	239.96	0	0	26.362	-6215.3
28322	239.95	0	0	26.362	-6215.3
28323	239.95	0	0	26.362	-6215.3
28324	239.83	0	0	26.362	-6215.3
28325	239.96	0	0	26.362	-6215.3
28326	239.97	0	0	26.362	-6215.3
28327	239.83	0	0	26.362	-6215.3
28328	239.91	0	0	26.362	-6215.3
28329	239.91	0	0	26.362	-6215.3
28330	239.8	0	0	26.362	-6215.3
28331	239.87	0	0	26.362	-6215.3
28332	239.91	0	0	26.362	-6215.3
28333	239.81	0	0	26.362	-6215.3
28334	239.84	0	0	26.362	-6215.3
28335	239.86	0	0	26.362	-6215.3
28336	239.82	0	0	26.362	-6215.3
28337	239.79	0	0	26.362	-6215.3
28338	239.91	0	0	26.362	-6215.3
28339	239.83	0	0	26.362	-6215.3

28340	239.92	0	0	26.362	-6215.3
28341	239.94	0	0	26.362	-6215.3
28342	239.92	0	0	26.362	-6215.3
28343	240	0	0	26.362	-6215.3
28344	239.82	0	0	26.362	-6215.3
28345	239.8	0	0	26.362	-6215.3
28346	239.78	0	0	26.362	-6215.3
28347	239.85	0	0	26.362	-6215.3
28348	239.93	0	0	26.362	-6215.3
28349	239.85	0	0	26.362	-6215.3
28350	239.8	0	0	26.362	-6215.3
28351	239.76	0	0	26.362	-6215.3
28352	239.9	0	0	26.362	-6215.3
28353	239.87	0	0	26.362	-6215.3
28354	239.83	0	0	26.362	-6215.3
28355	239.85	0	0	26.362	-6215.3
28356	239.86	0	0	26.362	-6215.3
28357	239.78	0	0	26.362	-6215.3
28358	239.84	0	0	26.362	-6215.3
28359	239.94	0	0	26.362	-6215.3
28360	239.7	0	0	26.362	-6215.3
28361	239.74	0	0	26.362	-6215.3
28362	239.83	0	0	26.362	-6215.3
28363	239.86	0	0	26.362	-6215.3
28364	239.85	0	0	26.362	-6215.3
28365	239.85	0	0	26.362	-6215.3
28366	239.8	0	0	26.362	-6215.3
28367	239.72	0	0	26.362	-6215.3
28368	239.81	0	0	26.362	-6215.3
28369	239.72	0	0	26.362	-6215.3
28370	239.68	0	0	26.362	-6215.3
28371	239.73	0	0	26.362	-6215.3
28372	239.77	0	0	26.362	-6215.3
28373	239.72	0	0	26.362	-6215.3
28374	239.7	0	0	26.362	-6215.3
28375	239.69	0	0	26.362	-6215.3
28376	239.7	0	0	26.362	-6215.3
28377	239.66	0	0	26.362	-6215.3
28378	239.72	0	0	26.362	-6215.3
28379	239.7	0	0	26.362	-6215.3
28380	239.68	0	0	26.362	-6215.3
28381	239.71	0	0	26.362	-6215.3
28382	239.72	0	0	26.362	-6215.3
28383	239.96	0	0	26.362	-6215.3
28384	239.9	0	0	26.362	-6215.3
28385	239.71	0	0	26.362	-6215.3
28386	239.72	0	0	26.362	-6215.3

28387	239.69	0	0	26.362	-6215.3
28388	239.7	0	0	26.362	-6215.3
28389	239.66	0	0	26.362	-6215.3
28390	239.61	0	0	26.362	-6215.3
28391	239.65	0	0	26.362	-6215.3
28392	239.67	0	0	26.362	-6215.3
28393	239.7	0	0	26.362	-6215.3
28394	239.73	0	0	26.362	-6215.3
28395	239.72	0	0	26.362	-6215.3
28396	239.69	0	0	26.362	-6215.3
28397	239.8	0	0	26.362	-6215.3
28398	239.73	0	0	26.362	-6215.3
28399	239.7	0	0	26.362	-6215.3
28400	239.69	0	0	26.362	-6215.3
28401	239.72	0	0	26.362	-6215.3
28402	239.74	0	0	26.362	-6215.3
28403	239.76	0	0	26.362	-6215.3
28404	239.79	0	0	26.362	-6215.3
28405	239.72	0	0	26.362	-6215.3
28406	239.76	0	0	26.362	-6215.3
28407	239.68	0	0	26.362	-6215.3
28408	239.73	0	0	26.362	-6215.3
28409	239.83	0	0	26.362	-6215.3
28410	239.81	0	0	26.362	-6215.3
28411	239.7	0	0	26.362	-6215.3
28412	239.79	0	0	26.362	-6215.3
28413	239.73	0	0	26.362	-6215.3
28414	239.7	0	0	26.362	-6215.3
28415	239.73	0	0	26.362	-6215.3
28416	239.68	0	0	26.362	-6215.3
28417	239.62	0	0	26.362	-6215.3
28418	239.8	0	0	26.362	-6215.3
28419	239.69	0	0	26.362	-6215.3
28420	239.76	0	0	26.362	-6215.3
28421	239.64	0	0	26.362	-6215.3
28422	239.65	0	0	26.362	-6215.3
28423	239.85	0	0	26.362	-6215.3
28424	239.75	0	0	26.362	-6215.3
28425	239.78	0	0	26.362	-6215.3
28426	239.76	0	0	26.362	-6215.3
28427	239.75	0	0	26.362	-6215.3
28428	239.71	0	0	26.362	-6215.3
28429	239.73	0	0	26.362	-6215.3
28430	239.77	0	0	26.362	-6215.3
28431	239.72	0	0	26.362	-6215.3
28432	239.76	0	0	26.362	-6215.3
28433	239.76	0	0	26.362	-6215.3

28434	239.75	0	0	26.362	-6215.3
28435	239.81	0	0	26.362	-6215.3
28436	239.79	0	0	26.362	-6215.3
28437	239.76	0	0	26.362	-6215.3
28438	239.67	0	0	26.362	-6215.3
28439	238.9	0	0	26.362	-6215.3
28440	239.41	0	0	26.362	-6215.3
28441	239.42	0	0	26.362	-6215.3
28442	239.46	0	0	26.362	-6215.3
28443	239.3	0	0	26.362	-6215.3
28444	239.42	0	0	26.362	-6215.3
28445	239.39	0	0	26.362	-6215.3
28446	239.43	0	0	26.362	-6215.3
28447	239.34	0	0	26.362	-6215.3
28448	239.4	0	0	26.362	-6215.3
28449	239.53	0	0	26.362	-6215.3
28450	239.33	0	0	26.362	-6215.3
28451	239.43	0	0	26.362	-6215.3
28452	239.42	0	0	26.362	-6215.3
28453	239.35	0	0	26.362	-6215.3
28454	239.41	0	0	26.362	-6215.3
28455	239.36	0	0	26.362	-6215.3
28456	239.4	0	0	26.362	-6215.3
28457	239.25	0	0	26.362	-6215.3
28458	239.37	0	0	26.362	-6215.3
28459	239.34	0	0	26.362	-6215.3
28460	239.32	0	0	26.362	-6215.3
28461	239.39	0	0	26.362	-6215.3
28462	239.31	0	0	26.362	-6215.3
28463	239.38	0	0	26.362	-6215.3
28464	239.29	0	0	26.362	-6215.3
28465	239.19	0	0	26.362	-6215.3
28466	239.59	0	0	26.362	-6215.3
28467	239.42	0	0	26.362	-6215.3
28468	239.36	0	0	26.362	-6215.3
28469	239.43	0	0	26.362	-6215.3
28470	239.35	0	0	26.362	-6215.3
28471	239.4	0	0	26.362	-6215.3
28472	239.42	0	0	26.362	-6215.3
28473	239.41	0	0	26.362	-6215.3
28474	239.35	0	0	26.362	-6215.3
28475	239.37	0	0	26.362	-6215.3
28476	239.31	0	0	26.362	-6215.3
28477	239.34	0	0	26.362	-6215.3
28478	239.25	0	0	26.362	-6215.3
28479	239.29	0	0	26.362	-6215.3
28480	239.33	0	0	26.362	-6215.3

28481	239.24	0	0	26.362	-6215.3
28482	238.35	0	0	26.362	-6215.3
28483	238.88	0	0	26.362	-6215.3
28484	239.08	0	0	26.362	-6215.3
28485	239.27	0	0	26.362	-6215.3
28486	239.27	0	0	26.362	-6215.3
28487	239.24	0	0	26.362	-6215.3
28488	239.15	0	0	26.362	-6215.3
28489	239.26	0	0	26.362	-6215.3
28490	239.32	0	0	26.362	-6215.3
28491	239.31	0	0	26.362	-6215.3
28492	239.23	0	0	26.362	-6215.3
28493	239.25	0	0	26.362	-6215.3
28494	239.29	0	0	26.362	-6215.3
28495	239.25	0	0	26.362	-6215.3
28496	239.07	0	0	26.362	-6215.3
28497	239.2	0	0	26.362	-6215.3
28498	239.26	0	0	26.362	-6215.3
28499	239.29	0	0	26.362	-6215.3
28500	239.13	0	0	26.362	-6215.3
28501	239.26	0	0	26.362	-6215.3
28502	239.25	0	0	26.362	-6215.3
28503	239.23	0	0	26.362	-6215.3
28504	239.21	0	0	26.362	-6215.3
28505	239.22	0	0	26.362	-6215.3
28506	239.21	0	0	26.362	-6215.3
28507	239.27	0	0	26.362	-6215.3
28508	239.3	0	0	26.362	-6215.3
28509	239.28	0	0	26.362	-6215.3
28510	239.24	0	0	26.362	-6215.3
28511	239.39	0	0	26.362	-6215.3
28512	239.28	0	0	26.362	-6215.3
28513	239.26	0	0	26.362	-6215.3
28514	239.25	0	0	26.362	-6215.3
28515	239.17	0	0	26.362	-6215.3
28516	239.25	0	0	26.362	-6215.3
28517	239.19	0	0	26.362	-6215.3
28518	239.2	0	0	26.362	-6215.3
28519	239.32	0	0	26.362	-6215.3
28520	239.16	0	0	26.362	-6215.3
28521	239.2	0	0	26.362	-6215.3
28522	239.28	0	0	26.362	-6215.3
28523	239.22	0	0	26.362	-6215.3
28524	239.15	0	0	26.362	-6215.3
28525	239.16	0	0	26.362	-6215.3
28526	239.27	0	0	26.362	-6215.3
28527	239.22	0	0	26.362	-6215.3

28528	239.26	0	0	26.362	-6215.3
28529	239.27	0	0	26.362	-6215.3
28530	239.25	0	0	26.362	-6215.3
28531	239.34	0	0	26.362	-6215.3
28532	239.15	0	0	26.362	-6215.3
28533	239.22	0	0	26.362	-6215.3
28534	239.24	0	0	26.362	-6215.3
28535	239.25	0	0	26.362	-6215.3
28536	239.26	0	0	26.362	-6215.3
28537	239.21	0	0	26.362	-6215.3
28538	239.14	0	0	26.362	-6215.3
28539	239.33	0	0	26.362	-6215.3
28540	239.21	0	0	26.362	-6215.3
28541	239.1	0	0	26.362	-6215.3
28542	239.16	0	0	26.362	-6215.3
28543	239.1	0	0	26.362	-6215.3
28544	239.27	0	0	26.362	-6215.3
28545	239.17	0	0	26.362	-6215.3
28546	239.2	0	0	26.362	-6215.3
28547	239.12	0	0	26.362	-6215.3
28548	239.2	0	0	26.362	-6215.3
28549	239.24	0	0	26.362	-6215.3
28550	239.18	0	0	26.362	-6215.3
28551	239.31	0	0	26.362	-6215.3
28552	239.24	0	0	26.362	-6215.3
28553	239.17	0	0	26.362	-6215.3
28554	239.37	0	0	26.362	-6215.3
28555	239.25	0	0	26.362	-6215.3
28556	239.27	0	0	26.362	-6215.3
28557	239.29	0	0	26.362	-6215.3
28558	239.24	0	0	26.362	-6215.3
28559	239.19	0	0	26.362	-6215.3
28560	239.29	0	0	26.362	-6215.3
28561	239.27	0	0	26.362	-6215.3
28562	239.22	0	0	26.362	-6215.3
28563	239.2	0	0	26.362	-6215.3
28564	239.21	0	0	26.362	-6215.3
28565	239.18	0	0	26.362	-6215.3
28566	239.28	0	0	26.362	-6215.3
28567	239.25	0	0	26.362	-6215.3
28568	239.21	0	0	26.362	-6215.3
28569	239.24	0	0	26.362	-6215.3
28570	239.17	0	0	26.362	-6215.3
28571	239.21	0	0	26.362	-6215.3
28572	239.27	0	0	26.362	-6215.3
28573	239.3	0	0	26.362	-6215.3
28574	239.36	0	0	26.362	-6215.3

28575	239.17	0	0	26.362	-6215.3
28576	239.28	0	0	26.362	-6215.3
28577	239.29	0	0	26.362	-6215.3
28578	239.21	0	0	26.362	-6215.3
28579	239.31	0	0	26.362	-6215.3
28580	239.26	0	0	26.362	-6215.3
28581	239.21	0	0	26.362	-6215.3
28582	239.22	0	0	26.362	-6215.3
28583	239.23	0	0	26.362	-6215.3
28584	239.29	0	0	26.362	-6215.3
28585	239.38	0	0	26.362	-6215.3
28586	239.32	0	0	26.362	-6215.3
28587	239.42	0	0	26.362	-6215.3
28588	239.37	0	0	26.362	-6215.3
28589	239.44	0	0	26.362	-6215.3
28590	239.42	0	0	26.362	-6215.3
28591	239.48	0	0	26.362	-6215.3
28592	239.46	0	0	26.362	-6215.3
28593	239.44	0	0	26.362	-6215.3
28594	239.35	0	0	26.362	-6215.3
28595	239.39	0	0	26.362	-6215.3
28596	239.45	0	0	26.362	-6215.3
28597	239.4	0	0	26.362	-6215.3
28598	239.32	0	0	26.362	-6215.3
28599	239.35	0	0	26.362	-6215.3
28600	239.35	0	0	26.362	-6215.3
28601	239.4	0	0	26.362	-6215.3
28602	239.39	0	0	26.362	-6215.3
28603	239.41	0	0	26.362	-6215.3
28604	239.26	0	0	26.362	-6215.3
28605	239.48	0	0	26.362	-6215.3
28606	239.31	0	0	26.362	-6215.3
28607	239.38	0	0	26.362	-6215.3
28608	239.37	0	0	26.362	-6215.3
28609	239.28	0	0	26.362	-6215.3
28610	239.52	0	0	26.362	-6215.3
28611	239.54	0	0	26.362	-6215.3
28612	239.48	0	0	26.362	-6215.3
28613	239.48	0	0	26.362	-6215.3
28614	239.42	0	0	26.362	-6215.3
28615	239.41	0	0	26.362	-6215.3
28616	239.47	0	0	26.362	-6215.3
28617	239.39	0	0	26.362	-6215.3
28618	239.43	0	0	26.362	-6215.3
28619	239.51	0	0	26.362	-6215.3
28620	239.46	0	0	26.362	-6215.3
28621	239.4	0	0	26.362	-6215.3

28622	239.41	0	0	26.362	-6215.3
28623	239.42	0	0	26.362	-6215.3
28624	239.28	0	0	26.362	-6215.3
28625	239.32	0	0	26.362	-6215.3
28626	239.38	0	0	26.362	-6215.3
28627	239.27	0	0	26.362	-6215.3
28628	239.33	0	0	26.362	-6215.3
28629	239.34	0	0	26.362	-6215.3
28630	239.37	0	0	26.362	-6215.3
28631	239.45	0	0	26.362	-6215.3
28632	239.39	0	0	26.362	-6215.3
28633	239.38	0	0	26.362	-6215.3
28634	239.49	0	0	26.362	-6215.3
28635	239.3	0	0	26.362	-6215.3
28636	239.32	0	0	26.362	-6215.3
28637	239.32	0	0	26.362	-6215.3
28638	239.32	0	0	26.362	-6215.3
28639	239.49	0	0	26.362	-6215.3
28640	239.4	0	0	26.362	-6215.3
28641	239.31	0	0	26.362	-6215.3
28642	239.35	0	0	26.362	-6215.3
28643	239.42	0	0	26.362	-6215.3
28644	239.28	0	0	26.362	-6215.3
28645	239.31	0	0	26.362	-6215.3
28646	239.35	0	0	26.362	-6215.3
28647	239.31	0	0	26.362	-6215.3
28648	239.32	0	0	26.362	-6215.3
28649	239.21	0	0	26.362	-6215.3
28650	239.03	0	0	26.362	-6215.3
28651	239.26	0	0	26.362	-6215.3
28652	239.28	0	0	26.362	-6215.3
28653	239.2	0	0	26.362	-6215.3
28654	239.22	0	0	26.362	-6215.3
28655	239.34	0	0	26.362	-6215.3
28656	239.28	0	0	26.362	-6215.3
28657	239.25	0	0	26.362	-6215.3
28658	239.32	0	0	26.362	-6215.3
28659	239.33	0	0	26.362	-6215.3
28660	239.17	0	0	26.362	-6215.3
28661	239.29	0	0	26.362	-6215.3
28662	239.16	0	0	26.362	-6215.3
28663	239.17	0	0	26.362	-6215.3
28664	239.3	0	0	26.362	-6215.3
28665	239.08	0	0	26.362	-6215.3
28666	239.24	0	0	26.362	-6215.3
28667	239.14	0	0	26.362	-6215.3
28668	239.2	0	0	26.362	-6215.3

28669	239.28	0	0	26.362	-6215.3
28670	239.17	0	0	26.362	-6215.3
28671	239.23	0	0	26.362	-6215.3
28672	239.25	0	0	26.362	-6215.3
28673	239.25	0	0	26.362	-6215.3
28674	239.32	0	0	26.362	-6215.3
28675	239.42	0	0	26.362	-6215.3
28676	239.4	0	0	26.362	-6215.3
28677	239.24	0	0	26.362	-6215.3
28678	239.34	0	0	26.362	-6215.3
28679	239.18	0	0	26.362	-6215.3
28680	239.3	0	0	26.362	-6215.3
28681	239.24	0	0	26.362	-6215.3
28682	239.29	0	0	26.362	-6215.3
28683	239.24	0	0	26.362	-6215.3
28684	239.26	0	0	26.362	-6215.3
28685	239.17	0	0	26.362	-6215.3
28686	239.33	0	0	26.362	-6215.3
28687	239.35	0	0	26.362	-6215.3
28688	239.32	0	0	26.362	-6215.3
28689	239.34	0	0	26.362	-6215.3
28690	239.07	0	0	26.362	-6215.3
28691	239.09	0	0	26.362	-6215.3
28692	239.51	0	0	26.362	-6215.3
28693	239.54	0	0	26.362	-6215.3
28694	239.31	0	0	26.362	-6215.3
28695	239.4	0	0	26.362	-6215.3
28696	239.33	0	0	26.362	-6215.3
28697	239.39	0	0	26.362	-6215.3
28698	239.46	0	0	26.362	-6215.3
28699	239.29	0	0	26.362	-6215.3
28700	239.43	0	0	26.362	-6215.3
28701	239.36	0	0	26.362	-6215.3
28702	239.36	0	0	26.362	-6215.3
28703	239.36	0	0	26.362	-6215.3
28704	239.25	0	0	26.362	-6215.3
28705	239.4	0	0	26.362	-6215.3
28706	239.38	0	0	26.362	-6215.3
28707	239.62	0	0	26.362	-6215.3
28708	239.54	0	0	26.362	-6215.3
28709	239.55	0	0	26.362	-6215.3
28710	239.57	0	0	26.362	-6215.3
28711	239.6	0	0	26.362	-6215.3
28712	239.6	0	0	26.362	-6215.3
28713	239.45	0	0	26.362	-6215.3
28714	239.58	0	0	26.362	-6215.3
28715	239.65	0	0	26.362	-6215.3

28716	239.58	0	0	26.362	-6215.3
28717	239.54	0	0	26.362	-6215.3
28718	239.57	0	0	26.362	-6215.3
28719	239.67	0	0	26.362	-6215.3
28720	239.61	0	0	26.362	-6215.3
28721	239.65	0	0	26.362	-6215.3
28722	239.68	0	0	26.362	-6215.3
28723	239.58	0	0	26.362	-6215.3
28724	239.62	0	0	26.362	-6215.3
28725	239.54	0	0	26.362	-6215.3
28726	239.54	0	0	26.362	-6215.3
28727	239.64	0	0	26.362	-6215.3
28728	239.54	0	0	26.362	-6215.3
28729	239.5	0	0	26.362	-6215.3
28730	239.43	0	0	26.362	-6215.3
28731	239.4	0	0	26.362	-6215.3
28732	239.43	0	0	26.362	-6215.3
28733	239.29	0	0	26.362	-6215.3
28734	239.32	0	0	26.362	-6215.3
28735	239.27	0	0	26.362	-6215.3
28736	239.36	0	0	26.362	-6215.3
28737	239.35	0	0	26.362	-6215.3
28738	239.37	0	0	26.362	-6215.3
28739	239.4	0	0	26.362	-6215.3
28740	239.33	0	0	26.362	-6215.3
28741	239.37	0	0	26.362	-6215.3
28742	239.36	0	0	26.362	-6215.3
28743	239.37	0	0	26.362	-6215.3
28744	239.33	0	0	26.362	-6215.3
28745	239.32	0	0	26.362	-6215.3
28746	239.42	0	0	26.362	-6215.3
28747	239.42	0	0	26.362	-6215.3
28748	239.47	0	0	26.362	-6215.3
28749	239.43	0	0	26.362	-6215.3
28750	239.38	0	0	26.362	-6215.3
28751	239.39	0	0	26.362	-6215.3
28752	239.4	0	0	26.362	-6215.3
28753	239.36	0	0	26.362	-6215.3
28754	239.39	0	0	26.362	-6215.3
28755	239.75	0	0	26.362	-6215.3
28756	239.8	0	0	26.362	-6215.3
28757	239.8	0	0	26.362	-6215.3
28758	239.7	0	0	26.362	-6215.3
28759	239.81	0	0	26.362	-6215.3
28760	239.69	0	0	26.362	-6215.3
28761	239.8	0	0	26.362	-6215.3
28762	239.77	0	0	26.362	-6215.3

28763	239.75	0	0	26.362	-6215.3
28764	239.87	0	0	26.362	-6215.3
28765	239.78	0	0	26.362	-6215.3
28766	239.83	0	0	26.362	-6215.3
28767	239.79	0	0	26.362	-6215.3
28768	239.81	0	0	26.362	-6215.3
28769	239.69	0	0	26.362	-6215.3
28770	239.75	0	0	26.362	-6215.3
28771	239.64	0	0	26.362	-6215.3
28772	239.84	0	0	26.362	-6215.3
28773	239.74	0	0	26.362	-6215.3
28774	239.79	0	0	26.362	-6215.3
28775	239.8	0	0	26.362	-6215.3
28776	239.82	0	0	26.362	-6215.3
28777	239.89	0	0	26.362	-6215.3
28778	239.97	0	0	26.362	-6215.3
28779	239.96	0	0	26.362	-6215.3
28780	239.95	0	0	26.362	-6215.3
28781	239.93	0	0	26.362	-6215.3
28782	239.99	0	0	26.362	-6215.3
28783	240.03	0	0	26.362	-6215.3
28784	240.02	0	0	26.362	-6215.3
28785	240.04	0	0	26.362	-6215.3
28786	240	0	0	26.362	-6215.3
28787	240.06	0	0	26.362	-6215.3
28788	240.17	0	0	26.362	-6215.3
28789	240.09	0	0	26.362	-6215.3
28790	240.14	0	0	26.362	-6215.3
28791	240.07	0	0	26.362	-6215.3
28792	240.09	0	0	26.362	-6215.3
28793	240.04	0	0	26.362	-6215.3
28794	240.1	0	0	26.362	-6215.3
28795	240.06	0	0	26.362	-6215.3
28796	240.1	0	0	26.362	-6215.3
28797	240.04	0	0	26.362	-6215.3
28798	240.09	0	0	26.362	-6215.3
28799	240.08	0	0	26.362	-6215.3
28800	240.09	0	0	26.362	-6215.3
28801	240.07	0	0	26.362	-6215.3
28802	240.12	0	0	26.362	-6215.3
28803	240.1	0	0	26.362	-6215.3
28804	240.05	0	0	26.362	-6215.3
28805	240.11	0	0	26.362	-6215.3
28806	240.14	0	0	26.362	-6215.3
28807	240.1	0	0	26.362	-6215.3
28808	240.08	0	0	26.362	-6215.3
28809	240.11	0	0	26.362	-6215.3

28810	240.05	0	0	26.362	-6215.3
28811	239.85	0	0	26.362	-6215.3
28812	240.01	0	0	26.362	-6215.3
28813	240.03	0	0	26.362	-6215.3
28814	240.08	0	0	26.362	-6215.3
28815	240	0	0	26.362	-6215.3
28816	240.01	0	0	26.362	-6215.3
28817	240.02	0	0	26.362	-6215.3
28818	240	0	0	26.362	-6215.3
28819	240.01	0	0	26.362	-6215.3
28820	240	0	0	26.362	-6215.3
28821	240.06	0	0	26.362	-6215.3
28822	239.93	0	0	26.362	-6215.3
28823	239.95	0	0	26.362	-6215.3
28824	240.03	0	0	26.362	-6215.3
28825	239.97	0	0	26.362	-6215.3
28826	239.96	0	0	26.362	-6215.3
28827	239.96	0	0	26.362	-6215.3
28828	239.88	0	0	26.362	-6215.3
28829	239.9	0	0	26.362	-6215.3
28830	239.87	0	0	26.362	-6215.3
28831	239.86	0	0	26.362	-6215.3
28832	239.84	0	0	26.362	-6215.3
28833	239.9	0	0	26.362	-6215.3
28834	239.88	0	0	26.362	-6215.3
28835	239.92	0	0	26.362	-6215.3
28836	239.89	0	0	26.362	-6215.3
28837	239.9	0	0	26.362	-6215.3
28838	239.95	0	0	26.362	-6215.3
28839	239.93	0	0	26.362	-6215.3
28840	239.97	0	0	26.362	-6215.3
28841	239.95	0	0	26.362	-6215.3
28842	240	0	0	26.362	-6215.3
28843	240	0	0	26.362	-6215.3
28844	240	0	0	26.362	-6215.3
28845	240.02	0	0	26.362	-6215.3
28846	240.01	0	0	26.362	-6215.3
28847	240.1	0	0	26.362	-6215.3
28848	240.03	0	0	26.362	-6215.3
28849	239.98	0	0	26.362	-6215.3
28850	240.04	0	0	26.362	-6215.3
28851	239.95	0	0	26.362	-6215.3
28852	240.02	0	0	26.362	-6215.3
28853	240.07	0	0	26.362	-6215.3
28854	239.96	0	0	26.362	-6215.3
28855	239.94	0	0	26.362	-6215.3
28856	239.92	0	0	26.362	-6215.3

28857	239.92	0	0	26.362	-6215.3
28858	239.9	0	0	26.362	-6215.3
28859	239.9	0	0	26.362	-6215.3
28860	239.9	0	0	26.362	-6215.3
28861	239.87	0	0	26.362	-6215.3
28862	239.89	0	0	26.362	-6215.3
28863	239.91	0	0	26.362	-6215.3
28864	239.85	0	0	26.362	-6215.3
28865	239.9	0	0	26.362	-6215.3
28866	239.63	0	0	26.362	-6215.3
28867	239.64	0	0	26.362	-6215.3
28868	239.75	0	0	26.362	-6215.3
28869	239.66	0	0	26.362	-6215.3
28870	239.67	0	0	26.362	-6215.3
28871	239.69	0	0	26.362	-6215.3
28872	239.6	0	0	26.362	-6215.3
28873	239.58	0	0	26.362	-6215.3
28874	239.59	0	0	26.362	-6215.3
28875	239.59	0	0	26.362	-6215.3
28876	239.55	0	0	26.362	-6215.3
28877	239.61	0	0	26.362	-6215.3
28878	239.66	0	0	26.362	-6215.3
28879	239.66	0	0	26.362	-6215.3
28880	239.67	0	0	26.362	-6215.3
28881	239.77	0	0	26.362	-6215.3
28882	239.72	0	0	26.362	-6215.3
28883	239.76	0	0	26.362	-6215.3
28884	239.67	0	0	26.362	-6215.3
28885	239.78	0	0	26.362	-6215.3
28886	239.64	0	0	26.362	-6215.3
28887	239.87	0	0	26.362	-6215.3
28888	239.79	0	0	26.362	-6215.3
28889	239.75	0	0	26.362	-6215.3
28890	239.68	0	0	26.362	-6215.3
28891	239.63	0	0	26.362	-6215.3
28892	239.75	0	0	26.362	-6215.3
28893	239.82	0	0	26.362	-6215.3
28894	239.87	0	0	26.362	-6215.3
28895	239.9	0	0	26.362	-6215.3
28896	239.91	0	0	26.362	-6215.3
28897	239.75	0	0	26.362	-6215.3
28898	239.85	0	0	26.362	-6215.3
28899	239.16	0	0	26.362	-6215.3
28900	239.71	0	0	26.362	-6215.3
28901	239.75	0	0	26.362	-6215.3
28902	239.81	0	0	26.362	-6215.3
28903	239.84	0	0	26.362	-6215.3

28904	239.78	0	0	26.362	-6215.3
28905	239.74	0	0	26.362	-6215.3
28906	239.85	0	0	26.362	-6215.3
28907	239.69	0	0	26.362	-6215.3
28908	239.78	0	0	26.362	-6215.3
28909	239.72	0	0	26.362	-6215.3
28910	239.83	0	0	26.362	-6215.3
28911	239.73	0	0	26.362	-6215.3
28912	239.75	0	0	26.362	-6215.3
28913	239.73	0	0	26.362	-6215.3
28914	239.72	0	0	26.362	-6215.3
28915	239.79	0	0	26.362	-6215.3
28916	239.7	0	0	26.362	-6215.3
28917	239.69	0	0	26.362	-6215.3
28918	239.86	0	0	26.362	-6215.3
28919	239.72	0	0	26.362	-6215.3
28920	239.83	0	0	26.362	-6215.3
28921	239.81	0	0	26.362	-6215.3
28922	239.79	0	0	26.362	-6215.3
28923	239.79	0	0	26.362	-6215.3
28924	239.96	0	0	26.362	-6215.3
28925	239.8	0	0	26.362	-6215.3
28926	239.78	0	0	26.362	-6215.3
28927	240	0	0	26.362	-6215.3
28928	239.74	0	0	26.362	-6215.3
28929	239.95	0	0	26.362	-6215.3
28930	239.96	0	0	26.362	-6215.3
28931	239.82	0	0	26.362	-6215.3
28932	239.85	0	0	26.362	-6215.3
28933	239.86	0	0	26.362	-6215.3
28934	239.84	0	0	26.362	-6215.3
28935	239.88	0	0	26.362	-6215.3
28936	239.8	0	0	26.362	-6215.3
28937	239.75	0	0	26.362	-6215.3
28938	239.79	0	0	26.362	-6215.3
28939	239.82	0	0	26.362	-6215.3
28940	239.9	0	0	26.362	-6215.3
28941	239.93	0	0	26.362	-6215.3
28942	239.93	0	0	26.362	-6215.3
28943	239.78	0	0	26.362	-6215.3
28944	239.94	0	0	26.362	-6215.3
28945	239.94	0	0	26.362	-6215.3
28946	239.84	0	0	26.362	-6215.3
28947	239.82	0	0	26.362	-6215.3
28948	239.87	0	0	26.362	-6215.3
28949	239.95	0	0	26.362	-6215.3
28950	239.92	0	0	26.362	-6215.3

28951	240.06	0	0	26.362	-6215.3
28952	239.87	0	0	26.362	-6215.3
28953	239.95	0	0	26.362	-6215.3
28954	240.03	0	0	26.362	-6215.3
28955	239.89	0	0	26.362	-6215.3
28956	239.85	0	0	26.362	-6215.3
28957	240	0	0	26.362	-6215.3
28958	239.85	0	0	26.362	-6215.3
28959	239.94	0	0	26.362	-6215.3
28960	239.9	0	0	26.362	-6215.3
28961	239.75	0	0	26.362	-6215.3
28962	239.73	0	0	26.362	-6215.3
28963	239.82	0	0	26.362	-6215.3
28964	239.85	0	0	26.362	-6215.3
28965	239.7	0	0	26.362	-6215.3
28966	239.72	0	0	26.362	-6215.3
28967	239.74	0	0	26.362	-6215.3
28968	239.86	0	0	26.362	-6215.3
28969	239.61	0	0	26.362	-6215.3
28970	239.78	0	0	26.362	-6215.3
28971	239.81	0	0	26.362	-6215.3
28972	239.74	0	0	26.362	-6215.3
28973	239.77	0	0	26.362	-6215.3
28974	239.63	0	0	26.362	-6215.3
28975	239.71	0	0	26.362	-6215.3
28976	239.79	0	0	26.362	-6215.3
28977	239.88	0	0	26.362	-6215.3
28978	239.93	0	0	26.362	-6215.3
28979	239.89	0	0	26.362	-6215.3
28980	239.78	0	0	26.362	-6215.3
28981	239.83	0	0	26.362	-6215.3
28982	239.71	0	0	26.362	-6215.3
28983	239.72	0	0	26.362	-6215.3
28984	239.84	0	0	26.362	-6215.3
28985	239.82	0	0	26.362	-6215.3
28986	239.93	0	0	26.362	-6215.3
28987	239.7	0	0	26.362	-6215.3
28988	239.85	0	0	26.362	-6215.3
28989	239.72	0	0	26.362	-6215.3
28990	239.8	0	0	26.362	-6215.3
28991	239.96	0	0	26.362	-6215.3
28992	239.72	0	0	26.362	-6215.3
28993	239.92	0	0	26.362	-6215.3
28994	239.84	0	0	26.362	-6215.3
28995	239.85	0	0	26.362	-6215.3
28996	239.93	0	0	26.362	-6215.3
28997	239.81	0	0	26.362	-6215.3

28998	239.8	0	0	26.362	-6215.3
28999	239.82	0	0	26.362	-6215.3
29000	239.84	0	0	26.362	-6215.3
29001	239.86	0	0	26.362	-6215.3
29002	239.8	0	0	26.362	-6215.3
29003	239.89	0	0	26.362	-6215.3
29004	239.59	0	0	26.362	-6215.3
29005	239.81	0	0	26.362	-6215.3
29006	239.93	0	0	26.362	-6215.3
29007	239.78	0	0	26.362	-6215.3
29008	239.76	0	0	26.362	-6215.3
29009	239.79	0	0	26.362	-6215.3
29010	239.81	0	0	26.362	-6215.3
29011	239.88	0	0	26.362	-6215.3
29012	239.8	0	0	26.362	-6215.3
29013	239.73	0	0	26.362	-6215.3
29014	239.72	0	0	26.362	-6215.3
29015	239.85	0	0	26.362	-6215.3
29016	239.8	0	0	26.362	-6215.3
29017	239.8	0	0	26.362	-6215.3
29018	239.8	0	0	26.362	-6215.3
29019	239.98	0	0	26.362	-6215.3
29020	239.97	0	0	26.362	-6215.3
29021	239.62	0	0	26.362	-6215.3
29022	239.86	0	0	26.362	-6215.3
29023	239.9	0	0	26.362	-6215.3
29024	239.64	0	0	26.362	-6215.3
29025	239.79	0	0	26.362	-6215.3
29026	239.93	0	0	26.362	-6215.3
29027	240.08	0	0	26.362	-6215.3
29028	239.89	0	0	26.362	-6215.3
29029	240.02	0	0	26.362	-6215.3
29030	239.95	0	0	26.362	-6215.3
29031	240.04	0	0	26.362	-6215.3
29032	239.94	0	0	26.362	-6215.3
29033	240.01	0	0	26.362	-6215.3
29034	239.92	0	0	26.362	-6215.3
29035	239.86	0	0	26.362	-6215.3
29036	239.99	0	0	26.362	-6215.3
29037	239.97	0	0	26.362	-6215.3
29038	240.02	0	0	26.362	-6215.3
29039	239.96	0	0	26.362	-6215.3
29040	239.97	0	0	26.362	-6215.3
29041	239.85	0	0	26.362	-6215.3
29042	240.01	0	0	26.362	-6215.3
29043	240.08	0	0	26.362	-6215.3
29044	239.96	0	0	26.362	-6215.3

29045	239.94	0	0	26.362	-6215.3
29046	239.99	0	0	26.362	-6215.3
29047	240.05	0	0	26.362	-6215.3
29048	239.93	0	0	26.362	-6215.3
29049	239.98	0	0	26.362	-6215.3
29050	240.04	0	0	26.362	-6215.3
29051	239.96	0	0	26.362	-6215.3
29052	240.07	0	0	26.362	-6215.3
29053	240	0	0	26.362	-6215.3
29054	240.03	0	0	26.362	-6215.3
29055	240.04	0	0	26.362	-6215.3
29056	239.96	0	0	26.362	-6215.3
29057	240.07	0	0	26.362	-6215.3
29058	240.11	0	0	26.362	-6215.3
29059	239.81	0	0	26.362	-6215.3
29060	239.96	0	0	26.362	-6215.3
29061	239.91	0	0	26.362	-6215.3
29062	239.79	0	0	26.362	-6215.3
29063	240.09	0	0	26.362	-6215.3
29064	240.07	0	0	26.362	-6215.3
29065	240.1	0	0	26.362	-6215.3
29066	239.95	0	0	26.362	-6215.3
29067	239.94	0	0	26.362	-6215.3
29068	240.07	0	0	26.362	-6215.3
29069	239.86	0	0	26.362	-6215.3
29070	239.92	0	0	26.362	-6215.3
29071	239.96	0	0	26.362	-6215.3
29072	239.94	0	0	26.362	-6215.3
29073	239.93	0	0	26.362	-6215.3
29074	239.91	0	0	26.362	-6215.3
29075	240.04	0	0	26.362	-6215.3
29076	239.95	0	0	26.362	-6215.3
29077	239.94	0	0	26.362	-6215.3
29078	240.01	0	0	26.362	-6215.3
29079	239.99	0	0	26.362	-6215.3
29080	239.91	0	0	26.362	-6215.3
29081	239.99	0	0	26.362	-6215.3
29082	239.94	0	0	26.362	-6215.3
29083	240	0	0	26.362	-6215.3
29084	239.91	0	0	26.362	-6215.3
29085	239.97	0	0	26.362	-6215.3
29086	240.03	0	0	26.362	-6215.3
29087	240	0	0	26.362	-6215.3
29088	239.63	0	0	26.362	-6215.3
29089	239.93	0	0	26.362	-6215.3
29090	239.81	0	0	26.362	-6215.3
29091	239.97	0	0	26.362	-6215.3

29092	240.01	0	0	26.362	-6215.3
29093	240.03	0	0	26.362	-6215.3
29094	239.94	0	0	26.362	-6215.3
29095	239.97	0	0	26.362	-6215.3
29096	239.95	0	0	26.362	-6215.3
29097	240.01	0	0	26.362	-6215.3
29098	239.83	0	0	26.362	-6215.3
29099	239.87	0	0	26.362	-6215.3
29100	239.7	0	0	26.362	-6215.3
29101	239.79	0	0	26.362	-6215.3
29102	239.95	0	0	26.362	-6215.3
29103	239.96	0	0	26.362	-6215.3
29104	239.89	0	0	26.362	-6215.3
29105	239.97	0	0	26.362	-6215.3
29106	240.05	0	0	26.362	-6215.3
29107	240.1	0	0	26.362	-6215.3
29108	239.93	0	0	26.362	-6215.3
29109	240.09	0	0	26.362	-6215.3
29110	240.05	0	0	26.362	-6215.3
29111	240.04	0	0	26.362	-6215.3
29112	240.08	0	0	26.362	-6215.3
29113	239.98	0	0	26.362	-6215.3
29114	240.04	0	0	26.362	-6215.3
29115	239.91	0	0	26.362	-6215.3
29116	239.98	0	0	26.362	-6215.3
29117	239.96	0	0	26.362	-6215.3
29118	239.95	0	0	26.362	-6215.3
29119	239.81	0	0	26.362	-6215.3
29120	239.9	0	0	26.362	-6215.3
29121	239.99	0	0	26.362	-6215.3
29122	239.85	0	0	26.362	-6215.3
29123	239.97	0	0	26.362	-6215.3
29124	239.99	0	0	26.362	-6215.3
29125	239.8	0	0	26.362	-6215.3
29126	239.88	0	0	26.362	-6215.3
29127	240.01	0	0	26.362	-6215.3
29128	239.9	0	0	26.362	-6215.3
29129	239.93	0	0	26.362	-6215.3
29130	240.03	0	0	26.362	-6215.3
29131	240.04	0	0	26.362	-6215.3
29132	239.88	0	0	26.362	-6215.3
29133	239.77	0	0	26.362	-6215.3
29134	240.03	0	0	26.362	-6215.3
29135	239.78	0	0	26.362	-6215.3
29136	239.8	0	0	26.362	-6215.3
29137	239.94	0	0	26.362	-6215.3
29138	240	0	0	26.362	-6215.3

29139	239.93	0	0	26.362	-6215.3
29140	239.63	0	0	26.362	-6215.3
29141	240.03	0	0	26.362	-6215.3
29142	240.04	0	0	26.362	-6215.3
29143	240.04	0	0	26.362	-6215.3
29144	240.03	0	0	26.362	-6215.3
29145	240.07	0	0	26.362	-6215.3
29146	239.97	0	0	26.362	-6215.3
29147	239.98	0	0	26.362	-6215.3
29148	240.05	0	0	26.362	-6215.3
29149	240.17	0	0	26.362	-6215.3
29150	240.06	0	0	26.362	-6215.3
29151	240.08	0	0	26.362	-6215.3
29152	240.17	0	0	26.362	-6215.3
29153	240.02	0	0	26.362	-6215.3
29154	240.18	0	0	26.362	-6215.3
29155	240.14	0	0	26.362	-6215.3
29156	240.09	0	0	26.362	-6215.3
29157	240.04	0	0	26.362	-6215.3
29158	240.13	0	0	26.362	-6215.3
29159	240.08	0	0	26.362	-6215.3
29160	240.14	0	0	26.362	-6215.3
29161	239.98	0	0	26.362	-6215.3
29162	240.03	0	0	26.362	-6215.3
29163	239.98	0	0	26.362	-6215.3
29164	240.08	0	0	26.362	-6215.3
29165	240.02	0	0	26.362	-6215.3
29166	240.05	0	0	26.362	-6215.3
29167	239.92	0	0	26.362	-6215.3
29168	239.98	0	0	26.362	-6215.3
29169	240.04	0	0	26.362	-6215.3
29170	239.99	0	0	26.362	-6215.3
29171	240.06	0	0	26.362	-6215.3
29172	240.08	0	0	26.362	-6215.3
29173	240.06	0	0	26.362	-6215.3
29174	240.18	0	0	26.362	-6215.3
29175	240.16	0	0	26.362	-6215.3
29176	240.07	0	0	26.362	-6215.3
29177	240.16	0	0	26.362	-6215.3
29178	240.16	0	0	26.362	-6215.3
29179	240.12	0	0	26.362	-6215.3
29180	240.05	0	0	26.362	-6215.3
29181	240.14	0	0	26.362	-6215.3
29182	240.23	0	0	26.362	-6215.3
29183	240.2	0	0	26.362	-6215.3
29184	240.03	0	0	26.362	-6215.3
29185	240.09	0	0	26.362	-6215.3

29186	240.2	0	0	26.362	-6215.3
29187	240.36	0	0	26.362	-6215.3
29188	240.18	0	0	26.362	-6215.3
29189	240.13	0	0	26.362	-6215.3
29190	240.19	0	0	26.362	-6215.3
29191	240.21	0	0	26.362	-6215.3
29192	240.11	0	0	26.362	-6215.3
29193	240.1	0	0	26.362	-6215.3
29194	240.14	0	0	26.362	-6215.3
29195	240.13	0	0	26.362	-6215.3
29196	240.13	0	0	26.362	-6215.3
29197	240.09	0	0	26.362	-6215.3
29198	239.97	0	0	26.362	-6215.3
29199	240.07	0	0	26.362	-6215.3
29200	240.18	0	0	26.362	-6215.3
29201	240.22	0	0	26.362	-6215.3
29202	240.14	0	0	26.362	-6215.3
29203	240.15	0	0	26.362	-6215.3
29204	240.06	0	0	26.362	-6215.3
29205	240.18	0	0	26.362	-6215.3
29206	240.2	0	0	26.362	-6215.3
29207	240.12	0	0	26.362	-6215.3
29208	240.15	0	0	26.362	-6215.3
29209	240.16	0	0	26.362	-6215.3
29210	240.11	0	0	26.362	-6215.3
29211	240.15	0	0	26.362	-6215.3
29212	240.14	0	0	26.362	-6215.3
29213	240.06	0	0	26.362	-6215.3
29214	240.05	0	0	26.362	-6215.3
29215	240.05	0	0	26.362	-6215.3
29216	240.11	0	0	26.362	-6215.3
29217	240.16	0	0	26.362	-6215.3
29218	240.12	0	0	26.362	-6215.3
29219	240.17	0	0	26.362	-6215.3
29220	240.02	0	0	26.362	-6215.3
29221	240.02	0	0	26.362	-6215.3
29222	240.11	0	0	26.362	-6215.3
29223	239.98	0	0	26.362	-6215.3
29224	240.06	0	0	26.362	-6215.3
29225	239.99	0	0	26.362	-6215.3
29226	240.07	0	0	26.362	-6215.3
29227	239.95	0	0	26.362	-6215.3
29228	239.9	0	0	26.362	-6215.3
29229	239.99	0	0	26.362	-6215.3
29230	239.98	0	0	26.362	-6215.3
29231	240.01	0	0	26.362	-6215.3
29232	240.02	0	0	26.362	-6215.3

29233	239.98	0	0	26.362	-6215.3
29234	239.99	0	0	26.362	-6215.3
29235	240.04	0	0	26.362	-6215.3
29236	240.05	0	0	26.362	-6215.3
29237	240.03	0	0	26.362	-6215.3
29238	240.07	0	0	26.362	-6215.3
29239	240.1	0	0	26.362	-6215.3
29240	240.05	0	0	26.362	-6215.3
29241	240.09	0	0	26.362	-6215.3
29242	240.01	0	0	26.362	-6215.3
29243	240.1	0	0	26.362	-6215.3
29244	240.03	0	0	26.362	-6215.3
29245	240.03	0	0	26.362	-6215.3
29246	240.02	0	0	26.362	-6215.3
29247	240.05	0	0	26.362	-6215.3
29248	240.08	0	0	26.362	-6215.3
29249	239.98	0	0	26.362	-6215.3
29250	240.06	0	0	26.362	-6215.3
29251	240.03	0	0	26.362	-6215.3
29252	240.03	0	0	26.362	-6215.3
29253	239.97	0	0	26.362	-6215.3
29254	239.52	0	0	26.362	-6215.3
29255	239.85	0	0	26.362	-6215.3
29256	239.87	0	0	26.362	-6215.3
29257	239.83	0	0	26.362	-6215.3
29258	239.86	0	0	26.362	-6215.3
29259	239.91	0	0	26.362	-6215.3
29260	239.78	0	0	26.362	-6215.3
29261	239.88	0	0	26.362	-6215.3
29262	239.69	0	0	26.362	-6215.3
29263	239.82	0	0	26.362	-6215.3
29264	239.91	0	0	26.362	-6215.3
29265	239.86	0	0	26.362	-6215.3
29266	239.81	0	0	26.362	-6215.3
29267	239.8	0	0	26.362	-6215.3
29268	239.88	0	0	26.362	-6215.3
29269	239.92	0	0	26.362	-6215.3
29270	239.78	0	0	26.362	-6215.3
29271	239.95	0	0	26.362	-6215.3
29272	239.94	0	0	26.362	-6215.3
29273	239.87	0	0	26.362	-6215.3
29274	240.04	0	0	26.362	-6215.3
29275	239.93	0	0	26.362	-6215.3
29276	239.99	0	0	26.362	-6215.3
29277	239.88	0	0	26.362	-6215.3
29278	240.01	0	0	26.362	-6215.3
29279	239.94	0	0	26.362	-6215.3

29280	239.92	0	0	26.362	-6215.3
29281	239.95	0	0	26.362	-6215.3
29282	240.06	0	0	26.362	-6215.3
29283	240.02	0	0	26.362	-6215.3
29284	239.86	0	0	26.362	-6215.3
29285	239.77	0	0	26.362	-6215.3
29286	239.87	0	0	26.362	-6215.3
29287	239.81	0	0	26.362	-6215.3
29288	239.84	0	0	26.362	-6215.3
29289	239.73	0	0	26.362	-6215.3
29290	239.83	0	0	26.362	-6215.3
29291	239.82	0	0	26.362	-6215.3
29292	239.75	0	0	26.362	-6215.3
29293	239.92	0	0	26.362	-6215.3
29294	239.78	0	0	26.362	-6215.3
29295	239.87	0	0	26.362	-6215.3
29296	239.76	0	0	26.362	-6215.3
29297	239.85	0	0	26.362	-6215.3
29298	239.94	0	0	26.362	-6215.3
29299	239.86	0	0	26.362	-6215.3
29300	239.93	0	0	26.362	-6215.3
29301	239.89	0	0	26.362	-6215.3
29302	239.72	0	0	26.362	-6215.3
29303	239.69	0	0	26.362	-6215.3
29304	239.64	0	0	26.362	-6215.3
29305	239.77	0	0	26.362	-6215.3
29306	239.78	0	0	26.362	-6215.3
29307	240.25	0	0	26.362	-6215.3
29308	240.18	0	0	26.362	-6215.3
29309	240.13	0	0	26.362	-6215.3
29310	240.17	0	0	26.362	-6215.3
29311	240.05	0	0	26.362	-6215.3
29312	239.28	0	0	26.362	-6215.3
29313	239.58	0	0	26.362	-6215.3
29314	239.96	0	0	26.362	-6215.3
29315	239.78	0	0	26.362	-6215.3
29316	239.8	0	0	26.362	-6215.3
29317	239.96	0	0	26.362	-6215.3
29318	239.99	0	0	26.362	-6215.3
29319	239.88	0	0	26.362	-6215.3
29320	239.85	0	0	26.362	-6215.3
29321	239.93	0	0	26.362	-6215.3
29322	239.98	0	0	26.362	-6215.3
29323	239.95	0	0	26.362	-6215.3
29324	240	0	0	26.362	-6215.3
29325	240.01	0	0	26.362	-6215.3
29326	239.94	0	0	26.362	-6215.3

29327	239.87	0	0	26.362	-6215.3
29328	239.98	0	0	26.362	-6215.3
29329	239.99	0	0	26.362	-6215.3
29330	239.79	0	0	26.362	-6215.3
29331	239.91	0	0	26.362	-6215.3
29332	239.92	0	0	26.362	-6215.3
29333	239.83	0	0	26.362	-6215.3
29334	239.9	0	0	26.362	-6215.3
29335	239.81	0	0	26.362	-6215.3
29336	239.86	0	0	26.362	-6215.3
29337	239.79	0	0	26.362	-6215.3
29338	239.82	0	0	26.362	-6215.3
29339	239.81	0	0	26.362	-6215.3
29340	239.84	0	0	26.362	-6215.3
29341	239.78	0	0	26.362	-6215.3
29342	239.71	0	0	26.362	-6215.3
29343	239.83	0	0	26.362	-6215.3
29344	239.79	0	0	26.362	-6215.3
29345	239.85	0	0	26.362	-6215.3
29346	239.83	0	0	26.362	-6215.3
29347	239.72	0	0	26.362	-6215.3
29348	239.74	0	0	26.362	-6215.3
29349	239.69	0	0	26.362	-6215.3
29350	239.77	0	0	26.362	-6215.3
29351	239.82	0	0	26.362	-6215.3
29352	239.75	0	0	26.362	-6215.3
29353	239.57	0	0	26.362	-6215.3
29354	239.77	0	0	26.362	-6215.3
29355	239.6	0	0	26.362	-6215.3
29356	239.77	0	0	26.362	-6215.3
29357	239.95	0	0	26.362	-6215.3
29358	239.73	0	0	26.362	-6215.3
29359	239.82	0	0	26.362	-6215.3
29360	239.67	0	0	26.362	-6215.3
29361	239.81	0	0	26.362	-6215.3
29362	239.87	0	0	26.362	-6215.3
29363	239.8	0	0	26.362	-6215.3
29364	239.91	0	0	26.362	-6215.3
29365	239.89	0	0	26.362	-6215.3
29366	239.77	0	0	26.362	-6215.3
29367	239.77	0	0	26.362	-6215.3
29368	239.83	0	0	26.362	-6215.3
29369	239.86	0	0	26.362	-6215.3
29370	239.84	0	0	26.362	-6215.3
29371	239.8	0	0	26.362	-6215.3
29372	239.75	0	0	26.362	-6215.3
29373	239.76	0	0	26.362	-6215.3

29374	239.66	0	0	26.362	-6215.3
29375	239.74	0	0	26.362	-6215.3
29376	239.64	0	0	26.362	-6215.3
29377	239.74	0	0	26.362	-6215.3
29378	239.67	0	0	26.362	-6215.3
29379	239.68	0	0	26.362	-6215.3
29380	239.81	0	0	26.362	-6215.3
29381	239.74	0	0	26.362	-6215.3
29382	239.74	0	0	26.362	-6215.3
29383	239.87	0	0	26.362	-6215.3
29384	239.75	0	0	26.362	-6215.3
29385	239.79	0	0	26.362	-6215.3
29386	239.82	0	0	26.362	-6215.3
29387	240.13	0	0	26.362	-6215.3
29388	240.2	0	0	26.362	-6215.3
29389	240.31	0	0	26.362	-6215.3
29390	240.22	0	0	26.362	-6215.3
29391	240.2	0	0	26.362	-6215.3
29392	240.2	0	0	26.362	-6215.3
29393	240.18	0	0	26.362	-6215.3
29394	240.28	0	0	26.362	-6215.3
29395	240.3	0	0	26.362	-6215.3
29396	240.3	0	0	26.362	-6215.3
29397	240.33	0	0	26.362	-6215.3
29398	240.35	0	0	26.362	-6215.3
29399	240.26	0	0	26.362	-6215.3
29400	240.36	0	0	26.362	-6215.3
29401	240.32	0	0	26.362	-6215.3
29402	240.42	0	0	26.362	-6215.3
29403	240.32	0	0	26.362	-6215.3
29404	240.37	0	0	26.362	-6215.3
29405	240.27	0	0	26.362	-6215.3
29406	240.39	0	0	26.362	-6215.3
29407	240.34	0	0	26.362	-6215.3
29408	240.35	0	0	26.362	-6215.3
29409	240.31	0	0	26.362	-6215.3
29410	240.3	0	0	26.362	-6215.3
29411	240.31	0	0	26.362	-6215.3
29412	240.32	0	0	26.362	-6215.3
29413	240.25	0	0	26.362	-6215.3
29414	240.29	0	0	26.362	-6215.3
29415	240.24	0	0	26.362	-6215.3
29416	240.27	0	0	26.362	-6215.3
29417	240.22	0	0	26.362	-6215.3
29418	240.22	0	0	26.362	-6215.3
29419	240.19	0	0	26.362	-6215.3
29420	240.17	0	0	26.362	-6215.3

29421	240.19	0	0	26.362	-6215.3
29422	240.22	0	0	26.362	-6215.3
29423	240.19	0	0	26.362	-6215.3
29424	240.23	0	0	26.362	-6215.3
29425	240.24	0	0	26.362	-6215.3
29426	240.19	0	0	26.362	-6215.3
29427	240.23	0	0	26.362	-6215.3
29428	240.18	0	0	26.362	-6215.3
29429	240.22	0	0	26.362	-6215.3
29430	240.18	0	0	26.362	-6215.3
29431	240.12	0	0	26.362	-6215.3
29432	240.08	0	0	26.362	-6215.3
29433	240.12	0	0	26.362	-6215.3
29434	240.02	0	0	26.362	-6215.3
29435	240.05	0	0	26.362	-6215.3
29436	240.06	0	0	26.362	-6215.3
29437	240.03	0	0	26.362	-6215.3
29438	240.05	0	0	26.362	-6215.3
29439	240.06	0	0	26.362	-6215.3
29440	240.04	0	0	26.362	-6215.3
29441	239.99	0	0	26.362	-6215.3
29442	240	0	0	26.362	-6215.3
29443	239.97	0	0	26.362	-6215.3
29444	239.97	0	0	26.362	-6215.3
29445	240.06	0	0	26.362	-6215.3
29446	239.99	0	0	26.362	-6215.3
29447	240.02	0	0	26.362	-6215.3
29448	240.05	0	0	26.362	-6215.3
29449	239.97	0	0	26.362	-6215.3
29450	239.98	0	0	26.362	-6215.3
29451	239.97	0	0	26.362	-6215.3
29452	239.96	0	0	26.362	-6215.3
29453	240.11	0	0	26.362	-6215.3
29454	240.05	0	0	26.362	-6215.3
29455	240.02	0	0	26.362	-6215.3
29456	240	0	0	26.362	-6215.3
29457	240.02	0	0	26.362	-6215.3
29458	240.01	0	0	26.362	-6215.3
29459	240.03	0	0	26.362	-6215.3
29460	240.05	0	0	26.362	-6215.3
29461	240.05	0	0	26.362	-6215.3
29462	240.1	0	0	26.362	-6215.3
29463	240.08	0	0	26.362	-6215.3
29464	240.09	0	0	26.362	-6215.3
29465	240.06	0	0	26.362	-6215.3
29466	239.86	0	0	26.362	-6215.3
29467	240.03	0	0	26.362	-6215.3

29468	240.01	0	0	26.362	-6215.3
29469	240.13	0	0	26.362	-6215.3
29470	240.09	0	0	26.362	-6215.3
29471	240.12	0	0	26.362	-6215.3
29472	240.02	0	0	26.362	-6215.3
29473	240.1	0	0	26.362	-6215.3
29474	240.17	0	0	26.362	-6215.3
29475	240.23	0	0	26.362	-6215.3
29476	240.16	0	0	26.362	-6215.3
29477	240.09	0	0	26.362	-6215.3
29478	240.19	0	0	26.362	-6215.3
29479	239.99	0	0	26.362	-6215.3
29480	240.1	0	0	26.362	-6215.3
29481	240.11	0	0	26.362	-6215.3
29482	240.14	0	0	26.362	-6215.3
29483	240.18	0	0	26.362	-6215.3
29484	240.16	0	0	26.362	-6215.3
29485	240.13	0	0	26.362	-6215.3
29486	240.19	0	0	26.362	-6215.3
29487	240.16	0	0	26.362	-6215.3
29488	240.17	0	0	26.362	-6215.3
29489	240.12	0	0	26.362	-6215.3
29490	240.09	0	0	26.362	-6215.3
29491	240.09	0	0	26.362	-6215.3
29492	240.09	0	0	26.362	-6215.3
29493	240.06	0	0	26.362	-6215.3
29494	240.2	0	0	26.362	-6215.3
29495	240.21	0	0	26.362	-6215.3
29496	240.17	0	0	26.362	-6215.3
29497	240.12	0	0	26.362	-6215.3
29498	240.26	0	0	26.362	-6215.3
29499	240.27	0	0	26.362	-6215.3
29500	240.23	0	0	26.362	-6215.3
29501	240.18	0	0	26.362	-6215.3
29502	240.29	0	0	26.362	-6215.3
29503	240.26	0	0	26.362	-6215.3
29504	240.38	0	0	26.362	-6215.3
29505	240.42	0	0	26.362	-6215.3
29506	240.3	0	0	26.362	-6215.3
29507	240.42	0	0	26.362	-6215.3
29508	240.66	0	0	26.362	-6215.3
29509	240.69	0	0	26.362	-6215.3
29510	240.64	0	0	26.362	-6215.3
29511	240.64	0	0	26.362	-6215.3
29512	240.59	0	0	26.362	-6215.3
29513	240.63	0	0	26.362	-6215.3
29514	240.65	0	0	26.362	-6215.3

29515	240.6	0	0	26.362	-6215.3
29516	240.87	0	0	26.362	-6215.3
29517	240.77	0	0	26.362	-6215.3
29518	240.82	0	0	26.362	-6215.3
29519	240.86	0	0	26.362	-6215.3
29520	240.79	0	0	26.362	-6215.3
29521	240.79	0	0	26.362	-6215.3
29522	240.85	0	0	26.362	-6215.3
29523	240.74	0	0	26.362	-6215.3
29524	240.78	0	0	26.362	-6215.3
29525	241.34	0	0	26.362	-6215.3
29526	241.24	0	0	26.362	-6215.3
29527	241.33	0	0	26.362	-6215.3
29528	241.31	0	0	26.362	-6215.3
29529	241.32	0	0	26.362	-6215.3
29530	241.31	0	0	26.362	-6215.3
29531	241.56	0	0	26.362	-6215.3
29532	241.46	0	0	26.362	-6215.3
29533	241.51	0	0	26.362	-6215.3
29534	241.48	0	0	26.362	-6215.3
29535	241.47	0	0	26.362	-6215.3
29536	241.23	0	0	26.362	-6215.3
29537	241.26	0	0	26.362	-6215.3
29538	241.52	0	0	26.362	-6215.3
29539	241.71	0	0	26.362	-6215.3
29540	241.39	0	0	26.362	-6215.3
29541	241.49	0	0	26.362	-6215.3
29542	241.38	0	0	26.362	-6215.3
29543	241.57	0	0	26.362	-6215.3
29544	241.41	0	0	26.362	-6215.3
29545	241.35	0	0	26.362	-6215.3
29546	241.51	0	0	26.362	-6215.3
29547	241.59	0	0	26.362	-6215.3
29548	241.28	0	0	26.362	-6215.3
29549	241.41	0	0	26.362	-6215.3
29550	241.35	0	0	26.362	-6215.3
29551	241.45	0	0	26.362	-6215.3
29552	241.44	0	0	26.362	-6215.3
29553	241.46	0	0	26.362	-6215.3
29554	241.58	0	0	26.362	-6215.3
29555	241.57	0	0	26.362	-6215.3
29556	241.59	0	0	26.362	-6215.3
29557	241.5	0	0	26.362	-6215.3
29558	241.36	0	0	26.362	-6215.3
29559	241.48	0	0	26.362	-6215.3
29560	241.44	0	0	26.362	-6215.3
29561	241.51	0	0	26.362	-6215.3

29562	241.46	0	0	26.362	-6215.3
29563	241.52	0	0	26.362	-6215.3
29564	241.46	0	0	26.362	-6215.3
29565	241.3	0	0	26.362	-6215.3
29566	241.3	0	0	26.362	-6215.3
29567	241.23	0	0	26.362	-6215.3
29568	241.3	0	0	26.362	-6215.3
29569	241.2	0	0	26.362	-6215.3
29570	241.15	0	0	26.362	-6215.3
29571	241.21	0	0	26.362	-6215.3
29572	241.32	0	0	26.362	-6215.3
29573	241.28	0	0	26.362	-6215.3
29574	241.3	0	0	26.362	-6215.3
29575	241.27	0	0	26.362	-6215.3
29576	241.3	0	0	26.362	-6215.3
29577	241.3	0	0	26.362	-6215.3
29578	241.37	0	0	26.362	-6215.3
29579	241.39	0	0	26.362	-6215.3
29580	241.29	0	0	26.362	-6215.3
29581	241.35	0	0	26.362	-6215.3
29582	241.52	0	0	26.362	-6215.3
29583	241.27	0	0	26.362	-6215.3
29584	241.31	0	0	26.362	-6215.3
29585	241.31	0	0	26.362	-6215.3
29586	241.31	0	0	26.362	-6215.3
29587	241.3	0	0	26.362	-6215.3
29588	241.38	0	0	26.362	-6215.3
29589	241.28	0	0	26.362	-6215.3
29590	241.29	0	0	26.362	-6215.3
29591	241.5	0	0	26.362	-6215.3
29592	241.33	0	0	26.362	-6215.3
29593	241.3	0	0	26.362	-6215.3
29594	241.33	0	0	26.362	-6215.3
29595	241.34	0	0	26.362	-6215.3
29596	241.31	0	0	26.362	-6215.3
29597	241.35	0	0	26.362	-6215.3
29598	241.19	0	0	26.362	-6215.3
29599	241.38	0	0	26.362	-6215.3
29600	241.37	0	0	26.362	-6215.3
29601	241.32	0	0	26.362	-6215.3
29602	241.16	0	0	26.362	-6215.3
29603	241.43	0	0	26.362	-6215.3
29604	241.43	0	0	26.362	-6215.3
29605	241.29	0	0	26.362	-6215.3
29606	241.29	0	0	26.362	-6215.3
29607	241.21	0	0	26.362	-6215.3
29608	241.25	0	0	26.362	-6215.3

29609	241.26	0	0	26.362	-6215.3
29610	241.32	0	0	26.362	-6215.3
29611	241.32	0	0	26.362	-6215.3
29612	241.43	0	0	26.362	-6215.3
29613	241.33	0	0	26.362	-6215.3
29614	241.28	0	0	26.362	-6215.3
29615	241.23	0	0	26.362	-6215.3
29616	241.23	0	0	26.362	-6215.3
29617	241.35	0	0	26.362	-6215.3
29618	241.33	0	0	26.362	-6215.3
29619	241.26	0	0	26.362	-6215.3
29620	241.34	0	0	26.362	-6215.3
29621	241.34	0	0	26.362	-6215.3
29622	241.37	0	0	26.362	-6215.3
29623	241.24	0	0	26.362	-6215.3
29624	241.31	0	0	26.362	-6215.3
29625	241.44	0	0	26.362	-6215.3
29626	241.39	0	0	26.362	-6215.3
29627	241.53	0	0	26.362	-6215.3
29628	241.28	0	0	26.362	-6215.3
29629	241.37	0	0	26.362	-6215.3
29630	241.35	0	0	26.362	-6215.3
29631	241.47	0	0	26.362	-6215.3
29632	241.34	0	0	26.362	-6215.3
29633	241.4	0	0	26.362	-6215.3
29634	241.38	0	0	26.362	-6215.3
29635	241.45	0	0	26.362	-6215.3
29636	241.4	0	0	26.362	-6215.3
29637	241.43	0	0	26.362	-6215.3
29638	241.33	0	0	26.362	-6215.3
29639	241.34	0	0	26.362	-6215.3
29640	241.34	0	0	26.362	-6215.3
29641	241.47	0	0	26.362	-6215.3
29642	241.4	0	0	26.362	-6215.3
29643	241.3	0	0	26.362	-6215.3
29644	241.47	0	0	26.362	-6215.3
29645	241.32	0	0	26.362	-6215.3
29646	241.38	0	0	26.362	-6215.3
29647	241.35	0	0	26.362	-6215.3
29648	241.42	0	0	26.362	-6215.3
29649	241.28	0	0	26.362	-6215.3
29650	241.35	0	0	26.362	-6215.3
29651	241.29	0	0	26.362	-6215.3
29652	241.37	0	0	26.362	-6215.3
29653	241.38	0	0	26.362	-6215.3
29654	241.4	0	0	26.362	-6215.3
29655	241.41	0	0	26.362	-6215.3

29656	241.47	0	0	26.362	-6215.3
29657	241.37	0	0	26.362	-6215.3
29658	241.46	0	0	26.362	-6215.3
29659	241.4	0	0	26.362	-6215.3
29660	241.24	0	0	26.362	-6215.3
29661	241.42	0	0	26.362	-6215.3
29662	241.33	0	0	26.362	-6215.3
29663	241.37	0	0	26.362	-6215.3
29664	241.26	0	0	26.362	-6215.3
29665	241.3	0	0	26.362	-6215.3
29666	241.22	0	0	26.362	-6215.3
29667	241.28	0	0	26.362	-6215.3
29668	241.31	0	0	26.362	-6215.3
29669	241.34	0	0	26.362	-6215.3
29670	241.38	0	0	26.362	-6215.3
29671	241.43	0	0	26.362	-6215.3
29672	241.35	0	0	26.362	-6215.3
29673	241.3	0	0	26.362	-6215.3
29674	241.38	0	0	26.362	-6215.3
29675	241.39	0	0	26.362	-6215.3
29676	241.36	0	0	26.362	-6215.3
29677	241.39	0	0	26.362	-6215.3
29678	241.38	0	0	26.362	-6215.3
29679	241.28	0	0	26.362	-6215.3
29680	241.16	0	0	26.362	-6215.3
29681	241.25	0	0	26.362	-6215.3
29682	241.25	0	0	26.362	-6215.3
29683	241.28	0	0	26.362	-6215.3
29684	241.18	0	0	26.362	-6215.3
29685	241.22	0	0	26.362	-6215.3
29686	241.27	0	0	26.362	-6215.3
29687	241.13	0	0	26.362	-6215.3
29688	241.31	0	0	26.362	-6215.3
29689	241.19	0	0	26.362	-6215.3
29690	241.27	0	0	26.362	-6215.3
29691	241.26	0	0	26.362	-6215.3
29692	241.17	0	0	26.362	-6215.3
29693	241.2	0	0	26.362	-6215.3
29694	241.12	0	0	26.362	-6215.3
29695	241.16	0	0	26.362	-6215.3
29696	241.28	0	0	26.362	-6215.3
29697	241.27	0	0	26.362	-6215.3
29698	241.27	0	0	26.362	-6215.3
29699	241.4	0	0	26.362	-6215.3
29700	241.36	0	0	26.362	-6215.3
29701	241.31	0	0	26.362	-6215.3
29702	241.29	0	0	26.362	-6215.3

29703	241.36	0	0	26.362	-6215.3
29704	241.29	0	0	26.362	-6215.3
29705	241.26	0	0	26.362	-6215.3
29706	241.34	0	0	26.362	-6215.3
29707	241.33	0	0	26.362	-6215.3
29708	241.4	0	0	26.362	-6215.3
29709	241.33	0	0	26.362	-6215.3
29710	241.38	0	0	26.362	-6215.3
29711	241.42	0	0	26.362	-6215.3
29712	241.39	0	0	26.362	-6215.3
29713	241.38	0	0	26.362	-6215.3
29714	241.4	0	0	26.362	-6215.3
29715	241.4	0	0	26.362	-6215.3
29716	241.39	0	0	26.362	-6215.3
29717	241.45	0	0	26.362	-6215.3
29718	241.43	0	0	26.362	-6215.3
29719	241.43	0	0	26.362	-6215.3
29720	241.42	0	0	26.362	-6215.3
29721	241.39	0	0	26.362	-6215.3
29722	241.44	0	0	26.362	-6215.3
29723	241.41	0	0	26.362	-6215.3
29724	241.39	0	0	26.362	-6215.3
29725	241.41	0	0	26.362	-6215.3
29726	241.39	0	0	26.362	-6215.3
29727	241.41	0	0	26.362	-6215.3
29728	241.37	0	0	26.362	-6215.3
29729	241.38	0	0	26.362	-6215.3
29730	241.39	0	0	26.362	-6215.3
29731	241.37	0	0	26.362	-6215.3
29732	240.67	0	0	26.362	-6215.3
29733	241.27	0	0	26.362	-6215.3
29734	241.28	0	0	26.362	-6215.3
29735	241.26	0	0	26.362	-6215.3
29736	241.27	0	0	26.362	-6215.3
29737	241.32	0	0	26.362	-6215.3
29738	241.35	0	0	26.362	-6215.3
29739	241.33	0	0	26.362	-6215.3
29740	241.27	0	0	26.362	-6215.3
29741	241.27	0	0	26.362	-6215.3
29742	241.31	0	0	26.362	-6215.3
29743	241.35	0	0	26.362	-6215.3
29744	241.33	0	0	26.362	-6215.3
29745	241.37	0	0	26.362	-6215.3
29746	241.34	0	0	26.362	-6215.3
29747	241.34	0	0	26.362	-6215.3
29748	241.32	0	0	26.362	-6215.3
29749	241.3	0	0	26.362	-6215.3

29750	241.22	0	0	26.362	-6215.3
29751	241.18	0	0	26.362	-6215.3
29752	241.17	0	0	26.362	-6215.3
29753	241.21	0	0	26.362	-6215.3
29754	241.17	0	0	26.362	-6215.3
29755	241.22	0	0	26.362	-6215.3
29756	241.19	0	0	26.362	-6215.3
29757	241.18	0	0	26.362	-6215.3
29758	241.25	0	0	26.362	-6215.3
29759	241.26	0	0	26.362	-6215.3
29760	241.29	0	0	26.362	-6215.3
29761	241.3	0	0	26.362	-6215.3
29762	241.23	0	0	26.362	-6215.3
29763	241.23	0	0	26.362	-6215.3
29764	241.23	0	0	26.362	-6215.3
29765	241.2	0	0	26.362	-6215.3
29766	241.19	0	0	26.362	-6215.3
29767	241.22	0	0	26.362	-6215.3
29768	241.22	0	0	26.362	-6215.3
29769	241.14	0	0	26.362	-6215.3
29770	241.19	0	0	26.362	-6215.3
29771	241.22	0	0	26.362	-6215.3
29772	241.13	0	0	26.362	-6215.3
29773	241.14	0	0	26.362	-6215.3
29774	241.15	0	0	26.362	-6215.3
29775	241.27	0	0	26.362	-6215.3
29776	241.26	0	0	26.362	-6215.3
29777	241.26	0	0	26.362	-6215.3
29778	241.21	0	0	26.362	-6215.3
29779	241.26	0	0	26.362	-6215.3
29780	241.26	0	0	26.362	-6215.3
29781	241.29	0	0	26.362	-6215.3
29782	241.32	0	0	26.362	-6215.3
29783	241.28	0	0	26.362	-6215.3
29784	241.21	0	0	26.362	-6215.3
29785	241.18	0	0	26.362	-6215.3
29786	241.22	0	0	26.362	-6215.3
29787	241.23	0	0	26.362	-6215.3
29788	241.21	0	0	26.362	-6215.3
29789	241.18	0	0	26.362	-6215.3
29790	241.18	0	0	26.362	-6215.3
29791	241.18	0	0	26.362	-6215.3
29792	241.11	0	0	26.362	-6215.3
29793	241.12	0	0	26.362	-6215.3
29794	241.18	0	0	26.362	-6215.3
29795	241.17	0	0	26.362	-6215.3
29796	241.14	0	0	26.362	-6215.3

29797	241.15	0	0	26.362	-6215.3
29798	241.12	0	0	26.362	-6215.3
29799	241.09	0	0	26.362	-6215.3
29800	241.05	0	0	26.362	-6215.3
29801	241.14	0	0	26.362	-6215.3
29802	241.09	0	0	26.362	-6215.3
29803	241.16	0	0	26.362	-6215.3
29804	241.08	0	0	26.362	-6215.3
29805	241.09	0	0	26.362	-6215.3
29806	241.14	0	0	26.362	-6215.3
29807	241.09	0	0	26.362	-6215.3
29808	241.05	0	0	26.362	-6215.3
29809	241.1	0	0	26.362	-6215.3
29810	241.11	0	0	26.362	-6215.3
29811	241.06	0	0	26.362	-6215.3
29812	241.15	0	0	26.362	-6215.3
29813	241.17	0	0	26.362	-6215.3
29814	241.2	0	0	26.362	-6215.3
29815	241.12	0	0	26.362	-6215.3
29816	241.1	0	0	26.362	-6215.3
29817	241.14	0	0	26.362	-6215.3
29818	241.1	0	0	26.362	-6215.3
29819	241.11	0	0	26.362	-6215.3
29820	241.14	0	0	26.362	-6215.3
29821	241.18	0	0	26.362	-6215.3
29822	241.15	0	0	26.362	-6215.3
29823	241.17	0	0	26.362	-6215.3
29824	241.2	0	0	26.362	-6215.3
29825	241.2	0	0	26.362	-6215.3
29826	241.23	0	0	26.362	-6215.3
29827	241.19	0	0	26.362	-6215.3
29828	241.17	0	0	26.362	-6215.3
29829	241.18	0	0	26.362	-6215.3
29830	241.21	0	0	26.362	-6215.3
29831	241.15	0	0	26.362	-6215.3
29832	241.1	0	0	26.362	-6215.3
29833	241.15	0	0	26.362	-6215.3
29834	241.09	0	0	26.362	-6215.3
29835	241.2	0	0	26.362	-6215.3
29836	241.17	0	0	26.362	-6215.3
29837	241.14	0	0	26.362	-6215.3
29838	241.09	0	0	26.362	-6215.3
29839	241.11	0	0	26.362	-6215.3
29840	241.01	0	0	26.362	-6215.3
29841	241.1	0	0	26.362	-6215.3
29842	241.04	0	0	26.362	-6215.3
29843	241.08	0	0	26.362	-6215.3

29844	241.1	0	0	26.362	-6215.3
29845	241.04	0	0	26.362	-6215.3
29846	241.12	0	0	26.362	-6215.3
29847	241.15	0	0	26.362	-6215.3
29848	241.14	0	0	26.362	-6215.3
29849	241.18	0	0	26.362	-6215.3
29850	241.11	0	0	26.362	-6215.3
29851	241.18	0	0	26.362	-6215.3
29852	241.14	0	0	26.362	-6215.3
29853	241.12	0	0	26.362	-6215.3
29854	241.17	0	0	26.362	-6215.3
29855	241.1	0	0	26.362	-6215.3
29856	241.15	0	0	26.362	-6215.3
29857	241.12	0	0	26.362	-6215.3
29858	241.22	0	0	26.362	-6215.3
29859	241.18	0	0	26.362	-6215.3
29860	241.09	0	0	26.362	-6215.3
29861	241.15	0	0	26.362	-6215.3
29862	241.14	0	0	26.362	-6215.3
29863	241.19	0	0	26.362	-6215.3
29864	241.12	0	0	26.362	-6215.3
29865	241.13	0	0	26.362	-6215.3
29866	241.2	0	0	26.362	-6215.3
29867	241.22	0	0	26.362	-6215.3
29868	241.21	0	0	26.362	-6215.3
29869	241.22	0	0	26.362	-6215.3
29870	241.19	0	0	26.362	-6215.3
29871	241.18	0	0	26.362	-6215.3
29872	241.27	0	0	26.362	-6215.3
29873	241.2	0	0	26.362	-6215.3
29874	241.19	0	0	26.362	-6215.3
29875	241.14	0	0	26.362	-6215.3
29876	241.21	0	0	26.362	-6215.3
29877	241.26	0	0	26.362	-6215.3
29878	241.21	0	0	26.362	-6215.3
29879	241.24	0	0	26.362	-6215.3
29880	241.13	0	0	26.362	-6215.3
29881	241.15	0	0	26.362	-6215.3
29882	241.25	0	0	26.362	-6215.3
29883	241.19	0	0	26.362	-6215.3
29884	241.18	0	0	26.362	-6215.3
29885	241.17	0	0	26.362	-6215.3
29886	241.18	0	0	26.362	-6215.3
29887	241.25	0	0	26.362	-6215.3
29888	241.21	0	0	26.362	-6215.3
29889	241.22	0	0	26.362	-6215.3
29890	241.22	0	0	26.362	-6215.3

29891	241.2	0	0	26.362	-6215.3
29892	241.25	0	0	26.362	-6215.3
29893	241.23	0	0	26.362	-6215.3
29894	241.21	0	0	26.362	-6215.3
29895	241.26	0	0	26.362	-6215.3
29896	241.16	0	0	26.362	-6215.3
29897	241.12	0	0	26.362	-6215.3
29898	241.21	0	0	26.362	-6215.3
29899	241.16	0	0	26.362	-6215.3
29900	241.2	0	0	26.362	-6215.3
29901	241.16	0	0	26.362	-6215.3
29902	241.13	0	0	26.362	-6215.3
29903	241.2	0	0	26.362	-6215.3
29904	241.2	0	0	26.362	-6215.3
29905	241.2	0	0	26.362	-6215.3
29906	241.18	0	0	26.362	-6215.3
29907	241.23	0	0	26.362	-6215.3
29908	241.22	0	0	26.362	-6215.3
29909	241.22	0	0	26.362	-6215.3
29910	241.25	0	0	26.362	-6215.3
29911	241.23	0	0	26.362	-6215.3
29912	241.27	0	0	26.362	-6215.3
29913	241.23	0	0	26.362	-6215.3
29914	241.21	0	0	26.362	-6215.3
29915	241.24	0	0	26.362	-6215.3
29916	241.22	0	0	26.362	-6215.3
29917	241.19	0	0	26.362	-6215.3
29918	241.21	0	0	26.362	-6215.3
29919	241.2	0	0	26.362	-6215.3
29920	241.2	0	0	26.362	-6215.3
29921	241.25	0	0	26.362	-6215.3
29922	241.22	0	0	26.362	-6215.3
29923	241.19	0	0	26.362	-6215.3
29924	241.18	0	0	26.362	-6215.3
29925	241.19	0	0	26.362	-6215.3
29926	241.18	0	0	26.362	-6215.3
29927	241.21	0	0	26.362	-6215.3
29928	241.24	0	0	26.362	-6215.3
29929	241.25	0	0	26.362	-6215.3
29930	241.23	0	0	26.362	-6215.3
29931	241.23	0	0	26.362	-6215.3
29932	241.21	0	0	26.362	-6215.3
29933	241.15	0	0	26.362	-6215.3
29934	241.22	0	0	26.362	-6215.3
29935	241.2	0	0	26.362	-6215.3
29936	241.16	0	0	26.362	-6215.3
29937	241.17	0	0	26.362	-6215.3

29938	241.16	0	0	26.362	-6215.3
29939	241.15	0	0	26.362	-6215.3
29940	241.16	0	0	26.362	-6215.3
29941	241.18	0	0	26.362	-6215.3
29942	241.15	0	0	26.362	-6215.3
29943	241.15	0	0	26.362	-6215.3
29944	241.08	0	0	26.362	-6215.3
29945	241.23	0	0	26.362	-6215.3
29946	241.19	0	0	26.362	-6215.3
29947	241.21	0	0	26.362	-6215.3
29948	241.27	0	0	26.362	-6215.3
29949	241.17	0	0	26.362	-6215.3
29950	241.18	0	0	26.362	-6215.3
29951	241.15	0	0	26.362	-6215.3
29952	241.09	0	0	26.362	-6215.3
29953	241.16	0	0	26.362	-6215.3
29954	241.16	0	0	26.362	-6215.3
29955	241.15	0	0	26.362	-6215.3
29956	241.19	0	0	26.362	-6215.3
29957	241.11	0	0	26.362	-6215.3
29958	241.12	0	0	26.362	-6215.3
29959	241.11	0	0	26.362	-6215.3
29960	241.1	0	0	26.362	-6215.3
29961	241.13	0	0	26.362	-6215.3
29962	241.18	0	0	26.362	-6215.3
29963	241.19	0	0	26.362	-6215.3
29964	241.18	0	0	26.362	-6215.3
29965	241.12	0	0	26.362	-6215.3
29966	241.24	0	0	26.362	-6215.3
29967	241.17	0	0	26.362	-6215.3
29968	241.17	0	0	26.362	-6215.3
29969	241.18	0	0	26.362	-6215.3
29970	241.16	0	0	26.362	-6215.3
29971	241.1	0	0	26.362	-6215.3
29972	241.08	0	0	26.362	-6215.3
29973	241.08	0	0	26.362	-6215.3
29974	241.14	0	0	26.362	-6215.3
29975	241.11	0	0	26.362	-6215.3
29976	241.13	0	0	26.362	-6215.3
29977	241.13	0	0	26.362	-6215.3
29978	241.1	0	0	26.362	-6215.3
29979	241.11	0	0	26.362	-6215.3
29980	241.15	0	0	26.362	-6215.3
29981	241.24	0	0	26.362	-6215.3
29982	241.21	0	0	26.362	-6215.3
29983	241.1	0	0	26.362	-6215.3
29984	241.27	0	0	26.362	-6215.3

29985	241.25	0	0	26.362	-6215.3
29986	241.34	0	0	26.362	-6215.3
29987	241.37	0	0	26.362	-6215.3
29988	241.36	0	0	26.362	-6215.3
29989	241.31	0	0	26.362	-6215.3
29990	241.34	0	0	26.362	-6215.3
29991	241.38	0	0	26.362	-6215.3
29992	241.3	0	0	26.362	-6215.3
29993	241.3	0	0	26.362	-6215.3
29994	241.34	0	0	26.362	-6215.3
29995	241.27	0	0	26.362	-6215.3
29996	241.26	0	0	26.362	-6215.3
29997	241.23	0	0	26.362	-6215.3
29998	241.33	0	0	26.362	-6215.3
29999	241.33	0	0	26.362	-6215.3
30000	241.23	0	0	26.362	-6215.3
30001	241.3	0	0	26.362	-6215.3
30002	241.32	0	0	26.362	-6215.3
30003	241.28	0	0	26.362	-6215.3
30004	241.3	0	0	26.362	-6215.3
30005	241.25	0	0	26.362	-6215.3
30006	241.33	0	0	26.362	-6215.3
30007	241.28	0	0	26.362	-6215.3
30008	241.31	0	0	26.362	-6215.3
30009	241.31	0	0	26.362	-6215.3
30010	241.29	0	0	26.362	-6215.3
30011	241.29	0	0	26.362	-6215.3
30012	241.21	0	0	26.362	-6215.3
30013	241.34	0	0	26.362	-6215.3
30014	241.31	0	0	26.362	-6215.3
30015	241.35	0	0	26.362	-6215.3
30016	241.34	0	0	26.362	-6215.3
30017	241.29	0	0	26.362	-6215.3
30018	241.28	0	0	26.362	-6215.3
30019	241.35	0	0	26.362	-6215.3
30020	241.36	0	0	26.362	-6215.3
30021	241.39	0	0	26.362	-6215.3
30022	241.32	0	0	26.362	-6215.3
30023	241.3	0	0	26.362	-6215.3
30024	241.28	0	0	26.362	-6215.3
30025	241.39	0	0	26.362	-6215.3
30026	241.35	0	0	26.362	-6215.3
30027	241.27	0	0	26.362	-6215.3
30028	241.39	0	0	26.362	-6215.3
30029	241.35	0	0	26.362	-6215.3
30030	241.3	0	0	26.362	-6215.3
30031	241.41	0	0	26.362	-6215.3

30032	241.42	0	0	26.362	-6215.3
30033	241.33	0	0	26.362	-6215.3
30034	241.36	0	0	26.362	-6215.3
30035	241.31	0	0	26.362	-6215.3
30036	241.6	0	0	26.362	-6215.3
30037	241.71	0	0	26.362	-6215.3
30038	241.58	0	0	26.362	-6215.3
30039	241.63	0	0	26.362	-6215.3
30040	241.64	0	0	26.362	-6215.3
30041	241.66	0	0	26.362	-6215.3
30042	241.67	0	0	26.362	-6215.3
30043	241.63	0	0	26.362	-6215.3
30044	241.56	0	0	26.362	-6215.3
30045	241.62	0	0	26.362	-6215.3
30046	241.59	0	0	26.362	-6215.3
30047	241.61	0	0	26.362	-6215.3
30048	241.65	0	0	26.362	-6215.3
30049	241.5	0	0	26.362	-6215.3
30050	241.54	0	0	26.362	-6215.3
30051	241.55	0	0	26.362	-6215.3
30052	241.56	0	0	26.362	-6215.3
30053	241.5	0	0	26.362	-6215.3
30054	241.51	0	0	26.362	-6215.3
30055	241.47	0	0	26.362	-6215.3
30056	241.49	0	0	26.362	-6215.3
30057	241.53	0	0	26.362	-6215.3
30058	241.5	0	0	26.362	-6215.3
30059	241.48	0	0	26.362	-6215.3
30060	241.4	0	0	26.362	-6215.3
30061	241.39	0	0	26.362	-6215.3
30062	241.46	0	0	26.362	-6215.3
30063	241.44	0	0	26.362	-6215.3
30064	241.41	0	0	26.362	-6215.3
30065	241.41	0	0	26.362	-6215.3
30066	241.36	0	0	26.362	-6215.3
30067	241.4	0	0	26.362	-6215.3
30068	241.4	0	0	26.362	-6215.3
30069	241.37	0	0	26.362	-6215.3
30070	241.41	0	0	26.362	-6215.3
30071	241.46	0	0	26.362	-6215.3
30072	241.47	0	0	26.362	-6215.3
30073	241.43	0	0	26.362	-6215.3
30074	241.53	0	0	26.362	-6215.3
30075	241.43	0	0	26.362	-6215.3
30076	241.44	0	0	26.362	-6215.3
30077	241.44	0	0	26.362	-6215.3
30078	241.47	0	0	26.362	-6215.3

30079	241.42	0	0	26.362	-6215.3
30080	241.48	0	0	26.362	-6215.3
30081	241.47	0	0	26.362	-6215.3
30082	241.49	0	0	26.362	-6215.3
30083	241.43	0	0	26.362	-6215.3
30084	241.52	0	0	26.362	-6215.3
30085	241.46	0	0	26.362	-6215.3
30086	241.42	0	0	26.362	-6215.3
30087	241.45	0	0	26.362	-6215.3
30088	241.41	0	0	26.362	-6215.3
30089	241.4	0	0	26.362	-6215.3
30090	241.41	0	0	26.362	-6215.3
30091	241.46	0	0	26.362	-6215.3
30092	241.42	0	0	26.362	-6215.3
30093	241.49	0	0	26.362	-6215.3
30094	241.44	0	0	26.362	-6215.3
30095	241.43	0	0	26.362	-6215.3
30096	241.47	0	0	26.362	-6215.3
30097	241.43	0	0	26.362	-6215.3
30098	241.38	0	0	26.362	-6215.3
30099	241.5	0	0	26.362	-6215.3
30100	241.54	0	0	26.362	-6215.3
30101	241.55	0	0	26.362	-6215.3
30102	241.63	0	0	26.362	-6215.3
30103	241.56	0	0	26.362	-6215.3
30104	241.66	0	0	26.362	-6215.3
30105	241.56	0	0	26.362	-6215.3
30106	241.58	0	0	26.362	-6215.3
30107	241.6	0	0	26.362	-6215.3
30108	241.66	0	0	26.362	-6215.3
30109	241.64	0	0	26.362	-6215.3
30110	241.64	0	0	26.362	-6215.3
30111	241.6	0	0	26.362	-6215.3
30112	241.6	0	0	26.362	-6215.3
30113	241.63	0	0	26.362	-6215.3
30114	241.62	0	0	26.362	-6215.3
30115	241.62	0	0	26.362	-6215.3
30116	241.63	0	0	26.362	-6215.3
30117	241.67	0	0	26.362	-6215.3
30118	241.61	0	0	26.362	-6215.3
30119	241.67	0	0	26.362	-6215.3
30120	241.66	0	0	26.362	-6215.3
30121	241.63	0	0	26.362	-6215.3
30122	241.61	0	0	26.362	-6215.3
30123	241.57	0	0	26.362	-6215.3
30124	241.6	0	0	26.362	-6215.3
30125	241.53	0	0	26.362	-6215.3

30126	241.59	0	0	26.362	-6215.3
30127	241.61	0	0	26.362	-6215.3
30128	241.57	0	0	26.362	-6215.3
30129	241.58	0	0	26.362	-6215.3
30130	241.55	0	0	26.362	-6215.3
30131	241.53	0	0	26.362	-6215.3
30132	241.58	0	0	26.362	-6215.3
30133	241.62	0	0	26.362	-6215.3
30134	241.6	0	0	26.362	-6215.3
30135	241.5	0	0	26.362	-6215.3
30136	241.59	0	0	26.362	-6215.3
30137	241.52	0	0	26.362	-6215.3
30138	241.55	0	0	26.362	-6215.3
30139	241.58	0	0	26.362	-6215.3
30140	241.59	0	0	26.362	-6215.3
30141	241.48	0	0	26.362	-6215.3
30142	241.56	0	0	26.362	-6215.3
30143	241.51	0	0	26.362	-6215.3
30144	241.57	0	0	26.362	-6215.3
30145	241.6	0	0	26.362	-6215.3
30146	241.63	0	0	26.362	-6215.3
30147	241.6	0	0	26.362	-6215.3
30148	241.61	0	0	26.362	-6215.3
30149	241.6	0	0	26.362	-6215.3
30150	241.38	0	0	26.362	-6215.3
30151	240.88	0	0	26.362	-6215.3
30152	241.55	0	0	26.362	-6215.3
30153	241.55	0	0	26.362	-6215.3
30154	241.49	0	0	26.362	-6215.3
30155	241.46	0	0	26.362	-6215.3
30156	241.52	0	0	26.362	-6215.3
30157	241.46	0	0	26.362	-6215.3
30158	241.47	0	0	26.362	-6215.3
30159	241.5	0	0	26.362	-6215.3
30160	241.48	0	0	26.362	-6215.3
30161	241.43	0	0	26.362	-6215.3
30162	241.43	0	0	26.362	-6215.3
30163	241.48	0	0	26.362	-6215.3
30164	241.41	0	0	26.362	-6215.3
30165	241.37	0	0	26.362	-6215.3
30166	241.38	0	0	26.362	-6215.3
30167	241.35	0	0	26.362	-6215.3
30168	241.4	0	0	26.362	-6215.3
30169	241.36	0	0	26.362	-6215.3
30170	241.38	0	0	26.362	-6215.3
30171	241.38	0	0	26.362	-6215.3
30172	241.33	0	0	26.362	-6215.3

30173	241.38	0	0	26.362	-6215.3
30174	241.36	0	0	26.362	-6215.3
30175	241.35	0	0	26.362	-6215.3
30176	241.41	0	0	26.362	-6215.3
30177	241.29	0	0	26.362	-6215.3
30178	241.37	0	0	26.362	-6215.3
30179	241.35	0	0	26.362	-6215.3
30180	241.3	0	0	26.362	-6215.3
30181	241.31	0	0	26.362	-6215.3
30182	241.33	0	0	26.362	-6215.3
30183	241.29	0	0	26.362	-6215.3
30184	241.23	0	0	26.362	-6215.3
30185	241.28	0	0	26.362	-6215.3
30186	241.23	0	0	26.362	-6215.3
30187	241.29	0	0	26.362	-6215.3
30188	241.27	0	0	26.362	-6215.3
30189	241.32	0	0	26.362	-6215.3
30190	241.25	0	0	26.362	-6215.3
30191	241.29	0	0	26.362	-6215.3
30192	241.31	0	0	26.362	-6215.3
30193	241.37	0	0	26.362	-6215.3
30194	241.34	0	0	26.362	-6215.3
30195	241.39	0	0	26.362	-6215.3
30196	241.38	0	0	26.362	-6215.3
30197	241.46	0	0	26.362	-6215.3
30198	241.38	0	0	26.362	-6215.3
30199	241.42	0	0	26.362	-6215.3
30200	241.45	0	0	26.362	-6215.3
30201	241.44	0	0	26.362	-6215.3
30202	241.48	0	0	26.362	-6215.3
30203	241.53	0	0	26.362	-6215.3
30204	241.49	0	0	26.362	-6215.3
30205	241.47	0	0	26.362	-6215.3
30206	241.47	0	0	26.362	-6215.3
30207	241.38	0	0	26.362	-6215.3
30208	241.49	0	0	26.362	-6215.3
30209	241.4	0	0	26.362	-6215.3
30210	241.46	0	0	26.362	-6215.3
30211	241.49	0	0	26.362	-6215.3
30212	241.44	0	0	26.362	-6215.3
30213	241.5	0	0	26.362	-6215.3
30214	241.46	0	0	26.362	-6215.3
30215	241.49	0	0	26.362	-6215.3
30216	241.46	0	0	26.362	-6215.3
30217	241.43	0	0	26.362	-6215.3
30218	241.54	0	0	26.362	-6215.3
30219	241.44	0	0	26.362	-6215.3

30220	241.5	0	0	26.362	-6215.3
30221	241.52	0	0	26.362	-6215.3
30222	241.52	0	0	26.362	-6215.3
30223	241.57	0	0	26.362	-6215.3
30224	241.52	0	0	26.362	-6215.3
30225	241.48	0	0	26.362	-6215.3
30226	241.54	0	0	26.362	-6215.3
30227	241.54	0	0	26.362	-6215.3
30228	241.54	0	0	26.362	-6215.3
30229	241.49	0	0	26.362	-6215.3
30230	241.45	0	0	26.362	-6215.3
30231	241.51	0	0	26.362	-6215.3
30232	241.5	0	0	26.362	-6215.3
30233	241.4	0	0	26.362	-6215.3
30234	241.49	0	0	26.362	-6215.3
30235	241.43	0	0	26.362	-6215.3
30236	241.31	0	0	26.362	-6215.3
30237	241.43	0	0	26.362	-6215.3
30238	241.47	0	0	26.362	-6215.3
30239	241.4	0	0	26.362	-6215.3
30240	241.42	0	0	26.362	-6215.3
30241	241.52	0	0	26.362	-6215.3
30242	241.43	0	0	26.362	-6215.3
30243	241.48	0	0	26.362	-6215.3
30244	241.54	0	0	26.362	-6215.3
30245	241.46	0	0	26.362	-6215.3
30246	241.43	0	0	26.362	-6215.3
30247	241.44	0	0	26.362	-6215.3
30248	241.44	0	0	26.362	-6215.3
30249	241.43	0	0	26.362	-6215.3
30250	241.42	0	0	26.362	-6215.3
30251	241.43	0	0	26.362	-6215.3
30252	241.36	0	0	26.362	-6215.3
30253	241.43	0	0	26.362	-6215.3
30254	241.37	0	0	26.362	-6215.3
30255	241.47	0	0	26.362	-6215.3
30256	241.4	0	0	26.362	-6215.3
30257	241.44	0	0	26.362	-6215.3
30258	241.39	0	0	26.362	-6215.3
30259	241.51	0	0	26.362	-6215.3
30260	241.43	0	0	26.362	-6215.3
30261	241.49	0	0	26.362	-6215.3
30262	241.42	0	0	26.362	-6215.3
30263	241.51	0	0	26.362	-6215.3
30264	241.52	0	0	26.362	-6215.3
30265	241.47	0	0	26.362	-6215.3
30266	241.46	0	0	26.362	-6215.3

30267	241.53	0	0	26.362	-6215.3
30268	241.45	0	0	26.362	-6215.3
30269	241.37	0	0	26.362	-6215.3
30270	241.53	0	0	26.362	-6215.3
30271	241.56	0	0	26.362	-6215.3
30272	241.49	0	0	26.362	-6215.3
30273	241.45	0	0	26.362	-6215.3
30274	241.46	0	0	26.362	-6215.3
30275	241.38	0	0	26.362	-6215.3
30276	241.45	0	0	26.362	-6215.3
30277	241.49	0	0	26.362	-6215.3
30278	241.42	0	0	26.362	-6215.3
30279	241.45	0	0	26.362	-6215.3
30280	241.5	0	0	26.362	-6215.3
30281	241.43	0	0	26.362	-6215.3
30282	241.47	0	0	26.362	-6215.3
30283	241.44	0	0	26.362	-6215.3
30284	241.44	0	0	26.362	-6215.3
30285	241.42	0	0	26.362	-6215.3
30286	241.42	0	0	26.362	-6215.3
30287	241.45	0	0	26.362	-6215.3
30288	241.42	0	0	26.362	-6215.3
30289	241.42	0	0	26.362	-6215.3
30290	241.42	0	0	26.362	-6215.3
30291	241.33	0	0	26.362	-6215.3
30292	241.41	0	0	26.362	-6215.3
30293	241.34	0	0	26.362	-6215.3
30294	241.31	0	0	26.362	-6215.3
30295	241.43	0	0	26.362	-6215.3
30296	241.36	0	0	26.362	-6215.3
30297	241.32	0	0	26.362	-6215.3
30298	241.37	0	0	26.362	-6215.3
30299	241.3	0	0	26.362	-6215.3
30300	241.36	0	0	26.362	-6215.3
30301	241.38	0	0	26.362	-6215.3
30302	241.36	0	0	26.362	-6215.3
30303	241.29	0	0	26.362	-6215.3
30304	241.33	0	0	26.362	-6215.3
30305	241.37	0	0	26.362	-6215.3
30306	241.26	0	0	26.362	-6215.3
30307	241.31	0	0	26.362	-6215.3
30308	241.24	0	0	26.362	-6215.3
30309	241.27	0	0	26.362	-6215.3
30310	241.28	0	0	26.362	-6215.3
30311	241.23	0	0	26.362	-6215.3
30312	241.23	0	0	26.362	-6215.3
30313	241.28	0	0	26.362	-6215.3

30314	241.25	0	0	26.362	-6215.3
30315	241.17	0	0	26.362	-6215.3
30316	241.24	0	0	26.362	-6215.3
30317	241.18	0	0	26.362	-6215.3
30318	241.29	0	0	26.362	-6215.3
30319	241.22	0	0	26.362	-6215.3
30320	241.23	0	0	26.362	-6215.3
30321	241.23	0	0	26.362	-6215.3
30322	241.21	0	0	26.362	-6215.3
30323	241.25	0	0	26.362	-6215.3
30324	241.22	0	0	26.362	-6215.3
30325	241.14	0	0	26.362	-6215.3
30326	241.21	0	0	26.362	-6215.3
30327	241.25	0	0	26.362	-6215.3
30328	241.18	0	0	26.362	-6215.3
30329	241.21	0	0	26.362	-6215.3
30330	241.22	0	0	26.362	-6215.3
30331	241.14	0	0	26.362	-6215.3
30332	241.26	0	0	26.362	-6215.3
30333	241.15	0	0	26.362	-6215.3
30334	240.9	0	0	26.362	-6215.3
30335	240.97	0	0	26.362	-6215.3
30336	240.92	0	0	26.362	-6215.3
30337	240.8	0	0	26.362	-6215.3
30338	240.87	0	0	26.362	-6215.3
30339	240.84	0	0	26.362	-6215.3
30340	240.74	0	0	26.362	-6215.3
30341	240.83	0	0	26.362	-6215.3
30342	240.9	0	0	26.362	-6215.3
30343	240.87	0	0	26.362	-6215.3
30344	240.85	0	0	26.362	-6215.3
30345	240.87	0	0	26.362	-6215.3
30346	240.83	0	0	26.362	-6215.3
30347	240.87	0	0	26.362	-6215.3
30348	240.89	0	0	26.362	-6215.3
30349	240.91	0	0	26.362	-6215.3
30350	240.98	0	0	26.362	-6215.3
30351	240.97	0	0	26.362	-6215.3
30352	240.92	0	0	26.362	-6215.3
30353	240.96	0	0	26.362	-6215.3
30354	241	0	0	26.362	-6215.3
30355	241.01	0	0	26.362	-6215.3
30356	241.02	0	0	26.362	-6215.3
30357	241.06	0	0	26.362	-6215.3
30358	241.14	0	0	26.362	-6215.3
30359	241.09	0	0	26.362	-6215.3
30360	241.05	0	0	26.362	-6215.3

30361	241.05	0	0	26.362	-6215.3
30362	241.04	0	0	26.362	-6215.3
30363	241.02	0	0	26.362	-6215.3
30364	241.05	0	0	26.362	-6215.3
30365	241	0	0	26.362	-6215.3
30366	241.07	0	0	26.362	-6215.3
30367	241.03	0	0	26.362	-6215.3
30368	241.06	0	0	26.362	-6215.3
30369	241.05	0	0	26.362	-6215.3
30370	240.98	0	0	26.362	-6215.3
30371	241.04	0	0	26.362	-6215.3
30372	241.04	0	0	26.362	-6215.3
30373	241.02	0	0	26.362	-6215.3
30374	241.05	0	0	26.362	-6215.3
30375	240.98	0	0	26.362	-6215.3
30376	240.98	0	0	26.362	-6215.3
30377	240.9	0	0	26.362	-6215.3
30378	240.91	0	0	26.362	-6215.3
30379	240.97	0	0	26.362	-6215.3
30380	240.99	0	0	26.362	-6215.3
30381	241.08	0	0	26.362	-6215.3
30382	240.99	0	0	26.362	-6215.3
30383	240.96	0	0	26.362	-6215.3
30384	241.06	0	0	26.362	-6215.3
30385	241.03	0	0	26.362	-6215.3
30386	241.09	0	0	26.362	-6215.3
30387	241.09	0	0	26.362	-6215.3
30388	241	0	0	26.362	-6215.3
30389	240.98	0	0	26.362	-6215.3
30390	241.01	0	0	26.362	-6215.3
30391	241.06	0	0	26.362	-6215.3
30392	241.05	0	0	26.362	-6215.3
30393	241.09	0	0	26.362	-6215.3
30394	240.97	0	0	26.362	-6215.3
30395	241.02	0	0	26.362	-6215.3
30396	240.99	0	0	26.362	-6215.3
30397	241	0	0	26.362	-6215.3
30398	240.98	0	0	26.362	-6215.3
30399	241.03	0	0	26.362	-6215.3
30400	241.01	0	0	26.362	-6215.3
30401	241.06	0	0	26.362	-6215.3
30402	241.01	0	0	26.362	-6215.3
30403	241.03	0	0	26.362	-6215.3
30404	241.09	0	0	26.362	-6215.3
30405	241.05	0	0	26.362	-6215.3
30406	241.21	0	0	26.362	-6215.3
30407	241.18	0	0	26.362	-6215.3

30408	241.07	0	0	26.362	-6215.3
30409	241.09	0	0	26.362	-6215.3
30410	241.05	0	0	26.362	-6215.3
30411	241	0	0	26.362	-6215.3
30412	240.97	0	0	26.362	-6215.3
30413	240.99	0	0	26.362	-6215.3
30414	240.98	0	0	26.362	-6215.3
30415	241.01	0	0	26.362	-6215.3
30416	240.99	0	0	26.362	-6215.3
30417	241.01	0	0	26.362	-6215.3
30418	240.92	0	0	26.362	-6215.3
30419	240.98	0	0	26.362	-6215.3
30420	240.89	0	0	26.362	-6215.3
30421	240.87	0	0	26.362	-6215.3
30422	240.93	0	0	26.362	-6215.3
30423	240.8	0	0	26.362	-6215.3
30424	240.81	0	0	26.362	-6215.3
30425	240.92	0	0	26.362	-6215.3
30426	240.84	0	0	26.362	-6215.3
30427	240.9	0	0	26.362	-6215.3
30428	240.87	0	0	26.362	-6215.3
30429	240.99	0	0	26.362	-6215.3
30430	240.93	0	0	26.362	-6215.3
30431	241	0	0	26.362	-6215.3
30432	240.95	0	0	26.362	-6215.3
30433	240.9	0	0	26.362	-6215.3
30434	240.89	0	0	26.362	-6215.3
30435	240.85	0	0	26.362	-6215.3
30436	240.9	0	0	26.362	-6215.3
30437	240.9	0	0	26.362	-6215.3
30438	240.88	0	0	26.362	-6215.3
30439	240.86	0	0	26.362	-6215.3
30440	240.84	0	0	26.362	-6215.3
30441	240.85	0	0	26.362	-6215.3
30442	240.9	0	0	26.362	-6215.3
30443	240.91	0	0	26.362	-6215.3
30444	240.73	0	0	26.362	-6215.3
30445	241.01	0	0	26.362	-6215.3
30446	241.12	0	0	26.362	-6215.3
30447	240.98	0	0	26.362	-6215.3
30448	240.99	0	0	26.362	-6215.3
30449	240.99	0	0	26.362	-6215.3
30450	240.98	0	0	26.362	-6215.3
30451	241.03	0	0	26.362	-6215.3
30452	240.96	0	0	26.362	-6215.3
30453	240.84	0	0	26.362	-6215.3
30454	240.98	0	0	26.362	-6215.3

30455	240.85	0	0	26.362	-6215.3
30456	240.86	0	0	26.362	-6215.3
30457	240.87	0	0	26.362	-6215.3
30458	240.84	0	0	26.362	-6215.3
30459	240.94	0	0	26.362	-6215.3
30460	240.93	0	0	26.362	-6215.3
30461	240.89	0	0	26.362	-6215.3
30462	240.95	0	0	26.362	-6215.3
30463	241.04	0	0	26.362	-6215.3
30464	240.9	0	0	26.362	-6215.3
30465	240.96	0	0	26.362	-6215.3
30466	240.99	0	0	26.362	-6215.3
30467	240.94	0	0	26.362	-6215.3
30468	241.03	0	0	26.362	-6215.3
30469	240.99	0	0	26.362	-6215.3
30470	241.12	0	0	26.362	-6215.3
30471	241.04	0	0	26.362	-6215.3
30472	241.11	0	0	26.362	-6215.3
30473	241.06	0	0	26.362	-6215.3
30474	241.05	0	0	26.362	-6215.3
30475	240.97	0	0	26.362	-6215.3
30476	240.98	0	0	26.362	-6215.3
30477	240.99	0	0	26.362	-6215.3
30478	240.92	0	0	26.362	-6215.3
30479	240.95	0	0	26.362	-6215.3
30480	240.99	0	0	26.362	-6215.3
30481	240.94	0	0	26.362	-6215.3
30482	241.02	0	0	26.362	-6215.3
30483	240.91	0	0	26.362	-6215.3
30484	240.93	0	0	26.362	-6215.3
30485	240.92	0	0	26.362	-6215.3
30486	240.87	0	0	26.362	-6215.3
30487	240.96	0	0	26.362	-6215.3
30488	240.97	0	0	26.362	-6215.3
30489	240.96	0	0	26.362	-6215.3
30490	241.1	0	0	26.362	-6215.3
30491	241.01	0	0	26.362	-6215.3
30492	241.03	0	0	26.362	-6215.3
30493	241.06	0	0	26.362	-6215.3
30494	241.02	0	0	26.362	-6215.3
30495	240.96	0	0	26.362	-6215.3
30496	241.02	0	0	26.362	-6215.3
30497	241.06	0	0	26.362	-6215.3
30498	241.03	0	0	26.362	-6215.3
30499	241.07	0	0	26.362	-6215.3
30500	240.98	0	0	26.362	-6215.3
30501	240.91	0	0	26.362	-6215.3

30502	240.96	0	0	26.362	-6215.3
30503	240.94	0	0	26.362	-6215.3
30504	240.89	0	0	26.362	-6215.3
30505	240.94	0	0	26.362	-6215.3
30506	240.92	0	0	26.362	-6215.3
30507	240.9	0	0	26.362	-6215.3
30508	240.95	0	0	26.362	-6215.3
30509	241	0	0	26.362	-6215.3
30510	240.92	0	0	26.362	-6215.3
30511	240.95	0	0	26.362	-6215.3
30512	240.91	0	0	26.362	-6215.3
30513	240.94	0	0	26.362	-6215.3
30514	241.02	0	0	26.362	-6215.3
30515	241	0	0	26.362	-6215.3
30516	240.97	0	0	26.362	-6215.3
30517	240.94	0	0	26.362	-6215.3
30518	241.13	0	0	26.362	-6215.3
30519	241.03	0	0	26.362	-6215.3
30520	240.98	0	0	26.362	-6215.3
30521	241.05	0	0	26.362	-6215.3
30522	240.98	0	0	26.362	-6215.3
30523	241	0	0	26.362	-6215.3
30524	240.94	0	0	26.362	-6215.3
30525	240.89	0	0	26.362	-6215.3
30526	240.93	0	0	26.362	-6215.3
30527	240.83	0	0	26.362	-6215.3
30528	240.93	0	0	26.362	-6215.3
30529	240.98	0	0	26.362	-6215.3
30530	241	0	0	26.362	-6215.3
30531	240.98	0	0	26.362	-6215.3
30532	241	0	0	26.362	-6215.3
30533	240.95	0	0	26.362	-6215.3
30534	240.96	0	0	26.362	-6215.3
30535	240.83	0	0	26.362	-6215.3
30536	240.89	0	0	26.362	-6215.3
30537	240.91	0	0	26.362	-6215.3
30538	240.87	0	0	26.362	-6215.3
30539	240.97	0	0	26.362	-6215.3
30540	240.9	0	0	26.362	-6215.3
30541	240.86	0	0	26.362	-6215.3
30542	240.96	0	0	26.362	-6215.3
30543	240.88	0	0	26.362	-6215.3
30544	240.76	0	0	26.362	-6215.3
30545	240.73	0	0	26.362	-6215.3
30546	240.78	0	0	26.362	-6215.3
30547	240.76	0	0	26.362	-6215.3
30548	240.75	0	0	26.362	-6215.3

30549	240.77	0	0	26.362	-6215.3
30550	240.73	0	0	26.362	-6215.3
30551	240.73	0	0	26.362	-6215.3
30552	240.73	0	0	26.362	-6215.3
30553	240.65	0	0	26.362	-6215.3
30554	240.65	0	0	26.362	-6215.3
30555	240.58	0	0	26.362	-6215.3
30556	241.04	0	0	26.362	-6215.3
30557	240.93	0	0	26.362	-6215.3
30558	241	0	0	26.362	-6215.3
30559	240.89	0	0	26.362	-6215.3
30560	240.8	0	0	26.362	-6215.3
30561	240.84	0	0	26.362	-6215.3
30562	240.88	0	0	26.362	-6215.3
30563	240.86	0	0	26.362	-6215.3
30564	240.89	0	0	26.362	-6215.3
30565	240.07	0	0	26.362	-6215.3
30566	240.72	0	0	26.362	-6215.3
30567	240.74	0	0	26.362	-6215.3
30568	240.6	0	0	26.362	-6215.3
30569	240.69	0	0	26.362	-6215.3
30570	240.64	0	0	26.362	-6215.3
30571	240.66	0	0	26.362	-6215.3
30572	240.65	0	0	26.362	-6215.3
30573	240.64	0	0	26.362	-6215.3
30574	240.63	0	0	26.362	-6215.3
30575	240.64	0	0	26.362	-6215.3
30576	240.65	0	0	26.362	-6215.3
30577	240.67	0	0	26.362	-6215.3
30578	240.66	0	0	26.362	-6215.3
30579	240.68	0	0	26.362	-6215.3
30580	240.69	0	0	26.362	-6215.3
30581	240.66	0	0	26.362	-6215.3
30582	240.68	0	0	26.362	-6215.3
30583	240.72	0	0	26.362	-6215.3
30584	240.73	0	0	26.362	-6215.3
30585	240.78	0	0	26.362	-6215.3
30586	240.71	0	0	26.362	-6215.3
30587	240.76	0	0	26.362	-6215.3
30588	240.77	0	0	26.362	-6215.3
30589	240.72	0	0	26.362	-6215.3
30590	240.67	0	0	26.362	-6215.3
30591	240.71	0	0	26.362	-6215.3
30592	240.61	0	0	26.362	-6215.3
30593	240.69	0	0	26.362	-6215.3
30594	240.64	0	0	26.362	-6215.3
30595	240.64	0	0	26.362	-6215.3

30596	240.75	0	0	26.362	-6215.3
30597	240.72	0	0	26.362	-6215.3
30598	240.72	0	0	26.362	-6215.3
30599	240.71	0	0	26.362	-6215.3
30600	240.66	0	0	26.362	-6215.3
30601	240.78	0	0	26.362	-6215.3
30602	240.73	0	0	26.362	-6215.3
30603	240.66	0	0	26.362	-6215.3
30604	240.75	0	0	26.362	-6215.3
30605	240.69	0	0	26.362	-6215.3
30606	240.8	0	0	26.362	-6215.3
30607	240.83	0	0	26.362	-6215.3
30608	240.69	0	0	26.362	-6215.3
30609	240.77	0	0	26.362	-6215.3
30610	240.83	0	0	26.362	-6215.3
30611	240.87	0	0	26.362	-6215.3
30612	240.88	0	0	26.362	-6215.3
30613	240.98	0	0	26.362	-6215.3
30614	241.01	0	0	26.362	-6215.3
30615	240.97	0	0	26.362	-6215.3
30616	241.07	0	0	26.362	-6215.3
30617	240.94	0	0	26.362	-6215.3
30618	240.9	0	0	26.362	-6215.3
30619	240.99	0	0	26.362	-6215.3
30620	241.1	0	0	26.362	-6215.3
30621	241.03	0	0	26.362	-6215.3
30622	240.92	0	0	26.362	-6215.3
30623	241.03	0	0	26.362	-6215.3
30624	240.9	0	0	26.362	-6215.3
30625	240.94	0	0	26.362	-6215.3
30626	241	0	0	26.362	-6215.3
30627	240.98	0	0	26.362	-6215.3
30628	240.74	0	0	26.362	-6215.3
30629	240.88	0	0	26.362	-6215.3
30630	240.89	0	0	26.362	-6215.3
30631	240.93	0	0	26.362	-6215.3
30632	240.89	0	0	26.362	-6215.3
30633	240.85	0	0	26.362	-6215.3
30634	240.81	0	0	26.362	-6215.3
30635	240.97	0	0	26.362	-6215.3
30636	240.87	0	0	26.362	-6215.3
30637	240.95	0	0	26.362	-6215.3
30638	240.95	0	0	26.362	-6215.3
30639	240.93	0	0	26.362	-6215.3
30640	240.89	0	0	26.362	-6215.3
30641	240.89	0	0	26.362	-6215.3
30642	240.84	0	0	26.362	-6215.3

30643	240.85	0	0	26.362	-6215.3
30644	240.9	0	0	26.362	-6215.3
30645	240.93	0	0	26.362	-6215.3
30646	240.86	0	0	26.362	-6215.3
30647	240.92	0	0	26.362	-6215.3
30648	240.76	0	0	26.362	-6215.3
30649	240.98	0	0	26.362	-6215.3
30650	240.76	0	0	26.362	-6215.3
30651	240.77	0	0	26.362	-6215.3
30652	240.89	0	0	26.362	-6215.3
30653	240.91	0	0	26.362	-6215.3
30654	240.71	0	0	26.362	-6215.3
30655	240.84	0	0	26.362	-6215.3
30656	240.94	0	0	26.362	-6215.3
30657	240.85	0	0	26.362	-6215.3
30658	240.93	0	0	26.362	-6215.3
30659	240.9	0	0	26.362	-6215.3
30660	240.93	0	0	26.362	-6215.3
30661	240.9	0	0	26.362	-6215.3
30662	240.95	0	0	26.362	-6215.3
30663	241.02	0	0	26.362	-6215.3
30664	240.88	0	0	26.362	-6215.3
30665	240.89	0	0	26.362	-6215.3
30666	240.84	0	0	26.362	-6215.3
30667	240.93	0	0	26.362	-6215.3
30668	240.91	0	0	26.362	-6215.3
30669	240.97	0	0	26.362	-6215.3
30670	240.88	0	0	26.362	-6215.3
30671	240.97	0	0	26.362	-6215.3
30672	240.96	0	0	26.362	-6215.3
30673	240.91	0	0	26.362	-6215.3
30674	240.89	0	0	26.362	-6215.3
30675	240.97	0	0	26.362	-6215.3
30676	240.85	0	0	26.362	-6215.3
30677	240.97	0	0	26.362	-6215.3
30678	240.85	0	0	26.362	-6215.3
30679	240.93	0	0	26.362	-6215.3
30680	240.96	0	0	26.362	-6215.3
30681	240.87	0	0	26.362	-6215.3
30682	240.86	0	0	26.362	-6215.3
30683	240.94	0	0	26.362	-6215.3
30684	240.87	0	0	26.362	-6215.3
30685	240.91	0	0	26.362	-6215.3
30686	240.82	0	0	26.362	-6215.3
30687	240.88	0	0	26.362	-6215.3
30688	240.9	0	0	26.362	-6215.3
30689	240.87	0	0	26.362	-6215.3

30690	240.88	0	0	26.362	-6215.3
30691	240.92	0	0	26.362	-6215.3
30692	240.89	0	0	26.362	-6215.3
30693	240.87	0	0	26.362	-6215.3
30694	240.96	0	0	26.362	-6215.3
30695	240.88	0	0	26.362	-6215.3
30696	240.81	0	0	26.362	-6215.3
30697	241.05	0	0	26.362	-6215.3
30698	240.93	0	0	26.362	-6215.3
30699	240.93	0	0	26.362	-6215.3
30700	241.01	0	0	26.362	-6215.3
30701	241.02	0	0	26.362	-6215.3
30702	240.93	0	0	26.362	-6215.3
30703	240.96	0	0	26.362	-6215.3
30704	240.92	0	0	26.362	-6215.3
30705	240.96	0	0	26.362	-6215.3
30706	240.86	0	0	26.362	-6215.3
30707	240.83	0	0	26.362	-6215.3
30708	240.91	0	0	26.362	-6215.3
30709	240.85	0	0	26.362	-6215.3
30710	240.95	0	0	26.362	-6215.3
30711	240.94	0	0	26.362	-6215.3
30712	240.9	0	0	26.362	-6215.3
30713	240.97	0	0	26.362	-6215.3
30714	240.83	0	0	26.362	-6215.3
30715	240.86	0	0	26.362	-6215.3
30716	240.96	0	0	26.362	-6215.3
30717	240.84	0	0	26.362	-6215.3
30718	241	0	0	26.362	-6215.3
30719	240.78	0	0	26.362	-6215.3
30720	240.83	0	0	26.362	-6215.3
30721	240.93	0	0	26.362	-6215.3
30722	240.87	0	0	26.362	-6215.3
30723	240.97	0	0	26.362	-6215.3
30724	240.91	0	0	26.362	-6215.3
30725	240.97	0	0	26.362	-6215.3
30726	240.97	0	0	26.362	-6215.3
30727	240.98	0	0	26.362	-6215.3
30728	240.85	0	0	26.362	-6215.3
30729	240.94	0	0	26.362	-6215.3
30730	240.92	0	0	26.362	-6215.3
30731	240.88	0	0	26.362	-6215.3
30732	240.95	0	0	26.362	-6215.3
30733	240.91	0	0	26.362	-6215.3
30734	240.87	0	0	26.362	-6215.3
30735	240.9	0	0	26.362	-6215.3
30736	240.91	0	0	26.362	-6215.3

30737	240.8	0	0	26.362	-6215.3
30738	240.92	0	0	26.362	-6215.3
30739	241.02	0	0	26.362	-6215.3
30740	240.95	0	0	26.362	-6215.3
30741	240.95	0	0	26.362	-6215.3
30742	241.04	0	0	26.362	-6215.3
30743	240.96	0	0	26.362	-6215.3
30744	240.98	0	0	26.362	-6215.3
30745	240.99	0	0	26.362	-6215.3
30746	240.84	0	0	26.362	-6215.3
30747	240.84	0	0	26.362	-6215.3
30748	240.8	0	0	26.362	-6215.3
30749	240.87	0	0	26.362	-6215.3
30750	240.78	0	0	26.362	-6215.3
30751	240.78	0	0	26.362	-6215.3
30752	240.74	0	0	26.362	-6215.3
30753	240.84	0	0	26.362	-6215.3
30754	240.79	0	0	26.362	-6215.3
30755	240.84	0	0	26.362	-6215.3
30756	240.84	0	0	26.362	-6215.3
30757	240.9	0	0	26.362	-6215.3
30758	240.77	0	0	26.362	-6215.3
30759	240.8	0	0	26.362	-6215.3
30760	240.81	0	0	26.362	-6215.3
30761	240.92	0	0	26.362	-6215.3
30762	240.83	0	0	26.362	-6215.3
30763	240.81	0	0	26.362	-6215.3
30764	240.74	0	0	26.362	-6215.3
30765	240.81	0	0	26.362	-6215.3
30766	240.84	0	0	26.362	-6215.3
30767	240.9	0	0	26.362	-6215.3
30768	240.78	0	0	26.362	-6215.3
30769	240.8	0	0	26.362	-6215.3
30770	240.77	0	0	26.362	-6215.3
30771	240.82	0	0	26.362	-6215.3
30772	240.76	0	0	26.362	-6215.3
30773	240.78	0	0	26.362	-6215.3
30774	240.72	0	0	26.362	-6215.3
30775	240.71	0	0	26.362	-6215.3
30776	240.73	0	0	26.362	-6215.3
30777	240.73	0	0	26.362	-6215.3
30778	240.73	0	0	26.362	-6215.3
30779	240.74	0	0	26.362	-6215.3
30780	240.74	0	0	26.362	-6215.3
30781	240.76	0	0	26.362	-6215.3
30782	240.75	0	0	26.362	-6215.3
30783	240.76	0	0	26.362	-6215.3

30784	240.8	0	0	26.362	-6215.3
30785	240.8	0	0	26.362	-6215.3
30786	240.71	0	0	26.362	-6215.3
30787	240.71	0	0	26.362	-6215.3
30788	240.72	0	0	26.362	-6215.3
30789	240.73	0	0	26.362	-6215.3
30790	240.79	0	0	26.362	-6215.3
30791	240.79	0	0	26.362	-6215.3
30792	240.76	0	0	26.362	-6215.3
30793	240.82	0	0	26.362	-6215.3
30794	240.8	0	0	26.362	-6215.3
30795	240.79	0	0	26.362	-6215.3
30796	240.76	0	0	26.362	-6215.3
30797	240.82	0	0	26.362	-6215.3
30798	240.75	0	0	26.362	-6215.3
30799	240.88	0	0	26.362	-6215.3
30800	240.75	0	0	26.362	-6215.3
30801	240.77	0	0	26.362	-6215.3
30802	240.82	0	0	26.362	-6215.3
30803	240.85	0	0	26.362	-6215.3
30804	240.86	0	0	26.362	-6215.3
30805	240.79	0	0	26.362	-6215.3
30806	240.84	0	0	26.362	-6215.3
30807	240.8	0	0	26.362	-6215.3
30808	240.78	0	0	26.362	-6215.3
30809	240.74	0	0	26.362	-6215.3
30810	240.77	0	0	26.362	-6215.3
30811	240.7	0	0	26.362	-6215.3
30812	240.79	0	0	26.362	-6215.3
30813	240.82	0	0	26.362	-6215.3
30814	240.8	0	0	26.362	-6215.3
30815	240.86	0	0	26.362	-6215.3
30816	240.81	0	0	26.362	-6215.3
30817	240.84	0	0	26.362	-6215.3
30818	240.75	0	0	26.362	-6215.3
30819	240.73	0	0	26.362	-6215.3
30820	240.76	0	0	26.362	-6215.3
30821	240.8	0	0	26.362	-6215.3
30822	240.87	0	0	26.362	-6215.3
30823	240.89	0	0	26.362	-6215.3
30824	240.87	0	0	26.362	-6215.3
30825	240.95	0	0	26.362	-6215.3
30826	241.01	0	0	26.362	-6215.3
30827	240.98	0	0	26.362	-6215.3
30828	241.05	0	0	26.362	-6215.3
30829	241.03	0	0	26.362	-6215.3
30830	240.9	0	0	26.362	-6215.3

30831	240.89	0	0	26.362	-6215.3
30832	240.97	0	0	26.362	-6215.3
30833	240.94	0	0	26.362	-6215.3
30834	240.99	0	0	26.362	-6215.3
30835	240.97	0	0	26.362	-6215.3
30836	240.91	0	0	26.362	-6215.3
30837	240.87	0	0	26.362	-6215.3
30838	240.85	0	0	26.362	-6215.3
30839	240.87	0	0	26.362	-6215.3
30840	240.93	0	0	26.362	-6215.3
30841	241.01	0	0	26.362	-6215.3
30842	240.95	0	0	26.362	-6215.3
30843	240.92	0	0	26.362	-6215.3
30844	240.96	0	0	26.362	-6215.3
30845	241.01	0	0	26.362	-6215.3
30846	240.88	0	0	26.362	-6215.3
30847	240.96	0	0	26.362	-6215.3
30848	241	0	0	26.362	-6215.3
30849	241.02	0	0	26.362	-6215.3
30850	240.95	0	0	26.362	-6215.3
30851	240.96	0	0	26.362	-6215.3
30852	240.97	0	0	26.362	-6215.3
30853	240.96	0	0	26.362	-6215.3
30854	240.97	0	0	26.362	-6215.3
30855	241	0	0	26.362	-6215.3
30856	240.97	0	0	26.362	-6215.3
30857	241.03	0	0	26.362	-6215.3
30858	240.92	0	0	26.362	-6215.3
30859	240.81	0	0	26.362	-6215.3
30860	240.94	0	0	26.362	-6215.3
30861	240.95	0	0	26.362	-6215.3
30862	240.96	0	0	26.362	-6215.3
30863	240.94	0	0	26.362	-6215.3
30864	240.92	0	0	26.362	-6215.3
30865	241	0	0	26.362	-6215.3
30866	241.04	0	0	26.362	-6215.3
30867	240.94	0	0	26.362	-6215.3
30868	240.97	0	0	26.362	-6215.3
30869	240.94	0	0	26.362	-6215.3
30870	241.07	0	0	26.362	-6215.3
30871	241.06	0	0	26.362	-6215.3
30872	240.97	0	0	26.362	-6215.3
30873	241	0	0	26.362	-6215.3
30874	240.93	0	0	26.362	-6215.3
30875	241.04	0	0	26.362	-6215.3
30876	240.99	0	0	26.362	-6215.3
30877	240.97	0	0	26.362	-6215.3

30878	241.04	0	0	26.362	-6215.3
30879	240.98	0	0	26.362	-6215.3
30880	240.96	0	0	26.362	-6215.3
30881	241.12	0	0	26.362	-6215.3
30882	241.05	0	0	26.362	-6215.3
30883	240.98	0	0	26.362	-6215.3
30884	240.97	0	0	26.362	-6215.3
30885	241.09	0	0	26.362	-6215.3
30886	241.01	0	0	26.362	-6215.3
30887	241.11	0	0	26.362	-6215.3
30888	240.97	0	0	26.362	-6215.3
30889	241.06	0	0	26.362	-6215.3
30890	241	0	0	26.362	-6215.3
30891	241	0	0	26.362	-6215.3
30892	241	0	0	26.362	-6215.3
30893	241.05	0	0	26.362	-6215.3
30894	240.88	0	0	26.362	-6215.3
30895	240.94	0	0	26.362	-6215.3
30896	241.04	0	0	26.362	-6215.3
30897	240.96	0	0	26.362	-6215.3
30898	240.99	0	0	26.362	-6215.3
30899	240.89	0	0	26.362	-6215.3
30900	240.99	0	0	26.362	-6215.3
30901	241	0	0	26.362	-6215.3
30902	241.02	0	0	26.362	-6215.3
30903	240.9	0	0	26.362	-6215.3
30904	241.2	0	0	26.362	-6215.3
30905	241.37	0	0	26.362	-6215.3
30906	241.3	0	0	26.362	-6215.3
30907	241.34	0	0	26.362	-6215.3
30908	241.31	0	0	26.362	-6215.3
30909	241.37	0	0	26.362	-6215.3
30910	241.39	0	0	26.362	-6215.3
30911	241.37	0	0	26.362	-6215.3
30912	241.37	0	0	26.362	-6215.3
30913	241.43	0	0	26.362	-6215.3
30914	241.41	0	0	26.362	-6215.3
30915	241.45	0	0	26.362	-6215.3
30916	241.48	0	0	26.362	-6215.3
30917	241.41	0	0	26.362	-6215.3
30918	241.37	0	0	26.362	-6215.3
30919	241.47	0	0	26.362	-6215.3
30920	241.4	0	0	26.362	-6215.3
30921	241.42	0	0	26.362	-6215.3
30922	241.42	0	0	26.362	-6215.3
30923	241.37	0	0	26.362	-6215.3
30924	241.42	0	0	26.362	-6215.3

30925	241.41	0	0	26.362	-6215.3
30926	241.39	0	0	26.362	-6215.3
30927	241.44	0	0	26.362	-6215.3
30928	241.41	0	0	26.362	-6215.3
30929	241.39	0	0	26.362	-6215.3
30930	241.35	0	0	26.362	-6215.3
30931	241.39	0	0	26.362	-6215.3
30932	241.28	0	0	26.362	-6215.3
30933	241.43	0	0	26.362	-6215.3
30934	241.41	0	0	26.362	-6215.3
30935	241.37	0	0	26.362	-6215.3
30936	241.36	0	0	26.362	-6215.3
30937	241.36	0	0	26.362	-6215.3
30938	241.36	0	0	26.362	-6215.3
30939	241.36	0	0	26.362	-6215.3
30940	241.39	0	0	26.362	-6215.3
30941	241.39	0	0	26.362	-6215.3
30942	241.38	0	0	26.362	-6215.3
30943	241.41	0	0	26.362	-6215.3
30944	241.4	0	0	26.362	-6215.3
30945	241.38	0	0	26.362	-6215.3
30946	241.43	0	0	26.362	-6215.3
30947	241.44	0	0	26.362	-6215.3
30948	241.45	0	0	26.362	-6215.3
30949	241.5	0	0	26.362	-6215.3
30950	241.47	0	0	26.362	-6215.3
30951	241.51	0	0	26.362	-6215.3
30952	241.54	0	0	26.362	-6215.3
30953	241.55	0	0	26.362	-6215.3
30954	241.52	0	0	26.362	-6215.3
30955	241.53	0	0	26.362	-6215.3
30956	241.56	0	0	26.362	-6215.3
30957	241.55	0	0	26.362	-6215.3
30958	241.51	0	0	26.362	-6215.3
30959	241.6	0	0	26.362	-6215.3
30960	241.54	0	0	26.362	-6215.3
30961	241.55	0	0	26.362	-6215.3
30962	241.54	0	0	26.362	-6215.3
30963	241.54	0	0	26.362	-6215.3
30964	241.53	0	0	26.362	-6215.3
30965	241.58	0	0	26.362	-6215.3
30966	241.66	0	0	26.362	-6215.3
30967	241.63	0	0	26.362	-6215.3
30968	241.72	0	0	26.362	-6215.3
30969	241.72	0	0	26.362	-6215.3
30970	241.71	0	0	26.362	-6215.3
30971	241.71	0	0	26.362	-6215.3

30972	241.71	0	0	26.362	-6215.3
30973	241.71	0	0	26.362	-6215.3
30974	241.65	0	0	26.362	-6215.3
30975	241.53	0	0	26.362	-6215.3
30976	241.63	0	0	26.362	-6215.3
30977	241.59	0	0	26.362	-6215.3
30978	241.58	0	0	26.362	-6215.3
30979	241.59	0	0	26.362	-6215.3
30980	241.57	0	0	26.362	-6215.3
30981	241.54	0	0	26.362	-6215.3
30982	241.51	0	0	26.362	-6215.3
30983	241.53	0	0	26.362	-6215.3
30984	241.54	0	0	26.362	-6215.3
30985	241.5	0	0	26.362	-6215.3
30986	241.46	0	0	26.362	-6215.3
30987	241.46	0	0	26.362	-6215.3
30988	240.71	0	0	26.362	-6215.3
30989	240.89	0	0	26.362	-6215.3
30990	241.48	0	0	26.362	-6215.3
30991	241.46	0	0	26.362	-6215.3
30992	241.46	0	0	26.362	-6215.3
30993	241.49	0	0	26.362	-6215.3
30994	241.42	0	0	26.362	-6215.3
30995	241.46	0	0	26.362	-6215.3
30996	241.37	0	0	26.362	-6215.3
30997	241.44	0	0	26.362	-6215.3
30998	241.39	0	0	26.362	-6215.3
30999	241.44	0	0	26.362	-6215.3
31000	241.44	0	0	26.362	-6215.3
31001	241.43	0	0	26.362	-6215.3
31002	241.43	0	0	26.362	-6215.3
31003	241.39	0	0	26.362	-6215.3
31004	241.44	0	0	26.362	-6215.3
31005	241.44	0	0	26.362	-6215.3
31006	241.41	0	0	26.362	-6215.3
31007	241.43	0	0	26.362	-6215.3
31008	241.36	0	0	26.362	-6215.3
31009	241.34	0	0	26.362	-6215.3
31010	241.34	0	0	26.362	-6215.3
31011	241.32	0	0	26.362	-6215.3
31012	241.39	0	0	26.362	-6215.3
31013	241.33	0	0	26.362	-6215.3
31014	241.34	0	0	26.362	-6215.3
31015	241.33	0	0	26.362	-6215.3
31016	241.33	0	0	26.362	-6215.3
31017	241.4	0	0	26.362	-6215.3
31018	241.39	0	0	26.362	-6215.3

31019	241.33	0	0	26.362	-6215.3
31020	241.29	0	0	26.362	-6215.3
31021	241.29	0	0	26.362	-6215.3
31022	241.31	0	0	26.362	-6215.3
31023	241.32	0	0	26.362	-6215.3
31024	241.31	0	0	26.362	-6215.3
31025	241.3	0	0	26.362	-6215.3
31026	241.29	0	0	26.362	-6215.3
31027	241.32	0	0	26.362	-6215.3
31028	241.34	0	0	26.362	-6215.3
31029	241.39	0	0	26.362	-6215.3
31030	241.44	0	0	26.362	-6215.3
31031	241.56	0	0	26.362	-6215.3
31032	241.57	0	0	26.362	-6215.3
31033	241.55	0	0	26.362	-6215.3
31034	241.53	0	0	26.362	-6215.3
31035	241.58	0	0	26.362	-6215.3
31036	241.57	0	0	26.362	-6215.3
31037	241.56	0	0	26.362	-6215.3
31038	241.59	0	0	26.362	-6215.3
31039	241.58	0	0	26.362	-6215.3
31040	241.61	0	0	26.362	-6215.3
31041	241.6	0	0	26.362	-6215.3
31042	241.56	0	0	26.362	-6215.3
31043	241.53	0	0	26.362	-6215.3
31044	241.54	0	0	26.362	-6215.3
31045	241.51	0	0	26.362	-6215.3
31046	241.34	0	0	26.362	-6215.3
31047	241.53	0	0	26.362	-6215.3
31048	241.52	0	0	26.362	-6215.3
31049	241.53	0	0	26.362	-6215.3
31050	241.51	0	0	26.362	-6215.3
31051	241.52	0	0	26.362	-6215.3
31052	241.53	0	0	26.362	-6215.3
31053	241.55	0	0	26.362	-6215.3
31054	241.58	0	0	26.362	-6215.3
31055	241.56	0	0	26.362	-6215.3
31056	241.56	0	0	26.362	-6215.3
31057	241.55	0	0	26.362	-6215.3
31058	241.56	0	0	26.362	-6215.3
31059	241.54	0	0	26.362	-6215.3
31060	241.57	0	0	26.362	-6215.3
31061	241.55	0	0	26.362	-6215.3
31062	241.53	0	0	26.362	-6215.3
31063	241.54	0	0	26.362	-6215.3
31064	241.58	0	0	26.362	-6215.3
31065	241.55	0	0	26.362	-6215.3

31066	241.5	0	0	26.362	-6215.3
31067	241.48	0	0	26.362	-6215.3
31068	241.47	0	0	26.362	-6215.3
31069	241.56	0	0	26.362	-6215.3
31070	241.55	0	0	26.362	-6215.3
31071	241.54	0	0	26.362	-6215.3
31072	241.47	0	0	26.362	-6215.3
31073	241.53	0	0	26.362	-6215.3
31074	241.53	0	0	26.362	-6215.3
31075	241.56	0	0	26.362	-6215.3
31076	241.58	0	0	26.362	-6215.3
31077	241.56	0	0	26.362	-6215.3
31078	241.61	0	0	26.362	-6215.3
31079	241.59	0	0	26.362	-6215.3
31080	241.59	0	0	26.362	-6215.3
31081	241.56	0	0	26.362	-6215.3
31082	241.56	0	0	26.362	-6215.3
31083	241.57	0	0	26.362	-6215.3
31084	241.59	0	0	26.362	-6215.3
31085	241.58	0	0	26.362	-6215.3
31086	241.56	0	0	26.362	-6215.3
31087	241.48	0	0	26.362	-6215.3
31088	241.49	0	0	26.362	-6215.3
31089	241.49	0	0	26.362	-6215.3
31090	241.55	0	0	26.362	-6215.3
31091	241.53	0	0	26.362	-6215.3
31092	241.54	0	0	26.362	-6215.3
31093	241.53	0	0	26.362	-6215.3
31094	241.55	0	0	26.362	-6215.3
31095	241.55	0	0	26.362	-6215.3
31096	241.54	0	0	26.362	-6215.3
31097	241.56	0	0	26.362	-6215.3
31098	241.58	0	0	26.362	-6215.3
31099	241.62	0	0	26.362	-6215.3
31100	241.62	0	0	26.362	-6215.3
31101	241.67	0	0	26.362	-6215.3
31102	241.67	0	0	26.362	-6215.3
31103	241.65	0	0	26.362	-6215.3
31104	241.63	0	0	26.362	-6215.3
31105	241.69	0	0	26.362	-6215.3
31106	241.71	0	0	26.362	-6215.3
31107	241.71	0	0	26.362	-6215.3
31108	241.63	0	0	26.362	-6215.3
31109	241.63	0	0	26.362	-6215.3
31110	241.61	0	0	26.362	-6215.3
31111	241.57	0	0	26.362	-6215.3
31112	241.58	0	0	26.362	-6215.3

31113	241.6	0	0	26.362	-6215.3
31114	241.6	0	0	26.362	-6215.3
31115	241.63	0	0	26.362	-6215.3
31116	241.69	0	0	26.362	-6215.3
31117	241.7	0	0	26.362	-6215.3
31118	241.7	0	0	26.362	-6215.3
31119	241.67	0	0	26.362	-6215.3
31120	241.65	0	0	26.362	-6215.3
31121	241.65	0	0	26.362	-6215.3
31122	241.66	0	0	26.362	-6215.3
31123	241.68	0	0	26.362	-6215.3
31124	241.64	0	0	26.362	-6215.3
31125	241.61	0	0	26.362	-6215.3
31126	241.62	0	0	26.362	-6215.3
31127	241.59	0	0	26.362	-6215.3
31128	241.61	0	0	26.362	-6215.3
31129	241.58	0	0	26.362	-6215.3
31130	241.51	0	0	26.362	-6215.3
31131	241.49	0	0	26.362	-6215.3
31132	241.49	0	0	26.362	-6215.3
31133	241.43	0	0	26.362	-6215.3
31134	241.42	0	0	26.362	-6215.3
31135	241.43	0	0	26.362	-6215.3
31136	241.43	0	0	26.362	-6215.3
31137	241.46	0	0	26.362	-6215.3
31138	241.43	0	0	26.362	-6215.3
31139	241.48	0	0	26.362	-6215.3
31140	241.45	0	0	26.362	-6215.3
31141	241.48	0	0	26.362	-6215.3
31142	241.4	0	0	26.362	-6215.3
31143	241.45	0	0	26.362	-6215.3
31144	241.49	0	0	26.362	-6215.3
31145	241.45	0	0	26.362	-6215.3
31146	241.43	0	0	26.362	-6215.3
31147	241.43	0	0	26.362	-6215.3
31148	241.48	0	0	26.362	-6215.3
31149	241.5	0	0	26.362	-6215.3
31150	241.42	0	0	26.362	-6215.3
31151	241.44	0	0	26.362	-6215.3
31152	241.41	0	0	26.362	-6215.3
31153	241.38	0	0	26.362	-6215.3
31154	241.41	0	0	26.362	-6215.3
31155	241.46	0	0	26.362	-6215.3
31156	241.48	0	0	26.362	-6215.3
31157	241.51	0	0	26.362	-6215.3
31158	241.46	0	0	26.362	-6215.3
31159	241.34	0	0	26.362	-6215.3

31160	241.47	0	0	26.362	-6215.3
31161	241.46	0	0	26.362	-6215.3
31162	241.41	0	0	26.362	-6215.3
31163	241.28	0	0	26.362	-6215.3
31164	241.41	0	0	26.362	-6215.3
31165	241.37	0	0	26.362	-6215.3
31166	241.37	0	0	26.362	-6215.3
31167	241.41	0	0	26.362	-6215.3
31168	241.48	0	0	26.362	-6215.3
31169	241.44	0	0	26.362	-6215.3
31170	241.47	0	0	26.362	-6215.3
31171	241.4	0	0	26.362	-6215.3
31172	241.49	0	0	26.362	-6215.3
31173	241.47	0	0	26.362	-6215.3
31174	241.4	0	0	26.362	-6215.3
31175	241.44	0	0	26.362	-6215.3
31176	241.39	0	0	26.362	-6215.3
31177	241.44	0	0	26.362	-6215.3
31178	241.45	0	0	26.362	-6215.3
31179	241.45	0	0	26.362	-6215.3
31180	241.47	0	0	26.362	-6215.3
31181	241.37	0	0	26.362	-6215.3
31182	241.45	0	0	26.362	-6215.3
31183	241.39	0	0	26.362	-6215.3
31184	241.44	0	0	26.362	-6215.3
31185	241.54	0	0	26.362	-6215.3
31186	241.45	0	0	26.362	-6215.3
31187	241.47	0	0	26.362	-6215.3
31188	241.48	0	0	26.362	-6215.3
31189	241.42	0	0	26.362	-6215.3
31190	241.39	0	0	26.362	-6215.3
31191	241.42	0	0	26.362	-6215.3
31192	241.38	0	0	26.362	-6215.3
31193	241.41	0	0	26.362	-6215.3
31194	241.34	0	0	26.362	-6215.3
31195	241.38	0	0	26.362	-6215.3
31196	241.37	0	0	26.362	-6215.3
31197	241.35	0	0	26.362	-6215.3
31198	241.44	0	0	26.362	-6215.3
31199	241.48	0	0	26.362	-6215.3
31200	241.47	0	0	26.362	-6215.3
31201	241.43	0	0	26.362	-6215.3
31202	241.42	0	0	26.362	-6215.3
31203	241.44	0	0	26.362	-6215.3
31204	241.42	0	0	26.362	-6215.3
31205	241.4	0	0	26.362	-6215.3
31206	241.42	0	0	26.362	-6215.3

31207	241.32	0	0	26.362	-6215.3
31208	241.41	0	0	26.362	-6215.3
31209	241.38	0	0	26.362	-6215.3
31210	241.34	0	0	26.362	-6215.3
31211	241.33	0	0	26.362	-6215.3
31212	241.25	0	0	26.362	-6215.3
31213	241.32	0	0	26.362	-6215.3
31214	241.16	0	0	26.362	-6215.3
31215	241.23	0	0	26.362	-6215.3
31216	241.2	0	0	26.362	-6215.3
31217	241.22	0	0	26.362	-6215.3
31218	241.15	0	0	26.362	-6215.3
31219	241.23	0	0	26.362	-6215.3
31220	241.16	0	0	26.362	-6215.3
31221	241.16	0	0	26.362	-6215.3
31222	241.14	0	0	26.362	-6215.3
31223	241.15	0	0	26.362	-6215.3
31224	241.17	0	0	26.362	-6215.3
31225	241.17	0	0	26.362	-6215.3
31226	241.13	0	0	26.362	-6215.3
31227	241.16	0	0	26.362	-6215.3
31228	241.1	0	0	26.362	-6215.3
31229	241.14	0	0	26.362	-6215.3
31230	241.06	0	0	26.362	-6215.3
31231	241.09	0	0	26.362	-6215.3
31232	241.11	0	0	26.362	-6215.3
31233	240.97	0	0	26.362	-6215.3
31234	241.08	0	0	26.362	-6215.3
31235	241.07	0	0	26.362	-6215.3
31236	241.01	0	0	26.362	-6215.3
31237	241.07	0	0	26.362	-6215.3
31238	241.1	0	0	26.362	-6215.3
31239	241.09	0	0	26.362	-6215.3
31240	241.12	0	0	26.362	-6215.3
31241	241.16	0	0	26.362	-6215.3
31242	241.09	0	0	26.362	-6215.3
31243	241.17	0	0	26.362	-6215.3
31244	241.14	0	0	26.362	-6215.3
31245	241.21	0	0	26.362	-6215.3
31246	241.13	0	0	26.362	-6215.3
31247	241.01	0	0	26.362	-6215.3
31248	241.03	0	0	26.362	-6215.3
31249	241.02	0	0	26.362	-6215.3
31250	240.97	0	0	26.362	-6215.3
31251	240.97	0	0	26.362	-6215.3
31252	240.98	0	0	26.362	-6215.3
31253	241.01	0	0	26.362	-6215.3

31254	240.62	0	0	26.362	-6215.3
31255	240.67	0	0	26.362	-6215.3
31256	240.64	0	0	26.362	-6215.3
31257	240.64	0	0	26.362	-6215.3
31258	240.61	0	0	26.362	-6215.3
31259	240.65	0	0	26.362	-6215.3
31260	240.65	0	0	26.362	-6215.3
31261	240.76	0	0	26.362	-6215.3
31262	240.75	0	0	26.362	-6215.3
31263	240.79	0	0	26.362	-6215.3
31264	240.63	0	0	26.362	-6215.3
31265	240.72	0	0	26.362	-6215.3
31266	240.74	0	0	26.362	-6215.3
31267	240.8	0	0	26.362	-6215.3
31268	240.86	0	0	26.362	-6215.3
31269	240.76	0	0	26.362	-6215.3
31270	240.87	0	0	26.362	-6215.3
31271	240.9	0	0	26.362	-6215.3
31272	240.89	0	0	26.362	-6215.3
31273	240.79	0	0	26.362	-6215.3
31274	240.84	0	0	26.362	-6215.3
31275	240.82	0	0	26.362	-6215.3
31276	240.85	0	0	26.362	-6215.3
31277	240.85	0	0	26.362	-6215.3
31278	240.89	0	0	26.362	-6215.3
31279	240.84	0	0	26.362	-6215.3
31280	240.78	0	0	26.362	-6215.3
31281	240.88	0	0	26.362	-6215.3
31282	240.9	0	0	26.362	-6215.3
31283	240.83	0	0	26.362	-6215.3
31284	240.95	0	0	26.362	-6215.3
31285	240.82	0	0	26.362	-6215.3
31286	241.02	0	0	26.362	-6215.3
31287	240.94	0	0	26.362	-6215.3
31288	240.79	0	0	26.362	-6215.3
31289	240.65	0	0	26.362	-6215.3
31290	240.76	0	0	26.362	-6215.3
31291	240.85	0	0	26.362	-6215.3
31292	240.72	0	0	26.362	-6215.3
31293	240.81	0	0	26.362	-6215.3
31294	240.83	0	0	26.362	-6215.3
31295	240.8	0	0	26.362	-6215.3
31296	240.69	0	0	26.362	-6215.3
31297	240.98	0	0	26.362	-6215.3
31298	241.03	0	0	26.362	-6215.3
31299	240.76	0	0	26.362	-6215.3
31300	241.06	0	0	26.362	-6215.3

31301	240.97	0	0	26.362	-6215.3
31302	240.83	0	0	26.362	-6215.3
31303	240.66	0	0	26.362	-6215.3
31304	240.79	0	0	26.362	-6215.3
31305	240.88	0	0	26.362	-6215.3
31306	240.89	0	0	26.362	-6215.3
31307	241.1	0	0	26.362	-6215.3
31308	240.99	0	0	26.362	-6215.3
31309	240.86	0	0	26.362	-6215.3
31310	240.79	0	0	26.362	-6215.3
31311	240.91	0	0	26.362	-6215.3
31312	240.78	0	0	26.362	-6215.3
31313	240.79	0	0	26.362	-6215.3
31314	240.86	0	0	26.362	-6215.3
31315	241.04	0	0	26.362	-6215.3
31316	241.02	0	0	26.362	-6215.3
31317	240.79	0	0	26.362	-6215.3
31318	240.9	0	0	26.362	-6215.3
31319	240.75	0	0	26.362	-6215.3
31320	240.82	0	0	26.362	-6215.3
31321	240.79	0	0	26.362	-6215.3
31322	240.87	0	0	26.362	-6215.3
31323	240.88	0	0	26.362	-6215.3
31324	241.1	0	0	26.362	-6215.3
31325	241.12	0	0	26.362	-6215.3
31326	241.13	0	0	26.362	-6215.3
31327	241.17	0	0	26.362	-6215.3
31328	241.13	0	0	26.362	-6215.3
31329	241.14	0	0	26.362	-6215.3
31330	241.16	0	0	26.362	-6215.3
31331	241.14	0	0	26.362	-6215.3
31332	241.16	0	0	26.362	-6215.3
31333	241.1	0	0	26.362	-6215.3
31334	241.46	0	0	26.362	-6215.3
31335	241.56	0	0	26.362	-6215.3
31336	241.55	0	0	26.362	-6215.3
31337	241.5	0	0	26.362	-6215.3
31338	241.49	0	0	26.362	-6215.3
31339	241.46	0	0	26.362	-6215.3
31340	241.45	0	0	26.362	-6215.3
31341	241.47	0	0	26.362	-6215.3
31342	241.5	0	0	26.362	-6215.3
31343	241.48	0	0	26.362	-6215.3
31344	241.1	0	0	26.362	-6215.3
31345	241.3	0	0	26.362	-6215.3
31346	241.22	0	0	26.362	-6215.3
31347	241.14	0	0	26.362	-6215.3

31348	241.34	0	0	26.362	-6215.3
31349	241.4	0	0	26.362	-6215.3
31350	241.34	0	0	26.362	-6215.3
31351	241.28	0	0	26.362	-6215.3
31352	241.22	0	0	26.362	-6215.3
31353	241.24	0	0	26.362	-6215.3
31354	241.36	0	0	26.362	-6215.3
31355	241.3	0	0	26.362	-6215.3
31356	241.1	0	0	26.362	-6215.3
31357	241.28	0	0	26.362	-6215.3
31358	241.2	0	0	26.362	-6215.3
31359	241.22	0	0	26.362	-6215.3
31360	241.24	0	0	26.362	-6215.3
31361	241.29	0	0	26.362	-6215.3
31362	241.24	0	0	26.362	-6215.3
31363	241.36	0	0	26.362	-6215.3
31364	241.22	0	0	26.362	-6215.3
31365	241.16	0	0	26.362	-6215.3
31366	241.38	0	0	26.362	-6215.3
31367	241.12	0	0	26.362	-6215.3
31368	241.01	0	0	26.362	-6215.3
31369	241.35	0	0	26.362	-6215.3
31370	241.31	0	0	26.362	-6215.3
31371	241.46	0	0	26.362	-6215.3
31372	241.31	0	0	26.362	-6215.3
31373	241.28	0	0	26.362	-6215.3
31374	241.3	0	0	26.362	-6215.3
31375	241.32	0	0	26.362	-6215.3
31376	241.25	0	0	26.362	-6215.3
31377	241.47	0	0	26.362	-6215.3
31378	241.41	0	0	26.362	-6215.3
31379	241.38	0	0	26.362	-6215.3
31380	241.34	0	0	26.362	-6215.3
31381	241.39	0	0	26.362	-6215.3
31382	241.35	0	0	26.362	-6215.3
31383	241.2	0	0	26.362	-6215.3
31384	241.31	0	0	26.362	-6215.3
31385	241.36	0	0	26.362	-6215.3
31386	241.44	0	0	26.362	-6215.3
31387	241.48	0	0	26.362	-6215.3
31388	241.45	0	0	26.362	-6215.3
31389	241.56	0	0	26.362	-6215.3
31390	241.36	0	0	26.362	-6215.3
31391	241.22	0	0	26.362	-6215.3
31392	241.6	0	0	26.362	-6215.3
31393	241.64	0	0	26.362	-6215.3
31394	241.68	0	0	26.362	-6215.3

31395	241.68	0	0	26.362	-6215.3
31396	241.62	0	0	26.362	-6215.3
31397	241.71	0	0	26.362	-6215.3
31398	241.76	0	0	26.362	-6215.3
31399	241.62	0	0	26.362	-6215.3
31400	241.66	0	0	26.362	-6215.3
31401	241.68	0	0	26.362	-6215.3
31402	240.88	0	0	26.362	-6215.3
31403	241.29	0	0	26.362	-6215.3
31404	241.55	0	0	26.362	-6215.3
31405	241.55	0	0	26.362	-6215.3
31406	241.65	0	0	26.362	-6215.3
31407	241.62	0	0	26.362	-6215.3
31408	241.62	0	0	26.362	-6215.3
31409	241.68	0	0	26.362	-6215.3
31410	241.65	0	0	26.362	-6215.3
31411	241.59	0	0	26.362	-6215.3
31412	241.53	0	0	26.362	-6215.3
31413	241.57	0	0	26.362	-6215.3
31414	241.66	0	0	26.362	-6215.3
31415	241.62	0	0	26.362	-6215.3
31416	241.47	0	0	26.362	-6215.3
31417	241.5	0	0	26.362	-6215.3
31418	241.59	0	0	26.362	-6215.3
31419	241.62	0	0	26.362	-6215.3
31420	241.45	0	0	26.362	-6215.3
31421	241.43	0	0	26.362	-6215.3
31422	241.5	0	0	26.362	-6215.3
31423	241.51	0	0	26.362	-6215.3
31424	241.45	0	0	26.362	-6215.3
31425	241.57	0	0	26.362	-6215.3
31426	241.5	0	0	26.362	-6215.3
31427	241.57	0	0	26.362	-6215.3
31428	241.67	0	0	26.362	-6215.3
31429	241.61	0	0	26.362	-6215.3
31430	241.59	0	0	26.362	-6215.3
31431	241.76	0	0	26.362	-6215.3
31432	241.7	0	0	26.362	-6215.3
31433	241.6	0	0	26.362	-6215.3
31434	241.53	0	0	26.362	-6215.3
31435	241.5	0	0	26.362	-6215.3
31436	241.63	0	0	26.362	-6215.3
31437	241.62	0	0	26.362	-6215.3
31438	241.56	0	0	26.362	-6215.3
31439	240.74	0	0	26.362	-6215.3
31440	241.39	0	0	26.362	-6215.3
31441	241.27	0	0	26.362	-6215.3

31442	241.27	0	0	26.362	-6215.3
31443	241.26	0	0	26.362	-6215.3
31444	241.15	0	0	26.362	-6215.3
31445	241.34	0	0	26.362	-6215.3
31446	241.33	0	0	26.362	-6215.3
31447	241.28	0	0	26.362	-6215.3
31448	241.34	0	0	26.362	-6215.3
31449	241.33	0	0	26.362	-6215.3
31450	241.36	0	0	26.362	-6215.3
31451	241.39	0	0	26.362	-6215.3
31452	241.16	0	0	26.362	-6215.3
31453	241.15	0	0	26.362	-6215.3
31454	241.31	0	0	26.362	-6215.3
31455	241.16	0	0	26.362	-6215.3
31456	241.2	0	0	26.362	-6215.3
31457	241.2	0	0	26.362	-6215.3
31458	241.2	0	0	26.362	-6215.3
31459	241.28	0	0	26.362	-6215.3
31460	241.17	0	0	26.362	-6215.3
31461	241.11	0	0	26.362	-6215.3
31462	241.09	0	0	26.362	-6215.3
31463	241.04	0	0	26.362	-6215.3
31464	241.08	0	0	26.362	-6215.3
31465	241.13	0	0	26.362	-6215.3
31466	240.97	0	0	26.362	-6215.3
31467	241.09	0	0	26.362	-6215.3
31468	241.14	0	0	26.362	-6215.3
31469	241.16	0	0	26.362	-6215.3
31470	241.16	0	0	26.362	-6215.3
31471	241.06	0	0	26.362	-6215.3
31472	241.14	0	0	26.362	-6215.3
31473	241.51	0	0	26.362	-6215.3
31474	241.49	0	0	26.362	-6215.3
31475	241.49	0	0	26.362	-6215.3
31476	241.47	0	0	26.362	-6215.3
31477	241.56	0	0	26.362	-6215.3
31478	241.41	0	0	26.362	-6215.3
31479	241.43	0	0	26.362	-6215.3
31480	241.4	0	0	26.362	-6215.3
31481	241.49	0	0	26.362	-6215.3
31482	241.38	0	0	26.362	-6215.3
31483	241.43	0	0	26.362	-6215.3
31484	241.38	0	0	26.362	-6215.3
31485	241.41	0	0	26.362	-6215.3
31486	241.41	0	0	26.362	-6215.3
31487	241.33	0	0	26.362	-6215.3
31488	241.4	0	0	26.362	-6215.3

31489	241.47	0	0	26.362	-6215.3
31490	241.26	0	0	26.362	-6215.3
31491	241.32	0	0	26.362	-6215.3
31492	241.43	0	0	26.362	-6215.3
31493	241.44	0	0	26.362	-6215.3
31494	241.43	0	0	26.362	-6215.3
31495	241.44	0	0	26.362	-6215.3
31496	241.37	0	0	26.362	-6215.3
31497	241.6	0	0	26.362	-6215.3
31498	241.32	0	0	26.362	-6215.3
31499	241.46	0	0	26.362	-6215.3
31500	241.55	0	0	26.362	-6215.3
31501	241.53	0	0	26.362	-6215.3
31502	241.49	0	0	26.362	-6215.3
31503	241.5	0	0	26.362	-6215.3
31504	241.63	0	0	26.362	-6215.3
31505	241.53	0	0	26.362	-6215.3
31506	241.47	0	0	26.362	-6215.3
31507	241.45	0	0	26.362	-6215.3
31508	241.45	0	0	26.362	-6215.3
31509	241.47	0	0	26.362	-6215.3
31510	241.47	0	0	26.362	-6215.3
31511	241.59	0	0	26.362	-6215.3
31512	241.6	0	0	26.362	-6215.3
31513	241.54	0	0	26.362	-6215.3
31514	241.47	0	0	26.362	-6215.3
31515	241.51	0	0	26.362	-6215.3
31516	241.51	0	0	26.362	-6215.3
31517	241.62	0	0	26.362	-6215.3
31518	241.71	0	0	26.362	-6215.3
31519	241.53	0	0	26.362	-6215.3
31520	241.52	0	0	26.362	-6215.3
31521	241.63	0	0	26.362	-6215.3
31522	241.6	0	0	26.362	-6215.3
31523	241.61	0	0	26.362	-6215.3
31524	241.52	0	0	26.362	-6215.3
31525	241.57	0	0	26.362	-6215.3
31526	241.62	0	0	26.362	-6215.3
31527	241.51	0	0	26.362	-6215.3
31528	241.58	0	0	26.362	-6215.3
31529	241.54	0	0	26.362	-6215.3
31530	241.61	0	0	26.362	-6215.3
31531	241.55	0	0	26.362	-6215.3
31532	241.5	0	0	26.362	-6215.3
31533	241.55	0	0	26.362	-6215.3
31534	241.47	0	0	26.362	-6215.3
31535	241.6	0	0	26.362	-6215.3

31536	241.64	0	0	26.362	-6215.3
31537	241.55	0	0	26.362	-6215.3
31538	241.48	0	0	26.362	-6215.3
31539	241.64	0	0	26.362	-6215.3
31540	241.52	0	0	26.362	-6215.3
31541	241.54	0	0	26.362	-6215.3
31542	241.65	0	0	26.362	-6215.3
31543	241.71	0	0	26.362	-6215.3
31544	241.59	0	0	26.362	-6215.3
31545	241.5	0	0	26.362	-6215.3
31546	241.6	0	0	26.362	-6215.3
31547	241.48	0	0	26.362	-6215.3
31548	241.54	0	0	26.362	-6215.3
31549	241.49	0	0	26.362	-6215.3
31550	241.58	0	0	26.362	-6215.3
31551	241.44	0	0	26.362	-6215.3
31552	241.53	0	0	26.362	-6215.3
31553	241.51	0	0	26.362	-6215.3
31554	241.65	0	0	26.362	-6215.3
31555	241.71	0	0	26.362	-6215.3
31556	241.59	0	0	26.362	-6215.3
31557	241.45	0	0	26.362	-6215.3
31558	241.61	0	0	26.362	-6215.3
31559	241.5	0	0	26.362	-6215.3
31560	241.51	0	0	26.362	-6215.3
31561	241.57	0	0	26.362	-6215.3
31562	241.53	0	0	26.362	-6215.3
31563	241.52	0	0	26.362	-6215.3
31564	241.49	0	0	26.362	-6215.3
31565	241.58	0	0	26.362	-6215.3
31566	241.54	0	0	26.362	-6215.3
31567	241.49	0	0	26.362	-6215.3
31568	241.51	0	0	26.362	-6215.3
31569	241.59	0	0	26.362	-6215.3
31570	241.49	0	0	26.362	-6215.3
31571	241.53	0	0	26.362	-6215.3
31572	241.48	0	0	26.362	-6215.3
31573	241.55	0	0	26.362	-6215.3
31574	241.55	0	0	26.362	-6215.3
31575	241.52	0	0	26.362	-6215.3
31576	241.41	0	0	26.362	-6215.3
31577	241.55	0	0	26.362	-6215.3
31578	241.54	0	0	26.362	-6215.3
31579	241.5	0	0	26.362	-6215.3
31580	241.57	0	0	26.362	-6215.3
31581	241.53	0	0	26.362	-6215.3
31582	241.49	0	0	26.362	-6215.3

31583	241.56	0	0	26.362	-6215.3
31584	241.44	0	0	26.362	-6215.3
31585	241.57	0	0	26.362	-6215.3
31586	241.48	0	0	26.362	-6215.3
31587	241.4	0	0	26.362	-6215.3
31588	241.39	0	0	26.362	-6215.3
31589	241.41	0	0	26.362	-6215.3
31590	241.37	0	0	26.362	-6215.3
31591	241.45	0	0	26.362	-6215.3
31592	241.35	0	0	26.362	-6215.3
31593	241.38	0	0	26.362	-6215.3
31594	241.29	0	0	26.362	-6215.3
31595	241.27	0	0	26.362	-6215.3
31596	241.32	0	0	26.362	-6215.3
31597	241.31	0	0	26.362	-6215.3
31598	241.26	0	0	26.362	-6215.3
31599	241.39	0	0	26.362	-6215.3
31600	241.17	0	0	26.362	-6215.3
31601	241.27	0	0	26.362	-6215.3
31602	241.37	0	0	26.362	-6215.3
31603	241.26	0	0	26.362	-6215.3
31604	241.41	0	0	26.362	-6215.3
31605	241.49	0	0	26.362	-6215.3
31606	241.39	0	0	26.362	-6215.3
31607	241.38	0	0	26.362	-6215.3
31608	241.31	0	0	26.362	-6215.3
31609	241.29	0	0	26.362	-6215.3
31610	241.17	0	0	26.362	-6215.3
31611	241.41	0	0	26.362	-6215.3
31612	241.26	0	0	26.362	-6215.3
31613	241.32	0	0	26.362	-6215.3
31614	241.21	0	0	26.362	-6215.3
31615	241.25	0	0	26.362	-6215.3
31616	241.27	0	0	26.362	-6215.3
31617	241.28	0	0	26.362	-6215.3
31618	241.28	0	0	26.362	-6215.3
31619	241.59	0	0	26.362	-6215.3
31620	241.57	0	0	26.362	-6215.3
31621	241.44	0	0	26.362	-6215.3
31622	241.23	0	0	26.362	-6215.3
31623	241.33	0	0	26.362	-6215.3
31624	241.28	0	0	26.362	-6215.3
31625	241.23	0	0	26.362	-6215.3
31626	241.3	0	0	26.362	-6215.3
31627	241.31	0	0	26.362	-6215.3
31628	241.33	0	0	26.362	-6215.3
31629	241.17	0	0	26.362	-6215.3

31630	241.23	0	0	26.362	-6215.3
31631	241.36	0	0	26.362	-6215.3
31632	241.38	0	0	26.362	-6215.3
31633	241.3	0	0	26.362	-6215.3
31634	241.37	0	0	26.362	-6215.3
31635	241.34	0	0	26.362	-6215.3
31636	241.4	0	0	26.362	-6215.3
31637	241.38	0	0	26.362	-6215.3
31638	241.36	0	0	26.362	-6215.3
31639	241.38	0	0	26.362	-6215.3
31640	241.36	0	0	26.362	-6215.3
31641	241.31	0	0	26.362	-6215.3
31642	241.38	0	0	26.362	-6215.3
31643	241.39	0	0	26.362	-6215.3
31644	241.48	0	0	26.362	-6215.3
31645	241.51	0	0	26.362	-6215.3
31646	241.47	0	0	26.362	-6215.3
31647	241.46	0	0	26.362	-6215.3
31648	241.54	0	0	26.362	-6215.3
31649	241.51	0	0	26.362	-6215.3
31650	241.5	0	0	26.362	-6215.3
31651	241.54	0	0	26.362	-6215.3
31652	241.45	0	0	26.362	-6215.3
31653	241.43	0	0	26.362	-6215.3
31654	240.96	0	0	26.362	-6215.3
31655	241.38	0	0	26.362	-6215.3
31656	241.43	0	0	26.362	-6215.3
31657	241.34	0	0	26.362	-6215.3
31658	241.39	0	0	26.362	-6215.3
31659	241.41	0	0	26.362	-6215.3
31660	241.36	0	0	26.362	-6215.3
31661	241.45	0	0	26.362	-6215.3
31662	241.7	0	0	26.362	-6215.3
31663	241.68	0	0	26.362	-6215.3
31664	241.69	0	0	26.362	-6215.3
31665	241.6	0	0	26.362	-6215.3
31666	241.62	0	0	26.362	-6215.3
31667	241.76	0	0	26.362	-6215.3
31668	241.72	0	0	26.362	-6215.3
31669	241.7	0	0	26.362	-6215.3
31670	241.57	0	0	26.362	-6215.3
31671	241.65	0	0	26.362	-6215.3
31672	241.72	0	0	26.362	-6215.3
31673	241.66	0	0	26.362	-6215.3
31674	241.59	0	0	26.362	-6215.3
31675	241.66	0	0	26.362	-6215.3
31676	241.67	0	0	26.362	-6215.3

31677	241.66	0	0	26.362	-6215.3
31678	241.75	0	0	26.362	-6215.3
31679	241.75	0	0	26.362	-6215.3
31680	241.73	0	0	26.362	-6215.3
31681	241.63	0	0	26.362	-6215.3
31682	241.7	0	0	26.362	-6215.3
31683	241.67	0	0	26.362	-6215.3
31684	241.64	0	0	26.362	-6215.3
31685	241.61	0	0	26.362	-6215.3
31686	241.58	0	0	26.362	-6215.3
31687	241.59	0	0	26.362	-6215.3
31688	241.56	0	0	26.362	-6215.3
31689	241.58	0	0	26.362	-6215.3
31690	241.56	0	0	26.362	-6215.3
31691	241.64	0	0	26.362	-6215.3
31692	241.59	0	0	26.362	-6215.3
31693	241.63	0	0	26.362	-6215.3
31694	241.61	0	0	26.362	-6215.3
31695	241.5	0	0	26.362	-6215.3
31696	241.43	0	0	26.362	-6215.3
31697	241.47	0	0	26.362	-6215.3
31698	241.41	0	0	26.362	-6215.3
31699	241.47	0	0	26.362	-6215.3
31700	241.47	0	0	26.362	-6215.3
31701	241.46	0	0	26.362	-6215.3
31702	241.54	0	0	26.362	-6215.3
31703	241.6	0	0	26.362	-6215.3
31704	241.59	0	0	26.362	-6215.3
31705	241.6	0	0	26.362	-6215.3
31706	241.62	0	0	26.362	-6215.3
31707	241.64	0	0	26.362	-6215.3
31708	241.66	0	0	26.362	-6215.3
31709	241.63	0	0	26.362	-6215.3
31710	241.69	0	0	26.362	-6215.3
31711	241.59	0	0	26.362	-6215.3
31712	241.62	0	0	26.362	-6215.3
31713	241.61	0	0	26.362	-6215.3
31714	241.61	0	0	26.362	-6215.3
31715	241.6	0	0	26.362	-6215.3
31716	241.58	0	0	26.362	-6215.3
31717	241.51	0	0	26.362	-6215.3
31718	241.55	0	0	26.362	-6215.3
31719	241.5	0	0	26.362	-6215.3
31720	241.61	0	0	26.362	-6215.3
31721	241.59	0	0	26.362	-6215.3
31722	241.43	0	0	26.362	-6215.3
31723	241.43	0	0	26.362	-6215.3

31724	241.52	0	0	26.362	-6215.3
31725	241.53	0	0	26.362	-6215.3
31726	241.5	0	0	26.362	-6215.3
31727	241.5	0	0	26.362	-6215.3
31728	241.55	0	0	26.362	-6215.3
31729	241.53	0	0	26.362	-6215.3
31730	241.52	0	0	26.362	-6215.3
31731	241.53	0	0	26.362	-6215.3
31732	241.55	0	0	26.362	-6215.3
31733	241.51	0	0	26.362	-6215.3
31734	241.58	0	0	26.362	-6215.3
31735	241.63	0	0	26.362	-6215.3
31736	241.68	0	0	26.362	-6215.3
31737	241.71	0	0	26.362	-6215.3
31738	241.59	0	0	26.362	-6215.3
31739	241.66	0	0	26.362	-6215.3
31740	241.65	0	0	26.362	-6215.3
31741	241.65	0	0	26.362	-6215.3
31742	241.66	0	0	26.362	-6215.3
31743	241.66	0	0	26.362	-6215.3
31744	241.7	0	0	26.362	-6215.3
31745	241.64	0	0	26.362	-6215.3
31746	241.66	0	0	26.362	-6215.3
31747	241.67	0	0	26.362	-6215.3
31748	241.66	0	0	26.362	-6215.3
31749	241.6	0	0	26.362	-6215.3
31750	241.54	0	0	26.362	-6215.3
31751	241.59	0	0	26.362	-6215.3
31752	241.58	0	0	26.362	-6215.3
31753	241.61	0	0	26.362	-6215.3
31754	241.58	0	0	26.362	-6215.3
31755	241.58	0	0	26.362	-6215.3
31756	241.58	0	0	26.362	-6215.3
31757	241.61	0	0	26.362	-6215.3
31758	241.58	0	0	26.362	-6215.3
31759	241.59	0	0	26.362	-6215.3
31760	241.54	0	0	26.362	-6215.3
31761	241.53	0	0	26.362	-6215.3
31762	241.63	0	0	26.362	-6215.3
31763	241.66	0	0	26.362	-6215.3
31764	241.59	0	0	26.362	-6215.3
31765	241.52	0	0	26.362	-6215.3
31766	242	0	0	26.362	-6215.3
31767	242.03	0	0	26.362	-6215.3
31768	242.04	0	0	26.362	-6215.3
31769	241.95	0	0	26.362	-6215.3
31770	241.93	0	0	26.362	-6215.3

31771	241.91	0	0	26.362	-6215.3
31772	241.98	0	0	26.362	-6215.3
31773	241.94	0	0	26.362	-6215.3
31774	241.95	0	0	26.362	-6215.3
31775	241.94	0	0	26.362	-6215.3
31776	242.01	0	0	26.362	-6215.3
31777	241.94	0	0	26.362	-6215.3
31778	242	0	0	26.362	-6215.3
31779	242.02	0	0	26.362	-6215.3
31780	241.97	0	0	26.362	-6215.3
31781	242.14	0	0	26.362	-6215.3
31782	242.14	0	0	26.362	-6215.3
31783	242.04	0	0	26.362	-6215.3
31784	242.08	0	0	26.362	-6215.3
31785	242.06	0	0	26.362	-6215.3
31786	242.15	0	0	26.362	-6215.3
31787	242.13	0	0	26.362	-6215.3
31788	242.1	0	0	26.362	-6215.3
31789	242.15	0	0	26.362	-6215.3
31790	242.08	0	0	26.362	-6215.3
31791	242.03	0	0	26.362	-6215.3
31792	242.1	0	0	26.362	-6215.3
31793	242.09	0	0	26.362	-6215.3
31794	242.02	0	0	26.362	-6215.3
31795	242.03	0	0	26.362	-6215.3
31796	242.05	0	0	26.362	-6215.3
31797	242.05	0	0	26.362	-6215.3
31798	242.05	0	0	26.362	-6215.3
31799	242.1	0	0	26.362	-6215.3
31800	242.05	0	0	26.362	-6215.3
31801	242.06	0	0	26.362	-6215.3
31802	241.32	0	0	26.362	-6215.3
31803	242	0	0	26.362	-6215.3
31804	241.97	0	0	26.362	-6215.3
31805	242.03	0	0	26.362	-6215.3
31806	241.99	0	0	26.362	-6215.3
31807	242.07	0	0	26.362	-6215.3
31808	242.03	0	0	26.362	-6215.3
31809	242.04	0	0	26.362	-6215.3
31810	242.02	0	0	26.362	-6215.3
31811	241.92	0	0	26.362	-6215.3
31812	241.95	0	0	26.362	-6215.3
31813	242.02	0	0	26.362	-6215.3
31814	241.98	0	0	26.362	-6215.3
31815	241.97	0	0	26.362	-6215.3
31816	241.98	0	0	26.362	-6215.3
31817	241.94	0	0	26.362	-6215.3

31818	241.96	0	0	26.362	-6215.3
31819	241.95	0	0	26.362	-6215.3
31820	241.9	0	0	26.362	-6215.3
31821	241.87	0	0	26.362	-6215.3
31822	241.85	0	0	26.362	-6215.3
31823	241.87	0	0	26.362	-6215.3
31824	242	0	0	26.362	-6215.3
31825	242.05	0	0	26.362	-6215.3
31826	241.97	0	0	26.362	-6215.3
31827	241.96	0	0	26.362	-6215.3
31828	241.97	0	0	26.362	-6215.3
31829	241.96	0	0	26.362	-6215.3
31830	242	0	0	26.362	-6215.3
31831	241.95	0	0	26.362	-6215.3
31832	241.79	0	0	26.362	-6215.3
31833	241.82	0	0	26.362	-6215.3
31834	241.81	0	0	26.362	-6215.3
31835	241.81	0	0	26.362	-6215.3
31836	241.81	0	0	26.362	-6215.3
31837	241.92	0	0	26.362	-6215.3
31838	241.88	0	0	26.362	-6215.3
31839	241.94	0	0	26.362	-6215.3
31840	241.88	0	0	26.362	-6215.3
31841	241.92	0	0	26.362	-6215.3
31842	241.93	0	0	26.362	-6215.3
31843	241.86	0	0	26.362	-6215.3
31844	241.95	0	0	26.362	-6215.3
31845	241.96	0	0	26.362	-6215.3
31846	241.95	0	0	26.362	-6215.3
31847	241.96	0	0	26.362	-6215.3
31848	241.95	0	0	26.362	-6215.3
31849	241.92	0	0	26.362	-6215.3
31850	241.93	0	0	26.362	-6215.3
31851	241.9	0	0	26.362	-6215.3
31852	241.88	0	0	26.362	-6215.3
31853	241.91	0	0	26.362	-6215.3
31854	241.92	0	0	26.362	-6215.3
31855	241.89	0	0	26.362	-6215.3
31856	241.94	0	0	26.362	-6215.3
31857	241.88	0	0	26.362	-6215.3
31858	241.77	0	0	26.362	-6215.3
31859	241.85	0	0	26.362	-6215.3
31860	241.8	0	0	26.362	-6215.3
31861	241.8	0	0	26.362	-6215.3
31862	241.78	0	0	26.362	-6215.3
31863	241.79	0	0	26.362	-6215.3
31864	241.74	0	0	26.362	-6215.3

31865	241.75	0	0	26.362	-6215.3
31866	241.82	0	0	26.362	-6215.3
31867	241.79	0	0	26.362	-6215.3
31868	241.82	0	0	26.362	-6215.3
31869	241.8	0	0	26.362	-6215.3
31870	241.74	0	0	26.362	-6215.3
31871	241.79	0	0	26.362	-6215.3
31872	241.82	0	0	26.362	-6215.3
31873	241.78	0	0	26.362	-6215.3
31874	241.77	0	0	26.362	-6215.3
31875	241.78	0	0	26.362	-6215.3
31876	241.75	0	0	26.362	-6215.3
31877	241.8	0	0	26.362	-6215.3
31878	241.7	0	0	26.362	-6215.3
31879	241.86	0	0	26.362	-6215.3
31880	241.82	0	0	26.362	-6215.3
31881	241.86	0	0	26.362	-6215.3
31882	241.75	0	0	26.362	-6215.3
31883	241.76	0	0	26.362	-6215.3
31884	241.76	0	0	26.362	-6215.3
31885	241.84	0	0	26.362	-6215.3
31886	241.81	0	0	26.362	-6215.3
31887	241.81	0	0	26.362	-6215.3
31888	241.81	0	0	26.362	-6215.3
31889	241.8	0	0	26.362	-6215.3
31890	241.82	0	0	26.362	-6215.3
31891	241.68	0	0	26.362	-6215.3
31892	241.61	0	0	26.362	-6215.3
31893	241.75	0	0	26.362	-6215.3
31894	241.76	0	0	26.362	-6215.3
31895	241.77	0	0	26.362	-6215.3
31896	241.81	0	0	26.362	-6215.3
31897	241.77	0	0	26.362	-6215.3
31898	241.74	0	0	26.362	-6215.3
31899	241.85	0	0	26.362	-6215.3
31900	241.86	0	0	26.362	-6215.3
31901	241.74	0	0	26.362	-6215.3
31902	241.81	0	0	26.362	-6215.3
31903	241.94	0	0	26.362	-6215.3
31904	241.89	0	0	26.362	-6215.3
31905	241.9	0	0	26.362	-6215.3
31906	241.86	0	0	26.362	-6215.3
31907	241.93	0	0	26.362	-6215.3
31908	241.96	0	0	26.362	-6215.3
31909	241.93	0	0	26.362	-6215.3
31910	241.93	0	0	26.362	-6215.3
31911	241.93	0	0	26.362	-6215.3

31912	241.87	0	0	26.362	-6215.3
31913	241.92	0	0	26.362	-6215.3
31914	241.91	0	0	26.362	-6215.3
31915	241.97	0	0	26.362	-6215.3
31916	241.99	0	0	26.362	-6215.3
31917	241.99	0	0	26.362	-6215.3
31918	241.94	0	0	26.362	-6215.3
31919	241.93	0	0	26.362	-6215.3
31920	241.92	0	0	26.362	-6215.3
31921	241.94	0	0	26.362	-6215.3
31922	242.01	0	0	26.362	-6215.3
31923	241.94	0	0	26.362	-6215.3
31924	241.91	0	0	26.362	-6215.3
31925	241.95	0	0	26.362	-6215.3
31926	241.9	0	0	26.362	-6215.3
31927	241.99	0	0	26.362	-6215.3
31928	241.93	0	0	26.362	-6215.3
31929	242.06	0	0	26.362	-6215.3
31930	242.01	0	0	26.362	-6215.3
31931	241.94	0	0	26.362	-6215.3
31932	242	0	0	26.362	-6215.3
31933	242	0	0	26.362	-6215.3
31934	242.03	0	0	26.362	-6215.3
31935	242.01	0	0	26.362	-6215.3
31936	242.01	0	0	26.362	-6215.3
31937	241.98	0	0	26.362	-6215.3
31938	241.98	0	0	26.362	-6215.3
31939	241.99	0	0	26.362	-6215.3
31940	241.94	0	0	26.362	-6215.3
31941	241.93	0	0	26.362	-6215.3
31942	241.91	0	0	26.362	-6215.3
31943	241.97	0	0	26.362	-6215.3
31944	241.94	0	0	26.362	-6215.3
31945	241.92	0	0	26.362	-6215.3
31946	241.94	0	0	26.362	-6215.3
31947	241.93	0	0	26.362	-6215.3
31948	241.98	0	0	26.362	-6215.3
31949	242.06	0	0	26.362	-6215.3
31950	242.05	0	0	26.362	-6215.3
31951	242.05	0	0	26.362	-6215.3
31952	242.02	0	0	26.362	-6215.3
31953	242.04	0	0	26.362	-6215.3
31954	242.06	0	0	26.362	-6215.3
31955	242.05	0	0	26.362	-6215.3
31956	242.11	0	0	26.362	-6215.3
31957	242.09	0	0	26.362	-6215.3
31958	242.02	0	0	26.362	-6215.3

31959	242.03	0	0	26.362	-6215.3
31960	242.05	0	0	26.362	-6215.3
31961	241.95	0	0	26.362	-6215.3
31962	241.88	0	0	26.362	-6215.3
31963	241.96	0	0	26.362	-6215.3
31964	241.93	0	0	26.362	-6215.3
31965	241.85	0	0	26.362	-6215.3
31966	241.84	0	0	26.362	-6215.3
31967	241.86	0	0	26.362	-6215.3
31968	241.82	0	0	26.362	-6215.3
31969	241.81	0	0	26.362	-6215.3
31970	241.84	0	0	26.362	-6215.3
31971	241.79	0	0	26.362	-6215.3
31972	241.78	0	0	26.362	-6215.3
31973	241.81	0	0	26.362	-6215.3
31974	241.79	0	0	26.362	-6215.3
31975	241.78	0	0	26.362	-6215.3
31976	241.8	0	0	26.362	-6215.3
31977	241.78	0	0	26.362	-6215.3
31978	241.79	0	0	26.362	-6215.3
31979	241.84	0	0	26.362	-6215.3
31980	241.83	0	0	26.362	-6215.3
31981	241.82	0	0	26.362	-6215.3
31982	241.82	0	0	26.362	-6215.3
31983	241.78	0	0	26.362	-6215.3
31984	241.77	0	0	26.362	-6215.3
31985	241.73	0	0	26.362	-6215.3
31986	241.74	0	0	26.362	-6215.3
31987	241.71	0	0	26.362	-6215.3
31988	241.69	0	0	26.362	-6215.3
31989	241.71	0	0	26.362	-6215.3
31990	241.72	0	0	26.362	-6215.3
31991	241.74	0	0	26.362	-6215.3
31992	241.76	0	0	26.362	-6215.3
31993	241.72	0	0	26.362	-6215.3
31994	241.76	0	0	26.362	-6215.3
31995	241.78	0	0	26.362	-6215.3
31996	241.8	0	0	26.362	-6215.3
31997	241.84	0	0	26.362	-6215.3
31998	241.86	0	0	26.362	-6215.3
31999	241.79	0	0	26.362	-6215.3
32000	241.8	0	0	26.362	-6215.3
32001	241.84	0	0	26.362	-6215.3
32002	241.87	0	0	26.362	-6215.3
32003	241.95	0	0	26.362	-6215.3
32004	241.97	0	0	26.362	-6215.3
32005	241.99	0	0	26.362	-6215.3

32006	242	0	0	26.362	-6215.3
32007	242	0	0	26.362	-6215.3
32008	241.91	0	0	26.362	-6215.3
32009	241.96	0	0	26.362	-6215.3
32010	241.98	0	0	26.362	-6215.3
32011	241.98	0	0	26.362	-6215.3
32012	242.03	0	0	26.362	-6215.3
32013	242.03	0	0	26.362	-6215.3
32014	241.97	0	0	26.362	-6215.3
32015	242.02	0	0	26.362	-6215.3
32016	242.02	0	0	26.362	-6215.3
32017	241.98	0	0	26.362	-6215.3
32018	241.97	0	0	26.362	-6215.3
32019	241.94	0	0	26.362	-6215.3
32020	241.97	0	0	26.362	-6215.3
32021	241.98	0	0	26.362	-6215.3
32022	241.91	0	0	26.362	-6215.3
32023	241.97	0	0	26.362	-6215.3
32024	241.97	0	0	26.362	-6215.3
32025	242.01	0	0	26.362	-6215.3
32026	241.93	0	0	26.362	-6215.3
32027	241.93	0	0	26.362	-6215.3
32028	241.89	0	0	26.362	-6215.3
32029	241.91	0	0	26.362	-6215.3
32030	241.87	0	0	26.362	-6215.3
32031	241.99	0	0	26.362	-6215.3
32032	242	0	0	26.362	-6215.3
32033	242.02	0	0	26.362	-6215.3
32034	242.06	0	0	26.362	-6215.3
32035	242.1	0	0	26.362	-6215.3
32036	242.01	0	0	26.362	-6215.3
32037	242.04	0	0	26.362	-6215.3
32038	242.04	0	0	26.362	-6215.3
32039	242.03	0	0	26.362	-6215.3
32040	242.01	0	0	26.362	-6215.3
32041	242.02	0	0	26.362	-6215.3
32042	241.99	0	0	26.362	-6215.3
32043	241.99	0	0	26.362	-6215.3
32044	241.97	0	0	26.362	-6215.3
32045	241.96	0	0	26.362	-6215.3
32046	241.98	0	0	26.362	-6215.3
32047	241.99	0	0	26.362	-6215.3
32048	241.96	0	0	26.362	-6215.3
32049	241.95	0	0	26.362	-6215.3
32050	241.9	0	0	26.362	-6215.3
32051	241.88	0	0	26.362	-6215.3
32052	241.98	0	0	26.362	-6215.3

32053	241.99	0	0	26.362	-6215.3
32054	241.97	0	0	26.362	-6215.3
32055	242	0	0	26.362	-6215.3
32056	241.87	0	0	26.362	-6215.3
32057	241.95	0	0	26.362	-6215.3
32058	242.06	0	0	26.362	-6215.3
32059	241.91	0	0	26.362	-6215.3
32060	241.97	0	0	26.362	-6215.3
32061	241.94	0	0	26.362	-6215.3
32062	241.87	0	0	26.362	-6215.3
32063	241.98	0	0	26.362	-6215.3
32064	241.97	0	0	26.362	-6215.3
32065	241.92	0	0	26.362	-6215.3
32066	241.9	0	0	26.362	-6215.3
32067	241.87	0	0	26.362	-6215.3
32068	241.93	0	0	26.362	-6215.3
32069	241.88	0	0	26.362	-6215.3
32070	241.92	0	0	26.362	-6215.3
32071	241.88	0	0	26.362	-6215.3
32072	241.95	0	0	26.362	-6215.3
32073	241.88	0	0	26.362	-6215.3
32074	241.9	0	0	26.362	-6215.3
32075	241.96	0	0	26.362	-6215.3
32076	241.96	0	0	26.362	-6215.3
32077	241.95	0	0	26.362	-6215.3
32078	241.92	0	0	26.362	-6215.3
32079	242.02	0	0	26.362	-6215.3
32080	241.98	0	0	26.362	-6215.3
32081	241.9	0	0	26.362	-6215.3
32082	241.97	0	0	26.362	-6215.3
32083	241.91	0	0	26.362	-6215.3
32084	241.98	0	0	26.362	-6215.3
32085	241.93	0	0	26.362	-6215.3
32086	241.9	0	0	26.362	-6215.3
32087	241.94	0	0	26.362	-6215.3
32088	241.99	0	0	26.362	-6215.3
32089	241.99	0	0	26.362	-6215.3
32090	241.9	0	0	26.362	-6215.3
32091	241.88	0	0	26.362	-6215.3
32092	241.97	0	0	26.362	-6215.3
32093	241.96	0	0	26.362	-6215.3
32094	241.95	0	0	26.362	-6215.3
32095	241.98	0	0	26.362	-6215.3
32096	241.98	0	0	26.362	-6215.3
32097	241.97	0	0	26.362	-6215.3
32098	241.92	0	0	26.362	-6215.3
32099	241.92	0	0	26.362	-6215.3

32100	241.9	0	0	26.362	-6215.3
32101	241.98	0	0	26.362	-6215.3
32102	241.95	0	0	26.362	-6215.3
32103	241.92	0	0	26.362	-6215.3
32104	241.92	0	0	26.362	-6215.3
32105	241.87	0	0	26.362	-6215.3
32106	241.89	0	0	26.362	-6215.3
32107	241.84	0	0	26.362	-6215.3
32108	241.88	0	0	26.362	-6215.3
32109	241.87	0	0	26.362	-6215.3
32110	241.79	0	0	26.362	-6215.3
32111	241.78	0	0	26.362	-6215.3
32112	241.83	0	0	26.362	-6215.3
32113	241.82	0	0	26.362	-6215.3
32114	241.83	0	0	26.362	-6215.3
32115	241.88	0	0	26.362	-6215.3
32116	241.85	0	0	26.362	-6215.3
32117	241.84	0	0	26.362	-6215.3
32118	241.84	0	0	26.362	-6215.3
32119	241.84	0	0	26.362	-6215.3
32120	241.9	0	0	26.362	-6215.3
32121	241.89	0	0	26.362	-6215.3
32122	241.9	0	0	26.362	-6215.3
32123	241.89	0	0	26.362	-6215.3
32124	241.91	0	0	26.362	-6215.3
32125	241.9	0	0	26.362	-6215.3
32126	241.88	0	0	26.362	-6215.3
32127	241.86	0	0	26.362	-6215.3
32128	241.85	0	0	26.362	-6215.3
32129	241.83	0	0	26.362	-6215.3
32130	241.85	0	0	26.362	-6215.3
32131	241.82	0	0	26.362	-6215.3
32132	241.86	0	0	26.362	-6215.3
32133	241.8	0	0	26.362	-6215.3
32134	241.75	0	0	26.362	-6215.3
32135	241.73	0	0	26.362	-6215.3
32136	241.76	0	0	26.362	-6215.3
32137	241.82	0	0	26.362	-6215.3
32138	241.79	0	0	26.362	-6215.3
32139	241.86	0	0	26.362	-6215.3
32140	241.86	0	0	26.362	-6215.3
32141	241.8	0	0	26.362	-6215.3
32142	241.86	0	0	26.362	-6215.3
32143	241.82	0	0	26.362	-6215.3
32144	241.84	0	0	26.362	-6215.3
32145	241.81	0	0	26.362	-6215.3
32146	241.85	0	0	26.362	-6215.3

32147	241.85	0	0	26.362	-6215.3
32148	241.83	0	0	26.362	-6215.3
32149	241.82	0	0	26.362	-6215.3
32150	241.82	0	0	26.362	-6215.3
32151	241.83	0	0	26.362	-6215.3
32152	241.8	0	0	26.362	-6215.3
32153	241.84	0	0	26.362	-6215.3
32154	241.89	0	0	26.362	-6215.3
32155	241.9	0	0	26.362	-6215.3
32156	241.93	0	0	26.362	-6215.3
32157	241.87	0	0	26.362	-6215.3
32158	241.9	0	0	26.362	-6215.3
32159	241.93	0	0	26.362	-6215.3
32160	241.95	0	0	26.362	-6215.3
32161	241.96	0	0	26.362	-6215.3
32162	242	0	0	26.362	-6215.3
32163	241.95	0	0	26.362	-6215.3
32164	241.93	0	0	26.362	-6215.3
32165	241.93	0	0	26.362	-6215.3
32166	241.93	0	0	26.362	-6215.3
32167	241.89	0	0	26.362	-6215.3
32168	241.89	0	0	26.362	-6215.3
32169	241.92	0	0	26.362	-6215.3
32170	241.87	0	0	26.362	-6215.3
32171	241.93	0	0	26.362	-6215.3
32172	241.95	0	0	26.362	-6215.3
32173	241.93	0	0	26.362	-6215.3
32174	241.93	0	0	26.362	-6215.3
32175	241.89	0	0	26.362	-6215.3
32176	241.83	0	0	26.362	-6215.3
32177	241.91	0	0	26.362	-6215.3
32178	241.91	0	0	26.362	-6215.3
32179	241.86	0	0	26.362	-6215.3
32180	241.95	0	0	26.362	-6215.3
32181	241.88	0	0	26.362	-6215.3
32182	241.87	0	0	26.362	-6215.3
32183	241.86	0	0	26.362	-6215.3
32184	241.84	0	0	26.362	-6215.3
32185	241.8	0	0	26.362	-6215.3
32186	241.84	0	0	26.362	-6215.3
32187	241.86	0	0	26.362	-6215.3
32188	241.88	0	0	26.362	-6215.3
32189	241.86	0	0	26.362	-6215.3
32190	241.83	0	0	26.362	-6215.3
32191	241.89	0	0	26.362	-6215.3
32192	241.86	0	0	26.362	-6215.3
32193	241.89	0	0	26.362	-6215.3

32194	241.91	0	0	26.362	-6215.3
32195	241.82	0	0	26.362	-6215.3
32196	241.89	0	0	26.362	-6215.3
32197	241.87	0	0	26.362	-6215.3
32198	241.89	0	0	26.362	-6215.3
32199	241.95	0	0	26.362	-6215.3
32200	241.95	0	0	26.362	-6215.3
32201	241.94	0	0	26.362	-6215.3
32202	241.89	0	0	26.362	-6215.3
32203	241.97	0	0	26.362	-6215.3
32204	241.98	0	0	26.362	-6215.3
32205	241.87	0	0	26.362	-6215.3
32206	241.94	0	0	26.362	-6215.3
32207	241.95	0	0	26.362	-6215.3
32208	241.91	0	0	26.362	-6215.3
32209	241.93	0	0	26.362	-6215.3
32210	241.87	0	0	26.362	-6215.3
32211	241.86	0	0	26.362	-6215.3
32212	241.9	0	0	26.362	-6215.3
32213	241.84	0	0	26.362	-6215.3
32214	241.81	0	0	26.362	-6215.3
32215	241.83	0	0	26.362	-6215.3
32216	241.82	0	0	26.362	-6215.3
32217	241.78	0	0	26.362	-6215.3
32218	241.81	0	0	26.362	-6215.3
32219	241.08	0	0	26.362	-6215.3
32220	241.7	0	0	26.362	-6215.3
32221	241.8	0	0	26.362	-6215.3
32222	241.81	0	0	26.362	-6215.3
32223	241.74	0	0	26.362	-6215.3
32224	241.73	0	0	26.362	-6215.3
32225	241.72	0	0	26.362	-6215.3
32226	241.71	0	0	26.362	-6215.3
32227	241.78	0	0	26.362	-6215.3
32228	241.77	0	0	26.362	-6215.3
32229	241.72	0	0	26.362	-6215.3
32230	241.68	0	0	26.362	-6215.3
32231	241.77	0	0	26.362	-6215.3
32232	241.76	0	0	26.362	-6215.3
32233	241.71	0	0	26.362	-6215.3
32234	241.7	0	0	26.362	-6215.3
32235	241.75	0	0	26.362	-6215.3
32236	241.65	0	0	26.362	-6215.3
32237	241.65	0	0	26.362	-6215.3
32238	241.64	0	0	26.362	-6215.3
32239	241.71	0	0	26.362	-6215.3
32240	241.63	0	0	26.362	-6215.3

32241	241.65	0	0	26.362	-6215.3
32242	241.75	0	0	26.362	-6215.3
32243	241.73	0	0	26.362	-6215.3
32244	241.7	0	0	26.362	-6215.3
32245	241.66	0	0	26.362	-6215.3
32246	241.58	0	0	26.362	-6215.3
32247	241.56	0	0	26.362	-6215.3
32248	241.51	0	0	26.362	-6215.3
32249	241.53	0	0	26.362	-6215.3
32250	241.56	0	0	26.362	-6215.3
32251	241.56	0	0	26.362	-6215.3
32252	241.55	0	0	26.362	-6215.3
32253	241.6	0	0	26.362	-6215.3
32254	241.52	0	0	26.362	-6215.3
32255	241.47	0	0	26.362	-6215.3
32256	241.48	0	0	26.362	-6215.3
32257	241.52	0	0	26.362	-6215.3
32258	241.55	0	0	26.362	-6215.3
32259	241.5	0	0	26.362	-6215.3
32260	241.49	0	0	26.362	-6215.3
32261	241.51	0	0	26.362	-6215.3
32262	241.58	0	0	26.362	-6215.3
32263	241.61	0	0	26.362	-6215.3
32264	241.7	0	0	26.362	-6215.3
32265	241.69	0	0	26.362	-6215.3
32266	241.73	0	0	26.362	-6215.3
32267	241.69	0	0	26.362	-6215.3
32268	241.7	0	0	26.362	-6215.3
32269	241.69	0	0	26.362	-6215.3
32270	241.62	0	0	26.362	-6215.3
32271	241.67	0	0	26.362	-6215.3
32272	241.64	0	0	26.362	-6215.3
32273	241.67	0	0	26.362	-6215.3
32274	241.67	0	0	26.362	-6215.3
32275	241.66	0	0	26.362	-6215.3
32276	241.58	0	0	26.362	-6215.3
32277	241.6	0	0	26.362	-6215.3
32278	241.66	0	0	26.362	-6215.3
32279	241.61	0	0	26.362	-6215.3
32280	241.63	0	0	26.362	-6215.3
32281	241.66	0	0	26.362	-6215.3
32282	241.56	0	0	26.362	-6215.3
32283	241.67	0	0	26.362	-6215.3
32284	241.7	0	0	26.362	-6215.3
32285	241.64	0	0	26.362	-6215.3
32286	241.63	0	0	26.362	-6215.3
32287	241.67	0	0	26.362	-6215.3

32288	241.7	0	0	26.362	-6215.3
32289	241.66	0	0	26.362	-6215.3
32290	241.74	0	0	26.362	-6215.3
32291	241.76	0	0	26.362	-6215.3
32292	241.76	0	0	26.362	-6215.3
32293	241.84	0	0	26.362	-6215.3
32294	241.83	0	0	26.362	-6215.3
32295	241.87	0	0	26.362	-6215.3
32296	241.88	0	0	26.362	-6215.3
32297	241.87	0	0	26.362	-6215.3
32298	241.83	0	0	26.362	-6215.3
32299	241.85	0	0	26.362	-6215.3
32300	241.86	0	0	26.362	-6215.3
32301	241.88	0	0	26.362	-6215.3
32302	241.88	0	0	26.362	-6215.3
32303	241.88	0	0	26.362	-6215.3
32304	241.93	0	0	26.362	-6215.3
32305	241.97	0	0	26.362	-6215.3
32306	241.93	0	0	26.362	-6215.3
32307	241.89	0	0	26.362	-6215.3
32308	241.98	0	0	26.362	-6215.3
32309	241.88	0	0	26.362	-6215.3
32310	241.94	0	0	26.362	-6215.3
32311	241.94	0	0	26.362	-6215.3
32312	241.88	0	0	26.362	-6215.3
32313	241.83	0	0	26.362	-6215.3
32314	241.86	0	0	26.362	-6215.3
32315	241.82	0	0	26.362	-6215.3
32316	241.91	0	0	26.362	-6215.3
32317	241.87	0	0	26.362	-6215.3
32318	241.83	0	0	26.362	-6215.3
32319	241.89	0	0	26.362	-6215.3
32320	241.94	0	0	26.362	-6215.3
32321	241.89	0	0	26.362	-6215.3
32322	241.9	0	0	26.362	-6215.3
32323	241.86	0	0	26.362	-6215.3
32324	241.89	0	0	26.362	-6215.3
32325	241.94	0	0	26.362	-6215.3
32326	241.9	0	0	26.362	-6215.3
32327	241.86	0	0	26.362	-6215.3
32328	241.89	0	0	26.362	-6215.3
32329	241.91	0	0	26.362	-6215.3
32330	241.8	0	0	26.362	-6215.3
32331	241.82	0	0	26.362	-6215.3
32332	241.73	0	0	26.362	-6215.3
32333	241.82	0	0	26.362	-6215.3
32334	241.74	0	0	26.362	-6215.3

32335	241.81	0	0	26.362	-6215.3
32336	241.76	0	0	26.362	-6215.3
32337	241.73	0	0	26.362	-6215.3
32338	241.71	0	0	26.362	-6215.3
32339	241.76	0	0	26.362	-6215.3
32340	241.8	0	0	26.362	-6215.3
32341	241.73	0	0	26.362	-6215.3
32342	241.75	0	0	26.362	-6215.3
32343	241.72	0	0	26.362	-6215.3
32344	241.73	0	0	26.362	-6215.3
32345	241.7	0	0	26.362	-6215.3
32346	241.78	0	0	26.362	-6215.3
32347	241.81	0	0	26.362	-6215.3
32348	241.79	0	0	26.362	-6215.3
32349	241.77	0	0	26.362	-6215.3
32350	241.73	0	0	26.362	-6215.3
32351	241.79	0	0	26.362	-6215.3
32352	241.78	0	0	26.362	-6215.3
32353	241.83	0	0	26.362	-6215.3
32354	241.7	0	0	26.362	-6215.3
32355	241.7	0	0	26.362	-6215.3
32356	241.73	0	0	26.362	-6215.3
32357	241.75	0	0	26.362	-6215.3
32358	241.79	0	0	26.362	-6215.3
32359	241.72	0	0	26.362	-6215.3
32360	241.81	0	0	26.362	-6215.3
32361	241.79	0	0	26.362	-6215.3
32362	241.76	0	0	26.362	-6215.3
32363	241.75	0	0	26.362	-6215.3
32364	241.7	0	0	26.362	-6215.3
32365	241.71	0	0	26.362	-6215.3
32366	241.75	0	0	26.362	-6215.3
32367	241.8	0	0	26.362	-6215.3
32368	241.81	0	0	26.362	-6215.3
32369	241.79	0	0	26.362	-6215.3
32370	241.81	0	0	26.362	-6215.3
32371	241.78	0	0	26.362	-6215.3
32372	241.8	0	0	26.362	-6215.3
32373	241.85	0	0	26.362	-6215.3
32374	241.79	0	0	26.362	-6215.3
32375	241.74	0	0	26.362	-6215.3
32376	241.83	0	0	26.362	-6215.3
32377	241.76	0	0	26.362	-6215.3
32378	241.76	0	0	26.362	-6215.3
32379	241.73	0	0	26.362	-6215.3
32380	241.7	0	0	26.362	-6215.3
32381	241.71	0	0	26.362	-6215.3

32382	241.73	0	0	26.362	-6215.3
32383	241.68	0	0	26.362	-6215.3
32384	241.73	0	0	26.362	-6215.3
32385	241.75	0	0	26.362	-6215.3
32386	241.73	0	0	26.362	-6215.3
32387	241.68	0	0	26.362	-6215.3
32388	241.81	0	0	26.362	-6215.3
32389	241.81	0	0	26.362	-6215.3
32390	241.74	0	0	26.362	-6215.3
32391	241.81	0	0	26.362	-6215.3
32392	241.89	0	0	26.362	-6215.3
32393	241.8	0	0	26.362	-6215.3
32394	241.76	0	0	26.362	-6215.3
32395	241.87	0	0	26.362	-6215.3
32396	241.87	0	0	26.362	-6215.3
32397	241.89	0	0	26.362	-6215.3
32398	241.88	0	0	26.362	-6215.3
32399	241.84	0	0	26.362	-6215.3
32400	241.8	0	0	26.362	-6215.3
32401	241.82	0	0	26.362	-6215.3
32402	241.78	0	0	26.362	-6215.3
32403	241.74	0	0	26.362	-6215.3
32404	241.82	0	0	26.362	-6215.3
32405	241.84	0	0	26.362	-6215.3
32406	241.82	0	0	26.362	-6215.3
32407	241.84	0	0	26.362	-6215.3
32408	241.85	0	0	26.362	-6215.3
32409	241.88	0	0	26.362	-6215.3
32410	241.9	0	0	26.362	-6215.3
32411	241.87	0	0	26.362	-6215.3
32412	241.89	0	0	26.362	-6215.3
32413	241.87	0	0	26.362	-6215.3
32414	241.89	0	0	26.362	-6215.3
32415	241.84	0	0	26.362	-6215.3
32416	241.84	0	0	26.362	-6215.3
32417	241.83	0	0	26.362	-6215.3
32418	241.92	0	0	26.362	-6215.3
32419	241.85	0	0	26.362	-6215.3
32420	241.93	0	0	26.362	-6215.3
32421	241.96	0	0	26.362	-6215.3
32422	241.92	0	0	26.362	-6215.3
32423	241.93	0	0	26.362	-6215.3
32424	241.89	0	0	26.362	-6215.3
32425	241.94	0	0	26.362	-6215.3
32426	241.88	0	0	26.362	-6215.3
32427	241.91	0	0	26.362	-6215.3
32428	241.92	0	0	26.362	-6215.3

32429	242	0	0	26.362	-6215.3
32430	241.92	0	0	26.362	-6215.3
32431	241.93	0	0	26.362	-6215.3
32432	241.98	0	0	26.362	-6215.3
32433	241.95	0	0	26.362	-6215.3
32434	241.97	0	0	26.362	-6215.3
32435	241.96	0	0	26.362	-6215.3
32436	241.91	0	0	26.362	-6215.3
32437	241.95	0	0	26.362	-6215.3
32438	241.94	0	0	26.362	-6215.3
32439	241.89	0	0	26.362	-6215.3
32440	241.91	0	0	26.362	-6215.3
32441	241.97	0	0	26.362	-6215.3
32442	241.94	0	0	26.362	-6215.3
32443	241.97	0	0	26.362	-6215.3
32444	241.91	0	0	26.362	-6215.3
32445	241.85	0	0	26.362	-6215.3
32446	241.91	0	0	26.362	-6215.3
32447	241.86	0	0	26.362	-6215.3
32448	241.85	0	0	26.362	-6215.3
32449	241.9	0	0	26.362	-6215.3
32450	241.96	0	0	26.362	-6215.3
32451	241.91	0	0	26.362	-6215.3
32452	241.96	0	0	26.362	-6215.3
32453	241.91	0	0	26.362	-6215.3
32454	241.88	0	0	26.362	-6215.3
32455	241.95	0	0	26.362	-6215.3
32456	241.95	0	0	26.362	-6215.3
32457	241.86	0	0	26.362	-6215.3
32458	241.92	0	0	26.362	-6215.3
32459	241.91	0	0	26.362	-6215.3
32460	241.89	0	0	26.362	-6215.3
32461	241.8	0	0	26.362	-6215.3
32462	241.85	0	0	26.362	-6215.3
32463	241.87	0	0	26.362	-6215.3
32464	241.84	0	0	26.362	-6215.3
32465	241.87	0	0	26.362	-6215.3
32466	241.8	0	0	26.362	-6215.3
32467	241.72	0	0	26.362	-6215.3
32468	241.74	0	0	26.362	-6215.3
32469	241.48	0	0	26.362	-6215.3
32470	241.32	0	0	26.362	-6215.3
32471	241.31	0	0	26.362	-6215.3
32472	241.42	0	0	26.362	-6215.3
32473	241.48	0	0	26.362	-6215.3
32474	241.31	0	0	26.362	-6215.3
32475	241.31	0	0	26.362	-6215.3

32476	241.3	0	0	26.362	-6215.3
32477	241.33	0	0	26.362	-6215.3
32478	241.29	0	0	26.362	-6215.3
32479	241.32	0	0	26.362	-6215.3
32480	241.33	0	0	26.362	-6215.3
32481	241.25	0	0	26.362	-6215.3
32482	241.45	0	0	26.362	-6215.3
32483	241.4	0	0	26.362	-6215.3
32484	241.37	0	0	26.362	-6215.3
32485	241.43	0	0	26.362	-6215.3
32486	241.14	0	0	26.362	-6215.3
32487	241.28	0	0	26.362	-6215.3
32488	241.33	0	0	26.362	-6215.3
32489	241.3	0	0	26.362	-6215.3
32490	241.17	0	0	26.362	-6215.3
32491	241.42	0	0	26.362	-6215.3
32492	241.23	0	0	26.362	-6215.3
32493	241.14	0	0	26.362	-6215.3
32494	241.42	0	0	26.362	-6215.3
32495	241.25	0	0	26.362	-6215.3
32496	241.5	0	0	26.362	-6215.3
32497	241.3	0	0	26.362	-6215.3
32498	241.29	0	0	26.362	-6215.3
32499	241.34	0	0	26.362	-6215.3
32500	241.33	0	0	26.362	-6215.3
32501	241.3	0	0	26.362	-6215.3
32502	241.32	0	0	26.362	-6215.3
32503	241.5	0	0	26.362	-6215.3
32504	241.1	0	0	26.362	-6215.3
32505	241.23	0	0	26.362	-6215.3
32506	241.28	0	0	26.362	-6215.3
32507	241.46	0	0	26.362	-6215.3
32508	241.27	0	0	26.362	-6215.3
32509	241.24	0	0	26.362	-6215.3
32510	241.38	0	0	26.362	-6215.3
32511	241.27	0	0	26.362	-6215.3
32512	241.2	0	0	26.362	-6215.3
32513	241.38	0	0	26.362	-6215.3
32514	241.46	0	0	26.362	-6215.3
32515	241.33	0	0	26.362	-6215.3
32516	241.46	0	0	26.362	-6215.3
32517	241.38	0	0	26.362	-6215.3
32518	241.58	0	0	26.362	-6215.3
32519	241.44	0	0	26.362	-6215.3
32520	241.56	0	0	26.362	-6215.3
32521	241.52	0	0	26.362	-6215.3
32522	241.36	0	0	26.362	-6215.3

32523	241.42	0	0	26.362	-6215.3
32524	241.37	0	0	26.362	-6215.3
32525	241.51	0	0	26.362	-6215.3
32526	241.64	0	0	26.362	-6215.3
32527	241.53	0	0	26.362	-6215.3
32528	241.49	0	0	26.362	-6215.3
32529	241.54	0	0	26.362	-6215.3
32530	241.5	0	0	26.362	-6215.3
32531	241.7	0	0	26.362	-6215.3
32532	241.76	0	0	26.362	-6215.3
32533	241.65	0	0	26.362	-6215.3
32534	241.64	0	0	26.362	-6215.3
32535	241.62	0	0	26.362	-6215.3
32536	241.64	0	0	26.362	-6215.3
32537	241.81	0	0	26.362	-6215.3
32538	241.83	0	0	26.362	-6215.3
32539	241.6	0	0	26.362	-6215.3
32540	241.8	0	0	26.362	-6215.3
32541	241.59	0	0	26.362	-6215.3
32542	241.85	0	0	26.362	-6215.3
32543	241.6	0	0	26.362	-6215.3
32544	241.74	0	0	26.362	-6215.3
32545	241.77	0	0	26.362	-6215.3
32546	241.73	0	0	26.362	-6215.3
32547	241.72	0	0	26.362	-6215.3
32548	241.74	0	0	26.362	-6215.3
32549	241.77	0	0	26.362	-6215.3
32550	241.84	0	0	26.362	-6215.3
32551	241.89	0	0	26.362	-6215.3
32552	241.83	0	0	26.362	-6215.3
32553	241.85	0	0	26.362	-6215.3
32554	241.62	0	0	26.362	-6215.3
32555	241.65	0	0	26.362	-6215.3
32556	241.71	0	0	26.362	-6215.3
32557	241.8	0	0	26.362	-6215.3
32558	241.77	0	0	26.362	-6215.3
32559	241.59	0	0	26.362	-6215.3
32560	241.75	0	0	26.362	-6215.3
32561	241.69	0	0	26.362	-6215.3
32562	241.77	0	0	26.362	-6215.3
32563	241.79	0	0	26.362	-6215.3
32564	241.89	0	0	26.362	-6215.3
32565	241.79	0	0	26.362	-6215.3
32566	241.93	0	0	26.362	-6215.3
32567	241.89	0	0	26.362	-6215.3
32568	241.72	0	0	26.362	-6215.3
32569	241.62	0	0	26.362	-6215.3

32570	241.65	0	0	26.362	-6215.3
32571	241.79	0	0	26.362	-6215.3
32572	241.71	0	0	26.362	-6215.3
32573	241.71	0	0	26.362	-6215.3
32574	241.76	0	0	26.362	-6215.3
32575	241.92	0	0	26.362	-6215.3
32576	241.68	0	0	26.362	-6215.3
32577	241.95	0	0	26.362	-6215.3
32578	241.57	0	0	26.362	-6215.3
32579	241.81	0	0	26.362	-6215.3
32580	241.71	0	0	26.362	-6215.3
32581	241.72	0	0	26.362	-6215.3
32582	241.69	0	0	26.362	-6215.3
32583	241.8	0	0	26.362	-6215.3
32584	241.47	0	0	26.362	-6215.3
32585	241.91	0	0	26.362	-6215.3
32586	241.67	0	0	26.362	-6215.3
32587	241.83	0	0	26.362	-6215.3
32588	241.72	0	0	26.362	-6215.3
32589	241.55	0	0	26.362	-6215.3
32590	241.63	0	0	26.362	-6215.3
32591	241.61	0	0	26.362	-6215.3
32592	241.81	0	0	26.362	-6215.3
32593	241.79	0	0	26.362	-6215.3
32594	241.87	0	0	26.362	-6215.3
32595	241.57	0	0	26.362	-6215.3
32596	241.52	0	0	26.362	-6215.3
32597	241.53	0	0	26.362	-6215.3
32598	241.77	0	0	26.362	-6215.3
32599	241.33	0	0	26.362	-6215.3
32600	241.7	0	0	26.362	-6215.3
32601	241.55	0	0	26.362	-6215.3
32602	241.82	0	0	26.362	-6215.3
32603	241.9	0	0	26.362	-6215.3
32604	241.57	0	0	26.362	-6215.3
32605	241.78	0	0	26.362	-6215.3
32606	241.67	0	0	26.362	-6215.3
32607	241.71	0	0	26.362	-6215.3
32608	241.7	0	0	26.362	-6215.3
32609	241.58	0	0	26.362	-6215.3
32610	241.66	0	0	26.362	-6215.3
32611	241.32	0	0	26.362	-6215.3
32612	241.66	0	0	26.362	-6215.3
32613	241.81	0	0	26.362	-6215.3
32614	241.69	0	0	26.362	-6215.3
32615	241.71	0	0	26.362	-6215.3
32616	241.77	0	0	26.362	-6215.3

32617	241.69	0	0	26.362	-6215.3
32618	241.73	0	0	26.362	-6215.3
32619	241.76	0	0	26.362	-6215.3
32620	241.69	0	0	26.362	-6215.3
32621	241.59	0	0	26.362	-6215.3
32622	241.72	0	0	26.362	-6215.3
32623	241.8	0	0	26.362	-6215.3
32624	241.77	0	0	26.362	-6215.3
32625	241.86	0	0	26.362	-6215.3
32626	241.67	0	0	26.362	-6215.3
32627	241.73	0	0	26.362	-6215.3
32628	241.47	0	0	26.362	-6215.3
32629	241.87	0	0	26.362	-6215.3
32630	241.68	0	0	26.362	-6215.3
32631	241.99	0	0	26.362	-6215.3
32632	241.84	0	0	26.362	-6215.3
32633	241.98	0	0	26.362	-6215.3
32634	241.82	0	0	26.362	-6215.3
32635	241.75	0	0	26.362	-6215.3
32636	240.85	0	0	26.362	-6215.3
32637	241.41	0	0	26.362	-6215.3
32638	241.79	0	0	26.362	-6215.3
32639	242.03	0	0	26.362	-6215.3
32640	241.75	0	0	26.362	-6215.3
32641	242.08	0	0	26.362	-6215.3
32642	241.66	0	0	26.362	-6215.3
32643	241.9	0	0	26.362	-6215.3
32644	241.65	0	0	26.362	-6215.3
32645	241.85	0	0	26.362	-6215.3
32646	241.84	0	0	26.362	-6215.3
32647	241.77	0	0	26.362	-6215.3
32648	241.86	0	0	26.362	-6215.3
32649	241.74	0	0	26.362	-6215.3
32650	241.75	0	0	26.362	-6215.3
32651	241.88	0	0	26.362	-6215.3
32652	241.9	0	0	26.362	-6215.3
32653	241.58	0	0	26.362	-6215.3
32654	241.81	0	0	26.362	-6215.3
32655	241.83	0	0	26.362	-6215.3
32656	241.89	0	0	26.362	-6215.3
32657	241.76	0	0	26.362	-6215.3
32658	241.66	0	0	26.362	-6215.3
32659	241.64	0	0	26.362	-6215.3
32660	241.75	0	0	26.362	-6215.3
32661	241.71	0	0	26.362	-6215.3
32662	241.82	0	0	26.362	-6215.3
32663	241.82	0	0	26.362	-6215.3

32664	241.94	0	0	26.362	-6215.3
32665	241.88	0	0	26.362	-6215.3
32666	242.02	0	0	26.362	-6215.3
32667	241.87	0	0	26.362	-6215.3
32668	241.88	0	0	26.362	-6215.3
32669	241.88	0	0	26.362	-6215.3
32670	241.87	0	0	26.362	-6215.3
32671	241.98	0	0	26.362	-6215.3
32672	241.96	0	0	26.362	-6215.3
32673	241.89	0	0	26.362	-6215.3
32674	241.78	0	0	26.362	-6215.3
32675	241.78	0	0	26.362	-6215.3
32676	241.89	0	0	26.362	-6215.3
32677	241.77	0	0	26.362	-6215.3
32678	242.01	0	0	26.362	-6215.3
32679	241.74	0	0	26.362	-6215.3
32680	241.87	0	0	26.362	-6215.3
32681	241.9	0	0	26.362	-6215.3
32682	241.72	0	0	26.362	-6215.3
32683	242.12	0	0	26.362	-6215.3
32684	241.97	0	0	26.362	-6215.3
32685	241.83	0	0	26.362	-6215.3
32686	241.91	0	0	26.362	-6215.3
32687	241.88	0	0	26.362	-6215.3
32688	241.93	0	0	26.362	-6215.3
32689	241.88	0	0	26.362	-6215.3
32690	241.72	0	0	26.362	-6215.3
32691	241.92	0	0	26.362	-6215.3
32692	242.06	0	0	26.362	-6215.3
32693	241.62	0	0	26.362	-6215.3
32694	241.97	0	0	26.362	-6215.3
32695	241.83	0	0	26.362	-6215.3
32696	241.57	0	0	26.362	-6215.3
32697	241.9	0	0	26.362	-6215.3
32698	241.53	0	0	26.362	-6215.3
32699	241.84	0	0	26.362	-6215.3
32700	241.81	0	0	26.362	-6215.3
32701	241.59	0	0	26.362	-6215.3
32702	241.81	0	0	26.362	-6215.3
32703	241.68	0	0	26.362	-6215.3
32704	241.62	0	0	26.362	-6215.3
32705	241.61	0	0	26.362	-6215.3
32706	241.74	0	0	26.362	-6215.3
32707	241.69	0	0	26.362	-6215.3
32708	241.56	0	0	26.362	-6215.3
32709	241.61	0	0	26.362	-6215.3
32710	241.37	0	0	26.362	-6215.3

32711	241.52	0	0	26.362	-6215.3
32712	241.56	0	0	26.362	-6215.3
32713	241.62	0	0	26.362	-6215.3
32714	241.41	0	0	26.362	-6215.3
32715	241.49	0	0	26.362	-6215.3
32716	241.47	0	0	26.362	-6215.3
32717	241.51	0	0	26.362	-6215.3
32718	241.43	0	0	26.362	-6215.3
32719	241.45	0	0	26.362	-6215.3
32720	241.62	0	0	26.362	-6215.3
32721	241.64	0	0	26.362	-6215.3
32722	241.32	0	0	26.362	-6215.3
32723	241.4	0	0	26.362	-6215.3
32724	241.57	0	0	26.362	-6215.3
32725	241.63	0	0	26.362	-6215.3
32726	241.65	0	0	26.362	-6215.3
32727	241.74	0	0	26.362	-6215.3
32728	241.52	0	0	26.362	-6215.3
32729	241.64	0	0	26.362	-6215.3
32730	241.45	0	0	26.362	-6215.3
32731	241.61	0	0	26.362	-6215.3
32732	241.57	0	0	26.362	-6215.3
32733	241.77	0	0	26.362	-6215.3
32734	241.6	0	0	26.362	-6215.3
32735	241.52	0	0	26.362	-6215.3
32736	241.5	0	0	26.362	-6215.3
32737	241.57	0	0	26.362	-6215.3
32738	241.62	0	0	26.362	-6215.3
32739	241.45	0	0	26.362	-6215.3
32740	241.35	0	0	26.362	-6215.3
32741	241.58	0	0	26.362	-6215.3
32742	241.59	0	0	26.362	-6215.3
32743	241.45	0	0	26.362	-6215.3
32744	241.38	0	0	26.362	-6215.3
32745	241.42	0	0	26.362	-6215.3
32746	241.49	0	0	26.362	-6215.3
32747	241.7	0	0	26.362	-6215.3
32748	241.56	0	0	26.362	-6215.3
32749	241.55	0	0	26.362	-6215.3
32750	241.36	0	0	26.362	-6215.3
32751	241.35	0	0	26.362	-6215.3
32752	241.25	0	0	26.362	-6215.3
32753	241.21	0	0	26.362	-6215.3
32754	241.24	0	0	26.362	-6215.3
32755	241.25	0	0	26.362	-6215.3
32756	241.31	0	0	26.362	-6215.3
32757	241.22	0	0	26.362	-6215.3

32758	241.66	0	0	26.362	-6215.3
32759	241.29	0	0	26.362	-6215.3
32760	241.42	0	0	26.362	-6215.3
32761	241.6	0	0	26.362	-6215.3
32762	241.59	0	0	26.362	-6215.3
32763	241.56	0	0	26.362	-6215.3
32764	241.54	0	0	26.362	-6215.3
32765	241.62	0	0	26.362	-6215.3
32766	241.47	0	0	26.362	-6215.3
32767	241.57	0	0	26.362	-6215.3
32768	241.55	0	0	26.362	-6215.3
32769	241.61	0	0	26.362	-6215.3
32770	241.76	0	0	26.362	-6215.3
32771	241.67	0	0	26.362	-6215.3
32772	241.81	0	0	26.362	-6215.3
32773	241.58	0	0	26.362	-6215.3
32774	241.72	0	0	26.362	-6215.3
32775	241.65	0	0	26.362	-6215.3
32776	241.75	0	0	26.362	-6215.3
32777	241.8	0	0	26.362	-6215.3
32778	241.8	0	0	26.362	-6215.3
32779	241.6	0	0	26.362	-6215.3
32780	241.74	0	0	26.362	-6215.3
32781	241.66	0	0	26.362	-6215.3
32782	241.75	0	0	26.362	-6215.3
32783	241.6	0	0	26.362	-6215.3
32784	241.8	0	0	26.362	-6215.3
32785	241.76	0	0	26.362	-6215.3
32786	241.56	0	0	26.362	-6215.3
32787	241.81	0	0	26.362	-6215.3
32788	241.7	0	0	26.362	-6215.3
32789	241.85	0	0	26.362	-6215.3
32790	241.78	0	0	26.362	-6215.3
32791	241.95	0	0	26.362	-6215.3
32792	241.85	0	0	26.362	-6215.3
32793	241.69	0	0	26.362	-6215.3
32794	241.82	0	0	26.362	-6215.3
32795	241.8	0	0	26.362	-6215.3
32796	241.71	0	0	26.362	-6215.3
32797	241.73	0	0	26.362	-6215.3
32798	241.47	0	0	26.362	-6215.3
32799	241.59	0	0	26.362	-6215.3
32800	241.67	0	0	26.362	-6215.3
32801	241.43	0	0	26.362	-6215.3
32802	241.62	0	0	26.362	-6215.3
32803	241.71	0	0	26.362	-6215.3
32804	241.72	0	0	26.362	-6215.3

32805	241.73	0	0	26.362	-6215.3
32806	241.61	0	0	26.362	-6215.3
32807	241.65	0	0	26.362	-6215.3
32808	241.75	0	0	26.362	-6215.3
32809	241.67	0	0	26.362	-6215.3
32810	241.67	0	0	26.362	-6215.3
32811	241.57	0	0	26.362	-6215.3
32812	241.73	0	0	26.362	-6215.3
32813	241.35	0	0	26.362	-6215.3
32814	241.75	0	0	26.362	-6215.3
32815	241.68	0	0	26.362	-6215.3
32816	241.39	0	0	26.362	-6215.3
32817	241.55	0	0	26.362	-6215.3
32818	241.53	0	0	26.362	-6215.3
32819	241.85	0	0	26.362	-6215.3
32820	241.7	0	0	26.362	-6215.3
32821	241.55	0	0	26.362	-6215.3
32822	241.31	0	0	26.362	-6215.3
32823	241.75	0	0	26.362	-6215.3
32824	241.71	0	0	26.362	-6215.3
32825	241.64	0	0	26.362	-6215.3
32826	241.72	0	0	26.362	-6215.3
32827	241.76	0	0	26.362	-6215.3
32828	241.63	0	0	26.362	-6215.3
32829	241.62	0	0	26.362	-6215.3
32830	241.59	0	0	26.362	-6215.3
32831	241.6	0	0	26.362	-6215.3
32832	241.59	0	0	26.362	-6215.3
32833	241.8	0	0	26.362	-6215.3
32834	241.66	0	0	26.362	-6215.3
32835	241.64	0	0	26.362	-6215.3
32836	241.69	0	0	26.362	-6215.3
32837	241.81	0	0	26.362	-6215.3
32838	241.9	0	0	26.362	-6215.3
32839	241.92	0	0	26.362	-6215.3
32840	241.85	0	0	26.362	-6215.3
32841	241.8	0	0	26.362	-6215.3
32842	241.65	0	0	26.362	-6215.3
32843	241.73	0	0	26.362	-6215.3
32844	241.51	0	0	26.362	-6215.3
32845	241.76	0	0	26.362	-6215.3
32846	241.81	0	0	26.362	-6215.3
32847	241.8	0	0	26.362	-6215.3
32848	241.87	0	0	26.362	-6215.3
32849	241.71	0	0	26.362	-6215.3
32850	241.98	0	0	26.362	-6215.3
32851	241.75	0	0	26.362	-6215.3

32852	241.86	0	0	26.362	-6215.3
32853	241.75	0	0	26.362	-6215.3
32854	241.7	0	0	26.362	-6215.3
32855	241.69	0	0	26.362	-6215.3
32856	241.55	0	0	26.362	-6215.3
32857	241.73	0	0	26.362	-6215.3
32858	241.64	0	0	26.362	-6215.3
32859	241.63	0	0	26.362	-6215.3
32860	241.65	0	0	26.362	-6215.3
32861	241.61	0	0	26.362	-6215.3
32862	241.55	0	0	26.362	-6215.3
32863	241.74	0	0	26.362	-6215.3
32864	241.6	0	0	26.362	-6215.3
32865	241.62	0	0	26.362	-6215.3
32866	241.84	0	0	26.362	-6215.3
32867	241.41	0	0	26.362	-6215.3
32868	241.8	0	0	26.362	-6215.3
32869	241.84	0	0	26.362	-6215.3
32870	241.77	0	0	26.362	-6215.3
32871	241.79	0	0	26.362	-6215.3
32872	241.87	0	0	26.362	-6215.3
32873	241.88	0	0	26.362	-6215.3
32874	241.83	0	0	26.362	-6215.3
32875	241.86	0	0	26.362	-6215.3
32876	241.88	0	0	26.362	-6215.3
32877	241.84	0	0	26.362	-6215.3
32878	241.78	0	0	26.362	-6215.3
32879	241.85	0	0	26.362	-6215.3
32880	241.82	0	0	26.362	-6215.3
32881	241.8	0	0	26.362	-6215.3
32882	241.86	0	0	26.362	-6215.3
32883	241.68	0	0	26.362	-6215.3
32884	241.74	0	0	26.362	-6215.3
32885	241.71	0	0	26.362	-6215.3
32886	241.8	0	0	26.362	-6215.3
32887	241.86	0	0	26.362	-6215.3
32888	241.69	0	0	26.362	-6215.3
32889	241.71	0	0	26.362	-6215.3
32890	241.65	0	0	26.362	-6215.3
32891	241.53	0	0	26.362	-6215.3
32892	241.47	0	0	26.362	-6215.3
32893	241.67	0	0	26.362	-6215.3
32894	241.84	0	0	26.362	-6215.3
32895	241.23	0	0	26.362	-6215.3
32896	241.87	0	0	26.362	-6215.3
32897	241.43	0	0	26.362	-6215.3
32898	241.91	0	0	26.362	-6215.3

32899	241.94	0	0	26.362	-6215.3
32900	241.7	0	0	26.362	-6215.3
32901	241.83	0	0	26.362	-6215.3
32902	241.92	0	0	26.362	-6215.3
32903	241.96	0	0	26.362	-6215.3
32904	241.88	0	0	26.362	-6215.3
32905	241.75	0	0	26.362	-6215.3
32906	241.82	0	0	26.362	-6215.3
32907	241.68	0	0	26.362	-6215.3
32908	241.75	0	0	26.362	-6215.3
32909	241.8	0	0	26.362	-6215.3
32910	241.85	0	0	26.362	-6215.3
32911	241.85	0	0	26.362	-6215.3
32912	241.9	0	0	26.362	-6215.3
32913	241.92	0	0	26.362	-6215.3
32914	241.58	0	0	26.362	-6215.3
32915	241.99	0	0	26.362	-6215.3
32916	241.7	0	0	26.362	-6215.3
32917	241.87	0	0	26.362	-6215.3
32918	241.7	0	0	26.362	-6215.3
32919	241.82	0	0	26.362	-6215.3
32920	241.82	0	0	26.362	-6215.3
32921	241.68	0	0	26.362	-6215.3
32922	241.69	0	0	26.362	-6215.3
32923	241.81	0	0	26.362	-6215.3
32924	241.72	0	0	26.362	-6215.3
32925	241.74	0	0	26.362	-6215.3
32926	241.9	0	0	26.362	-6215.3
32927	241.82	0	0	26.362	-6215.3
32928	241.81	0	0	26.362	-6215.3
32929	241.64	0	0	26.362	-6215.3
32930	241.78	0	0	26.362	-6215.3
32931	241.83	0	0	26.362	-6215.3
32932	241.79	0	0	26.362	-6215.3
32933	241.72	0	0	26.362	-6215.3
32934	241.94	0	0	26.362	-6215.3
32935	241.72	0	0	26.362	-6215.3
32936	241.74	0	0	26.362	-6215.3
32937	241.7	0	0	26.362	-6215.3
32938	241.83	0	0	26.362	-6215.3
32939	241.66	0	0	26.362	-6215.3
32940	241.52	0	0	26.362	-6215.3
32941	241.42	0	0	26.362	-6215.3
32942	241.54	0	0	26.362	-6215.3
32943	241.51	0	0	26.362	-6215.3
32944	241.44	0	0	26.362	-6215.3
32945	241.52	0	0	26.362	-6215.3

32946	241.56	0	0	26.362	-6215.3
32947	241.51	0	0	26.362	-6215.3
32948	241.47	0	0	26.362	-6215.3
32949	241.6	0	0	26.362	-6215.3
32950	241.53	0	0	26.362	-6215.3
32951	241.7	0	0	26.362	-6215.3
32952	241.61	0	0	26.362	-6215.3
32953	241.53	0	0	26.362	-6215.3
32954	241.18	0	0	26.362	-6215.3
32955	241.57	0	0	26.362	-6215.3
32956	241.7	0	0	26.362	-6215.3
32957	241.55	0	0	26.362	-6215.3
32958	241.47	0	0	26.362	-6215.3
32959	241.45	0	0	26.362	-6215.3
32960	241.55	0	0	26.362	-6215.3
32961	241.61	0	0	26.362	-6215.3
32962	241.56	0	0	26.362	-6215.3
32963	241.48	0	0	26.362	-6215.3
32964	241.66	0	0	26.362	-6215.3
32965	241.54	0	0	26.362	-6215.3
32966	241.57	0	0	26.362	-6215.3
32967	241.49	0	0	26.362	-6215.3
32968	241.49	0	0	26.362	-6215.3
32969	241.35	0	0	26.362	-6215.3
32970	241.45	0	0	26.362	-6215.3
32971	241.44	0	0	26.362	-6215.3
32972	241.35	0	0	26.362	-6215.3
32973	241.65	0	0	26.362	-6215.3
32974	241.2	0	0	26.362	-6215.3
32975	241.7	0	0	26.362	-6215.3
32976	241.65	0	0	26.362	-6215.3
32977	241.34	0	0	26.362	-6215.3
32978	241.76	0	0	26.362	-6215.3
32979	241.43	0	0	26.362	-6215.3
32980	241.47	0	0	26.362	-6215.3
32981	241.44	0	0	26.362	-6215.3
32982	241.56	0	0	26.362	-6215.3
32983	241.48	0	0	26.362	-6215.3
32984	241.5	0	0	26.362	-6215.3
32985	241.3	0	0	26.362	-6215.3
32986	241.64	0	0	26.362	-6215.3
32987	241.58	0	0	26.362	-6215.3
32988	241.5	0	0	26.362	-6215.3
32989	241.41	0	0	26.362	-6215.3
32990	241.56	0	0	26.362	-6215.3
32991	241.65	0	0	26.362	-6215.3
32992	241.68	0	0	26.362	-6215.3

32993	241.56	0	0	26.362	-6215.3
32994	241.69	0	0	26.362	-6215.3
32995	241.69	0	0	26.362	-6215.3
32996	241.26	0	0	26.362	-6215.3
32997	241.81	0	0	26.362	-6215.3
32998	241.54	0	0	26.362	-6215.3
32999	241.38	0	0	26.362	-6215.3
33000	241.77	0	0	26.362	-6215.3
33001	241.72	0	0	26.362	-6215.3
33002	241.33	0	0	26.362	-6215.3
33003	241.71	0	0	26.362	-6215.3
33004	241.79	0	0	26.362	-6215.3
33005	241.79	0	0	26.362	-6215.3
33006	241.68	0	0	26.362	-6215.3
33007	241.71	0	0	26.362	-6215.3
33008	241.66	0	0	26.362	-6215.3
33009	241.88	0	0	26.362	-6215.3
33010	241.83	0	0	26.362	-6215.3
33011	241.77	0	0	26.362	-6215.3
33012	241.57	0	0	26.362	-6215.3
33013	241.72	0	0	26.362	-6215.3
33014	241.66	0	0	26.362	-6215.3
33015	241.88	0	0	26.362	-6215.3
33016	241.81	0	0	26.362	-6215.3
33017	241.93	0	0	26.362	-6215.3
33018	241.8	0	0	26.362	-6215.3
33019	241.89	0	0	26.362	-6215.3
33020	241.67	0	0	26.362	-6215.3
33021	241.92	0	0	26.362	-6215.3
33022	241.74	0	0	26.362	-6215.3
33023	241.74	0	0	26.362	-6215.3
33024	241.99	0	0	26.362	-6215.3
33025	241.8	0	0	26.362	-6215.3
33026	241.66	0	0	26.362	-6215.3
33027	241.8	0	0	26.362	-6215.3
33028	241.87	0	0	26.362	-6215.3
33029	241.81	0	0	26.362	-6215.3
33030	241.8	0	0	26.362	-6215.3
33031	241.75	0	0	26.362	-6215.3
33032	241.8	0	0	26.362	-6215.3
33033	241.72	0	0	26.362	-6215.3
33034	241.76	0	0	26.362	-6215.3
33035	241.9	0	0	26.362	-6215.3
33036	241.87	0	0	26.362	-6215.3
33037	241.6	0	0	26.362	-6215.3
33038	241.8	0	0	26.362	-6215.3
33039	241.82	0	0	26.362	-6215.3

33040	241.79	0	0	26.362	-6215.3
33041	241.82	0	0	26.362	-6215.3
33042	241.81	0	0	26.362	-6215.3
33043	241.8	0	0	26.362	-6215.3
33044	241.85	0	0	26.362	-6215.3
33045	241.82	0	0	26.362	-6215.3
33046	241.64	0	0	26.362	-6215.3
33047	241.7	0	0	26.362	-6215.3
33048	241.67	0	0	26.362	-6215.3
33049	241.59	0	0	26.362	-6215.3
33050	241.68	0	0	26.362	-6215.3
33051	241.79	0	0	26.362	-6215.3
33052	241.34	0	0	26.362	-6215.3
33053	241.65	0	0	26.362	-6215.3
33054	241.47	0	0	26.362	-6215.3
33055	241.51	0	0	26.362	-6215.3
33056	241.57	0	0	26.362	-6215.3
33057	241.61	0	0	26.362	-6215.3
33058	241.56	0	0	26.362	-6215.3
33059	241.73	0	0	26.362	-6215.3
33060	240.74	0	0	26.362	-6215.3
33061	241.64	0	0	26.362	-6215.3
33062	241.52	0	0	26.362	-6215.3
33063	241.6	0	0	26.362	-6215.3
33064	241.41	0	0	26.362	-6215.3
33065	241.67	0	0	26.362	-6215.3
33066	241.38	0	0	26.362	-6215.3
33067	241.52	0	0	26.362	-6215.3
33068	241.48	0	0	26.362	-6215.3
33069	241.36	0	0	26.362	-6215.3
33070	241.6	0	0	26.362	-6215.3
33071	241.51	0	0	26.362	-6215.3
33072	241.54	0	0	26.362	-6215.3
33073	241.63	0	0	26.362	-6215.3
33074	241.63	0	0	26.362	-6215.3
33075	241.27	0	0	26.362	-6215.3
33076	241.62	0	0	26.362	-6215.3
33077	241.55	0	0	26.362	-6215.3
33078	241.6	0	0	26.362	-6215.3
33079	241.19	0	0	26.362	-6215.3
33080	241.59	0	0	26.362	-6215.3
33081	241.49	0	0	26.362	-6215.3
33082	241.66	0	0	26.362	-6215.3
33083	241.66	0	0	26.362	-6215.3
33084	241.47	0	0	26.362	-6215.3
33085	241.45	0	0	26.362	-6215.3
33086	241.45	0	0	26.362	-6215.3

33087	241.54	0	0	26.362	-6215.3
33088	241.55	0	0	26.362	-6215.3
33089	241.53	0	0	26.362	-6215.3
33090	241.4	0	0	26.362	-6215.3
33091	241.39	0	0	26.362	-6215.3
33092	241.17	0	0	26.362	-6215.3
33093	241.61	0	0	26.362	-6215.3
33094	241.46	0	0	26.362	-6215.3
33095	241.74	0	0	26.362	-6215.3
33096	241.39	0	0	26.362	-6215.3
33097	241.58	0	0	26.362	-6215.3
33098	241.54	0	0	26.362	-6215.3
33099	241.68	0	0	26.362	-6215.3
33100	241.47	0	0	26.362	-6215.3
33101	241.59	0	0	26.362	-6215.3
33102	241.7	0	0	26.362	-6215.3
33103	241.67	0	0	26.362	-6215.3
33104	241.7	0	0	26.362	-6215.3
33105	241.45	0	0	26.362	-6215.3
33106	241.4	0	0	26.362	-6215.3
33107	241.56	0	0	26.362	-6215.3
33108	241.59	0	0	26.362	-6215.3
33109	241.66	0	0	26.362	-6215.3
33110	241.46	0	0	26.362	-6215.3
33111	241.47	0	0	26.362	-6215.3
33112	241.38	0	0	26.362	-6215.3
33113	241.38	0	0	26.362	-6215.3
33114	241.42	0	0	26.362	-6215.3
33115	241.36	0	0	26.362	-6215.3
33116	241.49	0	0	26.362	-6215.3
33117	241.57	0	0	26.362	-6215.3
33118	241.65	0	0	26.362	-6215.3
33119	241.72	0	0	26.362	-6215.3
33120	241.54	0	0	26.362	-6215.3
33121	241.56	0	0	26.362	-6215.3
33122	241.62	0	0	26.362	-6215.3
33123	241.72	0	0	26.362	-6215.3
33124	241.48	0	0	26.362	-6215.3
33125	241.7	0	0	26.362	-6215.3
33126	241.64	0	0	26.362	-6215.3
33127	241.5	0	0	26.362	-6215.3
33128	241.77	0	0	26.362	-6215.3
33129	241.66	0	0	26.362	-6215.3
33130	241.55	0	0	26.362	-6215.3
33131	241.74	0	0	26.362	-6215.3
33132	241.5	0	0	26.362	-6215.3
33133	241.78	0	0	26.362	-6215.3

33134	241.5	0	0	26.362	-6215.3
33135	241.75	0	0	26.362	-6215.3
33136	241.71	0	0	26.362	-6215.3
33137	241.86	0	0	26.362	-6215.3
33138	241.71	0	0	26.362	-6215.3
33139	241.9	0	0	26.362	-6215.3
33140	241.69	0	0	26.362	-6215.3
33141	241.66	0	0	26.362	-6215.3
33142	241.61	0	0	26.362	-6215.3
33143	241.77	0	0	26.362	-6215.3
33144	241.95	0	0	26.362	-6215.3
33145	241.67	0	0	26.362	-6215.3
33146	241.85	0	0	26.362	-6215.3
33147	241.72	0	0	26.362	-6215.3
33148	241.78	0	0	26.362	-6215.3
33149	241.69	0	0	26.362	-6215.3
33150	241.64	0	0	26.362	-6215.3
33151	241.78	0	0	26.362	-6215.3
33152	241.56	0	0	26.362	-6215.3
33153	241.59	0	0	26.362	-6215.3
33154	241.82	0	0	26.362	-6215.3
33155	241.8	0	0	26.362	-6215.3
33156	241.48	0	0	26.362	-6215.3
33157	241.73	0	0	26.362	-6215.3
33158	241.76	0	0	26.362	-6215.3
33159	241.68	0	0	26.362	-6215.3
33160	241.85	0	0	26.362	-6215.3
33161	241.59	0	0	26.362	-6215.3
33162	241.94	0	0	26.362	-6215.3
33163	241.9	0	0	26.362	-6215.3
33164	241.82	0	0	26.362	-6215.3
33165	241.77	0	0	26.362	-6215.3
33166	241.73	0	0	26.362	-6215.3
33167	241.74	0	0	26.362	-6215.3
33168	241.7	0	0	26.362	-6215.3
33169	241.93	0	0	26.362	-6215.3
33170	241.71	0	0	26.362	-6215.3
33171	241.68	0	0	26.362	-6215.3
33172	241.98	0	0	26.362	-6215.3
33173	241.51	0	0	26.362	-6215.3
33174	241.93	0	0	26.362	-6215.3
33175	241.18	0	0	26.362	-6215.3
33176	241.73	0	0	26.362	-6215.3
33177	241.61	0	0	26.362	-6215.3
33178	241.45	0	0	26.362	-6215.3
33179	241.72	0	0	26.362	-6215.3
33180	241.69	0	0	26.362	-6215.3

33181	241.69	0	0	26.362	-6215.3
33182	241.66	0	0	26.362	-6215.3
33183	241.48	0	0	26.362	-6215.3
33184	241.51	0	0	26.362	-6215.3
33185	241.52	0	0	26.362	-6215.3
33186	241.72	0	0	26.362	-6215.3
33187	241.49	0	0	26.362	-6215.3
33188	241.71	0	0	26.362	-6215.3
33189	241.67	0	0	26.362	-6215.3
33190	241.68	0	0	26.362	-6215.3
33191	241.76	0	0	26.362	-6215.3
33192	241.53	0	0	26.362	-6215.3
33193	241.47	0	0	26.362	-6215.3
33194	241.51	0	0	26.362	-6215.3
33195	241.68	0	0	26.362	-6215.3
33196	241.57	0	0	26.362	-6215.3
33197	241.45	0	0	26.362	-6215.3
33198	241.63	0	0	26.362	-6215.3
33199	241.6	0	0	26.362	-6215.3
33200	241.54	0	0	26.362	-6215.3
33201	241.66	0	0	26.362	-6215.3
33202	241.64	0	0	26.362	-6215.3
33203	241.55	0	0	26.362	-6215.3
33204	241.63	0	0	26.362	-6215.3
33205	241.74	0	0	26.362	-6215.3
33206	241.33	0	0	26.362	-6215.3
33207	241.5	0	0	26.362	-6215.3
33208	241.47	0	0	26.362	-6215.3
33209	241.51	0	0	26.362	-6215.3
33210	241.47	0	0	26.362	-6215.3
33211	241.42	0	0	26.362	-6215.3
33212	241.56	0	0	26.362	-6215.3
33213	241.41	0	0	26.362	-6215.3
33214	241.53	0	0	26.362	-6215.3
33215	241.45	0	0	26.362	-6215.3
33216	241.25	0	0	26.362	-6215.3
33217	241.39	0	0	26.362	-6215.3
33218	241.16	0	0	26.362	-6215.3
33219	241.69	0	0	26.362	-6215.3
33220	241.8	0	0	26.362	-6215.3
33221	241.44	0	0	26.362	-6215.3
33222	241.75	0	0	26.362	-6215.3
33223	241.61	0	0	26.362	-6215.3
33224	241.16	0	0	26.362	-6215.3
33225	241.75	0	0	26.362	-6215.3
33226	241.77	0	0	26.362	-6215.3
33227	241.75	0	0	26.362	-6215.3

33228	241.77	0	0	26.362	-6215.3
33229	241.46	0	0	26.362	-6215.3
33230	241.63	0	0	26.362	-6215.3
33231	241.64	0	0	26.362	-6215.3
33232	241.75	0	0	26.362	-6215.3
33233	241.74	0	0	26.362	-6215.3
33234	241.57	0	0	26.362	-6215.3
33235	241.53	0	0	26.362	-6215.3
33236	241.64	0	0	26.362	-6215.3
33237	241.64	0	0	26.362	-6215.3
33238	241.39	0	0	26.362	-6215.3
33239	241.67	0	0	26.362	-6215.3
33240	241.71	0	0	26.362	-6215.3
33241	241.63	0	0	26.362	-6215.3
33242	241.6	0	0	26.362	-6215.3
33243	241.7	0	0	26.362	-6215.3
33244	241.56	0	0	26.362	-6215.3
33245	241.71	0	0	26.362	-6215.3
33246	241.81	0	0	26.362	-6215.3
33247	241.79	0	0	26.362	-6215.3
33248	241.74	0	0	26.362	-6215.3
33249	241.81	0	0	26.362	-6215.3
33250	241.69	0	0	26.362	-6215.3
33251	241.84	0	0	26.362	-6215.3
33252	241.79	0	0	26.362	-6215.3
33253	241.61	0	0	26.362	-6215.3
33254	241.77	0	0	26.362	-6215.3
33255	241.7	0	0	26.362	-6215.3
33256	241.76	0	0	26.362	-6215.3
33257	241.7	0	0	26.362	-6215.3
33258	241.74	0	0	26.362	-6215.3
33259	241.73	0	0	26.362	-6215.3
33260	241.68	0	0	26.362	-6215.3
33261	241.44	0	0	26.362	-6215.3
33262	241.84	0	0	26.362	-6215.3
33263	241.75	0	0	26.362	-6215.3
33264	241.61	0	0	26.362	-6215.3
33265	242.03	0	0	26.362	-6215.3
33266	241.35	0	0	26.362	-6215.3
33267	241.94	0	0	26.362	-6215.3
33268	242.04	0	0	26.362	-6215.3
33269	241.71	0	0	26.362	-6215.3
33270	241.76	0	0	26.362	-6215.3
33271	241.8	0	0	26.362	-6215.3
33272	241.83	0	0	26.362	-6215.3
33273	241.81	0	0	26.362	-6215.3
33274	241.78	0	0	26.362	-6215.3

33275	241.59	0	0	26.362	-6215.3
33276	241.58	0	0	26.362	-6215.3
33277	241.57	0	0	26.362	-6215.3
33278	241.79	0	0	26.362	-6215.3
33279	241.98	0	0	26.362	-6215.3
33280	241.53	0	0	26.362	-6215.3
33281	241.74	0	0	26.362	-6215.3
33282	241.69	0	0	26.362	-6215.3
33283	241.77	0	0	26.362	-6215.3
33284	241.49	0	0	26.362	-6215.3
33285	241.59	0	0	26.362	-6215.3
33286	241.68	0	0	26.362	-6215.3
33287	241.75	0	0	26.362	-6215.3
33288	241.9	0	0	26.362	-6215.3
33289	241.71	0	0	26.362	-6215.3
33290	241.76	0	0	26.362	-6215.3
33291	241.9	0	0	26.362	-6215.3
33292	241.55	0	0	26.362	-6215.3
33293	241.69	0	0	26.362	-6215.3
33294	241.86	0	0	26.362	-6215.3
33295	241.72	0	0	26.362	-6215.3
33296	241.74	0	0	26.362	-6215.3
33297	241.6	0	0	26.362	-6215.3
33298	241.79	0	0	26.362	-6215.3
33299	241.67	0	0	26.362	-6215.3
33300	241.55	0	0	26.362	-6215.3
33301	241.66	0	0	26.362	-6215.3
33302	241.58	0	0	26.362	-6215.3
33303	241.52	0	0	26.362	-6215.3
33304	241.4	0	0	26.362	-6215.3
33305	241.71	0	0	26.362	-6215.3
33306	241.52	0	0	26.362	-6215.3
33307	241.99	0	0	26.362	-6215.3
33308	241.53	0	0	26.362	-6215.3
33309	241.68	0	0	26.362	-6215.3
33310	241.78	0	0	26.362	-6215.3
33311	241.79	0	0	26.362	-6215.3
33312	241.82	0	0	26.362	-6215.3
33313	241.56	0	0	26.362	-6215.3
33314	241.73	0	0	26.362	-6215.3
33315	241.58	0	0	26.362	-6215.3
33316	241.74	0	0	26.362	-6215.3
33317	241.46	0	0	26.362	-6215.3
33318	241.77	0	0	26.362	-6215.3
33319	241.84	0	0	26.362	-6215.3
33320	241.43	0	0	26.362	-6215.3
33321	241.56	0	0	26.362	-6215.3

33322	241.51	0	0	26.362	-6215.3
33323	241.58	0	0	26.362	-6215.3
33324	241.79	0	0	26.362	-6215.3
33325	241.65	0	0	26.362	-6215.3
33326	241.48	0	0	26.362	-6215.3
33327	241.73	0	0	26.362	-6215.3
33328	241.87	0	0	26.362	-6215.3
33329	241.72	0	0	26.362	-6215.3
33330	241.69	0	0	26.362	-6215.3
33331	241.58	0	0	26.362	-6215.3
33332	241.79	0	0	26.362	-6215.3
33333	241.47	0	0	26.362	-6215.3
33334	241.8	0	0	26.362	-6215.3
33335	241.7	0	0	26.362	-6215.3
33336	241.77	0	0	26.362	-6215.3
33337	241.61	0	0	26.362	-6215.3
33338	241.75	0	0	26.362	-6215.3
33339	241.75	0	0	26.362	-6215.3
33340	241.8	0	0	26.362	-6215.3
33341	241.44	0	0	26.362	-6215.3
33342	241.84	0	0	26.362	-6215.3
33343	241.82	0	0	26.362	-6215.3
33344	241.91	0	0	26.362	-6215.3
33345	241.63	0	0	26.362	-6215.3
33346	241.62	0	0	26.362	-6215.3
33347	241.77	0	0	26.362	-6215.3
33348	241.76	0	0	26.362	-6215.3
33349	241.85	0	0	26.362	-6215.3
33350	241.9	0	0	26.362	-6215.3
33351	241.9	0	0	26.362	-6215.3
33352	241.92	0	0	26.362	-6215.3
33353	241.92	0	0	26.362	-6215.3
33354	241.82	0	0	26.362	-6215.3
33355	241.99	0	0	26.362	-6215.3
33356	241.78	0	0	26.362	-6215.3
33357	241.81	0	0	26.362	-6215.3
33358	241.87	0	0	26.362	-6215.3
33359	242.05	0	0	26.362	-6215.3
33360	242.01	0	0	26.362	-6215.3
33361	241.74	0	0	26.362	-6215.3
33362	242.11	0	0	26.362	-6215.3
33363	241.78	0	0	26.362	-6215.3
33364	241.83	0	0	26.362	-6215.3
33365	241.91	0	0	26.362	-6215.3
33366	241.93	0	0	26.362	-6215.3
33367	242.06	0	0	26.362	-6215.3
33368	241.89	0	0	26.362	-6215.3

33369	241.97	0	0	26.362	-6215.3
33370	242	0	0	26.362	-6215.3
33371	242.04	0	0	26.362	-6215.3
33372	242.08	0	0	26.362	-6215.3
33373	241.95	0	0	26.362	-6215.3
33374	242.12	0	0	26.362	-6215.3
33375	242.06	0	0	26.362	-6215.3
33376	242.07	0	0	26.362	-6215.3
33377	242.04	0	0	26.362	-6215.3
33378	241.73	0	0	26.362	-6215.3
33379	241.79	0	0	26.362	-6215.3
33380	241.74	0	0	26.362	-6215.3
33381	241.73	0	0	26.362	-6215.3
33382	241.98	0	0	26.362	-6215.3
33383	241.83	0	0	26.362	-6215.3
33384	241.79	0	0	26.362	-6215.3
33385	241.95	0	0	26.362	-6215.3
33386	242.01	0	0	26.362	-6215.3
33387	242.2	0	0	26.362	-6215.3
33388	242.27	0	0	26.362	-6215.3
33389	242.23	0	0	26.362	-6215.3
33390	242.27	0	0	26.362	-6215.3
33391	242.26	0	0	26.362	-6215.3
33392	242.23	0	0	26.362	-6215.3
33393	242.29	0	0	26.362	-6215.3
33394	242.27	0	0	26.362	-6215.3
33395	242.16	0	0	26.362	-6215.3
33396	242.12	0	0	26.362	-6215.3
33397	242.01	0	0	26.362	-6215.3
33398	242.21	0	0	26.362	-6215.3
33399	242.13	0	0	26.362	-6215.3
33400	242.13	0	0	26.362	-6215.3
33401	241.88	0	0	26.362	-6215.3
33402	242.16	0	0	26.362	-6215.3
33403	242.13	0	0	26.362	-6215.3
33404	242.11	0	0	26.362	-6215.3
33405	241.97	0	0	26.362	-6215.3
33406	241.89	0	0	26.362	-6215.3
33407	242.17	0	0	26.362	-6215.3
33408	242.23	0	0	26.362	-6215.3
33409	241.97	0	0	26.362	-6215.3
33410	242	0	0	26.362	-6215.3
33411	242.21	0	0	26.362	-6215.3
33412	242.08	0	0	26.362	-6215.3
33413	242.26	0	0	26.362	-6215.3
33414	242.05	0	0	26.362	-6215.3
33415	242.22	0	0	26.362	-6215.3

33416	242.07	0	0	26.362	-6215.3
33417	242.19	0	0	26.362	-6215.3
33418	242.03	0	0	26.362	-6215.3
33419	242.02	0	0	26.362	-6215.3
33420	242.11	0	0	26.362	-6215.3
33421	242.08	0	0	26.362	-6215.3
33422	242.14	0	0	26.362	-6215.3
33423	242.12	0	0	26.362	-6215.3
33424	242.05	0	0	26.362	-6215.3
33425	242.07	0	0	26.362	-6215.3
33426	242.15	0	0	26.362	-6215.3
33427	242.06	0	0	26.362	-6215.3
33428	241.94	0	0	26.362	-6215.3
33429	241.98	0	0	26.362	-6215.3
33430	242.09	0	0	26.362	-6215.3
33431	241.95	0	0	26.362	-6215.3
33432	242.33	0	0	26.362	-6215.3
33433	242.15	0	0	26.362	-6215.3
33434	242.2	0	0	26.362	-6215.3
33435	242	0	0	26.362	-6215.3
33436	242.06	0	0	26.362	-6215.3
33437	242.18	0	0	26.362	-6215.3
33438	241.86	0	0	26.362	-6215.3
33439	241.92	0	0	26.362	-6215.3
33440	242.05	0	0	26.362	-6215.3
33441	242.16	0	0	26.362	-6215.3
33442	242.05	0	0	26.362	-6215.3
33443	242.02	0	0	26.362	-6215.3
33444	241.98	0	0	26.362	-6215.3
33445	242.11	0	0	26.362	-6215.3
33446	242.05	0	0	26.362	-6215.3
33447	242.04	0	0	26.362	-6215.3
33448	242.01	0	0	26.362	-6215.3
33449	242.06	0	0	26.362	-6215.3
33450	242.12	0	0	26.362	-6215.3
33451	242.01	0	0	26.362	-6215.3
33452	242.21	0	0	26.362	-6215.3
33453	242.18	0	0	26.362	-6215.3
33454	242.25	0	0	26.362	-6215.3
33455	242.13	0	0	26.362	-6215.3
33456	242.21	0	0	26.362	-6215.3
33457	242.08	0	0	26.362	-6215.3
33458	241.88	0	0	26.362	-6215.3
33459	242.1	0	0	26.362	-6215.3
33460	242.14	0	0	26.362	-6215.3
33461	242.11	0	0	26.362	-6215.3
33462	241.91	0	0	26.362	-6215.3

33463	242.18	0	0	26.362	-6215.3
33464	242.22	0	0	26.362	-6215.3
33465	242.01	0	0	26.362	-6215.3
33466	242.07	0	0	26.362	-6215.3
33467	242.13	0	0	26.362	-6215.3
33468	241.86	0	0	26.362	-6215.3
33469	241.91	0	0	26.362	-6215.3
33470	242.03	0	0	26.362	-6215.3
33471	242.02	0	0	26.362	-6215.3
33472	242	0	0	26.362	-6215.3
33473	242.01	0	0	26.362	-6215.3
33474	241.98	0	0	26.362	-6215.3
33475	242.05	0	0	26.362	-6215.3
33476	241.94	0	0	26.362	-6215.3
33477	242.12	0	0	26.362	-6215.3
33478	241.32	0	0	26.362	-6215.3
33479	241.97	0	0	26.362	-6215.3
33480	242.01	0	0	26.362	-6215.3
33481	241.95	0	0	26.362	-6215.3
33482	241.74	0	0	26.362	-6215.3
33483	241.89	0	0	26.362	-6215.3
33484	241.93	0	0	26.362	-6215.3
33485	241.84	0	0	26.362	-6215.3
33486	241.88	0	0	26.362	-6215.3
33487	242.01	0	0	26.362	-6215.3
33488	241.9	0	0	26.362	-6215.3
33489	241.72	0	0	26.362	-6215.3
33490	241.9	0	0	26.362	-6215.3
33491	241.95	0	0	26.362	-6215.3
33492	241.89	0	0	26.362	-6215.3
33493	241.72	0	0	26.362	-6215.3
33494	242	0	0	26.362	-6215.3
33495	241.8	0	0	26.362	-6215.3
33496	241.7	0	0	26.362	-6215.3
33497	242.05	0	0	26.362	-6215.3
33498	242	0	0	26.362	-6215.3
33499	241.89	0	0	26.362	-6215.3
33500	241.82	0	0	26.362	-6215.3
33501	241.98	0	0	26.362	-6215.3
33502	242.11	0	0	26.362	-6215.3
33503	242.03	0	0	26.362	-6215.3
33504	241.93	0	0	26.362	-6215.3
33505	241.94	0	0	26.362	-6215.3
33506	241.99	0	0	26.362	-6215.3
33507	241.88	0	0	26.362	-6215.3
33508	241.95	0	0	26.362	-6215.3
33509	241.9	0	0	26.362	-6215.3

33510	242.05	0	0	26.362	-6215.3
33511	241.8	0	0	26.362	-6215.3
33512	241.92	0	0	26.362	-6215.3
33513	241.97	0	0	26.362	-6215.3
33514	241.94	0	0	26.362	-6215.3
33515	241.71	0	0	26.362	-6215.3
33516	241.97	0	0	26.362	-6215.3
33517	241.94	0	0	26.362	-6215.3
33518	242.07	0	0	26.362	-6215.3
33519	241.98	0	0	26.362	-6215.3
33520	241.96	0	0	26.362	-6215.3
33521	241.88	0	0	26.362	-6215.3
33522	242.27	0	0	26.362	-6215.3
33523	241.89	0	0	26.362	-6215.3
33524	242.02	0	0	26.362	-6215.3
33525	242.15	0	0	26.362	-6215.3
33526	241.96	0	0	26.362	-6215.3
33527	241.89	0	0	26.362	-6215.3
33528	242.07	0	0	26.362	-6215.3
33529	242.09	0	0	26.362	-6215.3
33530	241.99	0	0	26.362	-6215.3
33531	241.83	0	0	26.362	-6215.3
33532	241.92	0	0	26.362	-6215.3
33533	241.76	0	0	26.362	-6215.3
33534	241.96	0	0	26.362	-6215.3
33535	241.93	0	0	26.362	-6215.3
33536	242.03	0	0	26.362	-6215.3
33537	242.06	0	0	26.362	-6215.3
33538	242	0	0	26.362	-6215.3
33539	241.91	0	0	26.362	-6215.3
33540	241.95	0	0	26.362	-6215.3
33541	241.86	0	0	26.362	-6215.3
33542	241.8	0	0	26.362	-6215.3
33543	241.88	0	0	26.362	-6215.3
33544	241.87	0	0	26.362	-6215.3
33545	241.85	0	0	26.362	-6215.3
33546	242	0	0	26.362	-6215.3
33547	241.93	0	0	26.362	-6215.3
33548	241.65	0	0	26.362	-6215.3
33549	242	0	0	26.362	-6215.3
33550	241.95	0	0	26.362	-6215.3
33551	241.87	0	0	26.362	-6215.3
33552	241.71	0	0	26.362	-6215.3
33553	241.7	0	0	26.362	-6215.3
33554	241.84	0	0	26.362	-6215.3
33555	241.87	0	0	26.362	-6215.3
33556	241.78	0	0	26.362	-6215.3

33557	241.91	0	0	26.362	-6215.3
33558	241.64	0	0	26.362	-6215.3
33559	241.8	0	0	26.362	-6215.3
33560	241.79	0	0	26.362	-6215.3
33561	241.91	0	0	26.362	-6215.3
33562	241.85	0	0	26.362	-6215.3
33563	241.7	0	0	26.362	-6215.3
33564	241.82	0	0	26.362	-6215.3
33565	241.44	0	0	26.362	-6215.3
33566	241.6	0	0	26.362	-6215.3
33567	241.84	0	0	26.362	-6215.3
33568	241.67	0	0	26.362	-6215.3
33569	241.84	0	0	26.362	-6215.3
33570	241.92	0	0	26.362	-6215.3
33571	241.89	0	0	26.362	-6215.3
33572	241.78	0	0	26.362	-6215.3
33573	241.96	0	0	26.362	-6215.3
33574	241.71	0	0	26.362	-6215.3
33575	241.82	0	0	26.362	-6215.3
33576	241.55	0	0	26.362	-6215.3
33577	241.68	0	0	26.362	-6215.3
33578	241.83	0	0	26.362	-6215.3
33579	241.74	0	0	26.362	-6215.3
33580	241.8	0	0	26.362	-6215.3
33581	241.78	0	0	26.362	-6215.3
33582	241.9	0	0	26.362	-6215.3
33583	241.92	0	0	26.362	-6215.3
33584	241.76	0	0	26.362	-6215.3
33585	241.84	0	0	26.362	-6215.3
33586	241.84	0	0	26.362	-6215.3
33587	241.95	0	0	26.362	-6215.3
33588	241.68	0	0	26.362	-6215.3
33589	241.69	0	0	26.362	-6215.3
33590	241.76	0	0	26.362	-6215.3
33591	241.65	0	0	26.362	-6215.3
33592	241.78	0	0	26.362	-6215.3
33593	241.81	0	0	26.362	-6215.3
33594	241.63	0	0	26.362	-6215.3
33595	241.8	0	0	26.362	-6215.3
33596	241.78	0	0	26.362	-6215.3
33597	241.78	0	0	26.362	-6215.3
33598	241.73	0	0	26.362	-6215.3
33599	241.95	0	0	26.362	-6215.3
33600	241.79	0	0	26.362	-6215.3
33601	241.9	0	0	26.362	-6215.3
33602	241.89	0	0	26.362	-6215.3
33603	241.8	0	0	26.362	-6215.3

33604	241.65	0	0	26.362	-6215.3
33605	241.86	0	0	26.362	-6215.3
33606	241.97	0	0	26.362	-6215.3
33607	241.94	0	0	26.362	-6215.3
33608	241.94	0	0	26.362	-6215.3
33609	241.7	0	0	26.362	-6215.3
33610	241.83	0	0	26.362	-6215.3
33611	242	0	0	26.362	-6215.3
33612	241.89	0	0	26.362	-6215.3
33613	241.97	0	0	26.362	-6215.3
33614	242.02	0	0	26.362	-6215.3
33615	241.88	0	0	26.362	-6215.3
33616	241.98	0	0	26.362	-6215.3
33617	241.91	0	0	26.362	-6215.3
33618	241.88	0	0	26.362	-6215.3
33619	241.81	0	0	26.362	-6215.3
33620	242	0	0	26.362	-6215.3
33621	241.95	0	0	26.362	-6215.3
33622	241.81	0	0	26.362	-6215.3
33623	242.04	0	0	26.362	-6215.3
33624	241.95	0	0	26.362	-6215.3
33625	241.89	0	0	26.362	-6215.3
33626	242.04	0	0	26.362	-6215.3
33627	242.07	0	0	26.362	-6215.3
33628	242.04	0	0	26.362	-6215.3
33629	242.02	0	0	26.362	-6215.3
33630	241.95	0	0	26.362	-6215.3
33631	241.83	0	0	26.362	-6215.3
33632	241.96	0	0	26.362	-6215.3
33633	242.08	0	0	26.362	-6215.3
33634	241.94	0	0	26.362	-6215.3
33635	241.97	0	0	26.362	-6215.3
33636	242.15	0	0	26.362	-6215.3
33637	241.98	0	0	26.362	-6215.3
33638	241.94	0	0	26.362	-6215.3
33639	241.92	0	0	26.362	-6215.3
33640	242.01	0	0	26.362	-6215.3
33641	242.04	0	0	26.362	-6215.3
33642	242.16	0	0	26.362	-6215.3
33643	242.2	0	0	26.362	-6215.3
33644	242.09	0	0	26.362	-6215.3
33645	242.17	0	0	26.362	-6215.3
33646	242.22	0	0	26.362	-6215.3
33647	242.23	0	0	26.362	-6215.3
33648	242.19	0	0	26.362	-6215.3
33649	241.99	0	0	26.362	-6215.3
33650	242.24	0	0	26.362	-6215.3

33651	241.93	0	0	26.362	-6215.3
33652	242.06	0	0	26.362	-6215.3
33653	242.13	0	0	26.362	-6215.3
33654	242.11	0	0	26.362	-6215.3
33655	241.93	0	0	26.362	-6215.3
33656	242.02	0	0	26.362	-6215.3
33657	242.04	0	0	26.362	-6215.3
33658	242.05	0	0	26.362	-6215.3
33659	241.97	0	0	26.362	-6215.3
33660	241.94	0	0	26.362	-6215.3
33661	242.14	0	0	26.362	-6215.3
33662	242.11	0	0	26.362	-6215.3
33663	242.07	0	0	26.362	-6215.3
33664	242.21	0	0	26.362	-6215.3
33665	242.14	0	0	26.362	-6215.3
33666	242	0	0	26.362	-6215.3
33667	242.32	0	0	26.362	-6215.3
33668	242.23	0	0	26.362	-6215.3
33669	242.07	0	0	26.362	-6215.3
33670	242.01	0	0	26.362	-6215.3
33671	241.99	0	0	26.362	-6215.3
33672	242.24	0	0	26.362	-6215.3
33673	242.29	0	0	26.362	-6215.3
33674	242.13	0	0	26.362	-6215.3
33675	242.11	0	0	26.362	-6215.3
33676	242.4	0	0	26.362	-6215.3
33677	242.25	0	0	26.362	-6215.3
33678	242.31	0	0	26.362	-6215.3
33679	242.24	0	0	26.362	-6215.3
33680	242.16	0	0	26.362	-6215.3
33681	242.17	0	0	26.362	-6215.3
33682	242.25	0	0	26.362	-6215.3
33683	242.29	0	0	26.362	-6215.3
33684	242.15	0	0	26.362	-6215.3
33685	242.3	0	0	26.362	-6215.3
33686	242.28	0	0	26.362	-6215.3
33687	242.16	0	0	26.362	-6215.3
33688	242.44	0	0	26.362	-6215.3
33689	242.2	0	0	26.362	-6215.3
33690	242.32	0	0	26.362	-6215.3
33691	242.04	0	0	26.362	-6215.3
33692	242.31	0	0	26.362	-6215.3
33693	242.16	0	0	26.362	-6215.3
33694	242.28	0	0	26.362	-6215.3
33695	242.27	0	0	26.362	-6215.3
33696	242.37	0	0	26.362	-6215.3
33697	242.21	0	0	26.362	-6215.3

33698	242.18	0	0	26.362	-6215.3
33699	242.44	0	0	26.362	-6215.3
33700	242.26	0	0	26.362	-6215.3
33701	242.39	0	0	26.362	-6215.3
33702	242.09	0	0	26.362	-6215.3
33703	242.19	0	0	26.362	-6215.3
33704	242.33	0	0	26.362	-6215.3
33705	242.42	0	0	26.362	-6215.3
33706	242.29	0	0	26.362	-6215.3
33707	242.2	0	0	26.362	-6215.3
33708	242.34	0	0	26.362	-6215.3
33709	242.39	0	0	26.362	-6215.3
33710	242.17	0	0	26.362	-6215.3
33711	242.42	0	0	26.362	-6215.3
33712	242.46	0	0	26.362	-6215.3
33713	242.44	0	0	26.362	-6215.3
33714	242.43	0	0	26.362	-6215.3
33715	242.45	0	0	26.362	-6215.3
33716	242.36	0	0	26.362	-6215.3
33717	242.37	0	0	26.362	-6215.3
33718	242.16	0	0	26.362	-6215.3
33719	242.56	0	0	26.362	-6215.3
33720	242.37	0	0	26.362	-6215.3
33721	242.36	0	0	26.362	-6215.3
33722	242.56	0	0	26.362	-6215.3
33723	242.39	0	0	26.362	-6215.3
33724	242.34	0	0	26.362	-6215.3
33725	242.42	0	0	26.362	-6215.3
33726	242.52	0	0	26.362	-6215.3
33727	242.38	0	0	26.362	-6215.3
33728	242.35	0	0	26.362	-6215.3
33729	242.39	0	0	26.362	-6215.3
33730	242.2	0	0	26.362	-6215.3
33731	242.46	0	0	26.362	-6215.3
33732	242.16	0	0	26.362	-6215.3
33733	242.17	0	0	26.362	-6215.3
33734	242.25	0	0	26.362	-6215.3
33735	242.25	0	0	26.362	-6215.3
33736	242.45	0	0	26.362	-6215.3
33737	242.16	0	0	26.362	-6215.3
33738	242.11	0	0	26.362	-6215.3
33739	242.26	0	0	26.362	-6215.3
33740	242.42	0	0	26.362	-6215.3
33741	242.11	0	0	26.362	-6215.3
33742	242.14	0	0	26.362	-6215.3
33743	242.27	0	0	26.362	-6215.3
33744	242.39	0	0	26.362	-6215.3

33745	242.36	0	0	26.362	-6215.3
33746	242.31	0	0	26.362	-6215.3
33747	242.28	0	0	26.362	-6215.3
33748	242.41	0	0	26.362	-6215.3
33749	242.29	0	0	26.362	-6215.3
33750	242.29	0	0	26.362	-6215.3
33751	242.39	0	0	26.362	-6215.3
33752	242.25	0	0	26.362	-6215.3
33753	242.34	0	0	26.362	-6215.3
33754	242.3	0	0	26.362	-6215.3
33755	242.52	0	0	26.362	-6215.3
33756	242.2	0	0	26.362	-6215.3
33757	242.37	0	0	26.362	-6215.3
33758	242.36	0	0	26.362	-6215.3
33759	242.28	0	0	26.362	-6215.3
33760	242.38	0	0	26.362	-6215.3
33761	242.3	0	0	26.362	-6215.3
33762	242.52	0	0	26.362	-6215.3
33763	242.46	0	0	26.362	-6215.3
33764	242.34	0	0	26.362	-6215.3
33765	242.32	0	0	26.362	-6215.3
33766	242.26	0	0	26.362	-6215.3
33767	242.26	0	0	26.362	-6215.3
33768	242.18	0	0	26.362	-6215.3
33769	242.42	0	0	26.362	-6215.3
33770	242.11	0	0	26.362	-6215.3
33771	242.24	0	0	26.362	-6215.3
33772	242.34	0	0	26.362	-6215.3
33773	242.18	0	0	26.362	-6215.3
33774	242.2	0	0	26.362	-6215.3
33775	242.38	0	0	26.362	-6215.3
33776	242.32	0	0	26.362	-6215.3
33777	242.16	0	0	26.362	-6215.3
33778	242.22	0	0	26.362	-6215.3
33779	242.39	0	0	26.362	-6215.3
33780	242.28	0	0	26.362	-6215.3
33781	242.31	0	0	26.362	-6215.3
33782	242.31	0	0	26.362	-6215.3
33783	242.26	0	0	26.362	-6215.3
33784	241.94	0	0	26.362	-6215.3
33785	241.86	0	0	26.362	-6215.3
33786	242.04	0	0	26.362	-6215.3
33787	242.06	0	0	26.362	-6215.3
33788	241.99	0	0	26.362	-6215.3
33789	241.98	0	0	26.362	-6215.3
33790	242.07	0	0	26.362	-6215.3
33791	242.11	0	0	26.362	-6215.3

33792	242.13	0	0	26.362	-6215.3
33793	241.97	0	0	26.362	-6215.3
33794	241.91	0	0	26.362	-6215.3
33795	242.19	0	0	26.362	-6215.3
33796	242.05	0	0	26.362	-6215.3
33797	242.05	0	0	26.362	-6215.3
33798	242.14	0	0	26.362	-6215.3
33799	242.18	0	0	26.362	-6215.3
33800	242.06	0	0	26.362	-6215.3
33801	242.17	0	0	26.362	-6215.3
33802	242.08	0	0	26.362	-6215.3
33803	242.17	0	0	26.362	-6215.3
33804	242.32	0	0	26.362	-6215.3
33805	242.12	0	0	26.362	-6215.3
33806	242.21	0	0	26.362	-6215.3
33807	242.25	0	0	26.362	-6215.3
33808	242.08	0	0	26.362	-6215.3
33809	242.15	0	0	26.362	-6215.3
33810	242.29	0	0	26.362	-6215.3
33811	242.44	0	0	26.362	-6215.3
33812	242.23	0	0	26.362	-6215.3
33813	242.26	0	0	26.362	-6215.3
33814	242.35	0	0	26.362	-6215.3
33815	242.25	0	0	26.362	-6215.3
33816	242.21	0	0	26.362	-6215.3
33817	242.35	0	0	26.362	-6215.3
33818	242.34	0	0	26.362	-6215.3
33819	242.28	0	0	26.362	-6215.3
33820	242.22	0	0	26.362	-6215.3
33821	242.35	0	0	26.362	-6215.3
33822	242.42	0	0	26.362	-6215.3
33823	242.35	0	0	26.362	-6215.3
33824	242.35	0	0	26.362	-6215.3
33825	242.27	0	0	26.362	-6215.3
33826	242.28	0	0	26.362	-6215.3
33827	242.43	0	0	26.362	-6215.3
33828	242.37	0	0	26.362	-6215.3
33829	242.29	0	0	26.362	-6215.3
33830	242.33	0	0	26.362	-6215.3
33831	242.45	0	0	26.362	-6215.3
33832	242.27	0	0	26.362	-6215.3
33833	242.37	0	0	26.362	-6215.3
33834	242.48	0	0	26.362	-6215.3
33835	242.52	0	0	26.362	-6215.3
33836	242.46	0	0	26.362	-6215.3
33837	242.44	0	0	26.362	-6215.3
33838	242.49	0	0	26.362	-6215.3

33839	242.3	0	0	26.362	-6215.3
33840	242.56	0	0	26.362	-6215.3
33841	242.35	0	0	26.362	-6215.3
33842	242.38	0	0	26.362	-6215.3
33843	242.39	0	0	26.362	-6215.3
33844	242.43	0	0	26.362	-6215.3
33845	242.51	0	0	26.362	-6215.3
33846	242.25	0	0	26.362	-6215.3
33847	242.48	0	0	26.362	-6215.3
33848	242.48	0	0	26.362	-6215.3
33849	242.38	0	0	26.362	-6215.3
33850	242.51	0	0	26.362	-6215.3
33851	242.58	0	0	26.362	-6215.3
33852	242.41	0	0	26.362	-6215.3
33853	242.58	0	0	26.362	-6215.3
33854	242.37	0	0	26.362	-6215.3
33855	242.4	0	0	26.362	-6215.3
33856	242.55	0	0	26.362	-6215.3
33857	242.36	0	0	26.362	-6215.3
33858	242.42	0	0	26.362	-6215.3
33859	242.49	0	0	26.362	-6215.3
33860	242.51	0	0	26.362	-6215.3
33861	242.34	0	0	26.362	-6215.3
33862	242.38	0	0	26.362	-6215.3
33863	242.44	0	0	26.362	-6215.3
33864	242.51	0	0	26.362	-6215.3
33865	242.32	0	0	26.362	-6215.3
33866	242.39	0	0	26.362	-6215.3
33867	242.54	0	0	26.362	-6215.3
33868	242.35	0	0	26.362	-6215.3
33869	242.45	0	0	26.362	-6215.3
33870	242.47	0	0	26.362	-6215.3
33871	242.54	0	0	26.362	-6215.3
33872	242.6	0	0	26.362	-6215.3
33873	242.4	0	0	26.362	-6215.3
33874	242.51	0	0	26.362	-6215.3
33875	242.55	0	0	26.362	-6215.3
33876	242.69	0	0	26.362	-6215.3
33877	242.41	0	0	26.362	-6215.3
33878	242.4	0	0	26.362	-6215.3
33879	242.46	0	0	26.362	-6215.3
33880	242.5	0	0	26.362	-6215.3
33881	242.37	0	0	26.362	-6215.3
33882	242.54	0	0	26.362	-6215.3
33883	242.38	0	0	26.362	-6215.3
33884	242.52	0	0	26.362	-6215.3
33885	242.4	0	0	26.362	-6215.3

33886	242.4	0	0	26.362	-6215.3
33887	242.28	0	0	26.362	-6215.3
33888	242.47	0	0	26.362	-6215.3
33889	242.47	0	0	26.362	-6215.3
33890	242.41	0	0	26.362	-6215.3
33891	242.47	0	0	26.362	-6215.3
33892	242.5	0	0	26.362	-6215.3
33893	242.36	0	0	26.362	-6215.3
33894	242.52	0	0	26.362	-6215.3
33895	242.65	0	0	26.362	-6215.3
33896	242.37	0	0	26.362	-6215.3
33897	242.53	0	0	26.362	-6215.3
33898	242.58	0	0	26.362	-6215.3
33899	241.78	0	0	26.362	-6215.3
33900	242.29	0	0	26.362	-6215.3
33901	242.28	0	0	26.362	-6215.3
33902	242.36	0	0	26.362	-6215.3
33903	242.29	0	0	26.362	-6215.3
33904	242.34	0	0	26.362	-6215.3
33905	242.33	0	0	26.362	-6215.3
33906	242.43	0	0	26.362	-6215.3
33907	242.2	0	0	26.362	-6215.3
33908	242.37	0	0	26.362	-6215.3
33909	242.32	0	0	26.362	-6215.3
33910	242.17	0	0	26.362	-6215.3
33911	242.11	0	0	26.362	-6215.3
33912	242.32	0	0	26.362	-6215.3
33913	242.43	0	0	26.362	-6215.3
33914	242.27	0	0	26.362	-6215.3
33915	242.34	0	0	26.362	-6215.3
33916	242.31	0	0	26.362	-6215.3
33917	242.19	0	0	26.362	-6215.3
33918	242.3	0	0	26.362	-6215.3
33919	242.3	0	0	26.362	-6215.3
33920	242.34	0	0	26.362	-6215.3
33921	242.13	0	0	26.362	-6215.3
33922	242.2	0	0	26.362	-6215.3
33923	242.34	0	0	26.362	-6215.3
33924	242.29	0	0	26.362	-6215.3
33925	242.27	0	0	26.362	-6215.3
33926	242.28	0	0	26.362	-6215.3
33927	242.27	0	0	26.362	-6215.3
33928	242.19	0	0	26.362	-6215.3
33929	242.4	0	0	26.362	-6215.3
33930	242.14	0	0	26.362	-6215.3
33931	242.27	0	0	26.362	-6215.3
33932	242.2	0	0	26.362	-6215.3

33933	242.24	0	0	26.362	-6215.3
33934	242.38	0	0	26.362	-6215.3
33935	242.28	0	0	26.362	-6215.3
33936	242.39	0	0	26.362	-6215.3
33937	242.48	0	0	26.362	-6215.3
33938	242.37	0	0	26.362	-6215.3
33939	242.41	0	0	26.362	-6215.3
33940	242.28	0	0	26.362	-6215.3
33941	242.34	0	0	26.362	-6215.3
33942	242.47	0	0	26.362	-6215.3
33943	242.32	0	0	26.362	-6215.3
33944	242.35	0	0	26.362	-6215.3
33945	242.39	0	0	26.362	-6215.3
33946	242.45	0	0	26.362	-6215.3
33947	242.37	0	0	26.362	-6215.3
33948	242.18	0	0	26.362	-6215.3
33949	242.27	0	0	26.362	-6215.3
33950	242.17	0	0	26.362	-6215.3
33951	242.22	0	0	26.362	-6215.3
33952	242.58	0	0	26.362	-6215.3
33953	242.6	0	0	26.362	-6215.3
33954	242.14	0	0	26.362	-6215.3
33955	242.42	0	0	26.362	-6215.3
33956	242.37	0	0	26.362	-6215.3
33957	242.47	0	0	26.362	-6215.3
33958	242.48	0	0	26.362	-6215.3
33959	242.61	0	0	26.362	-6215.3
33960	242.33	0	0	26.362	-6215.3
33961	242.36	0	0	26.362	-6215.3
33962	242.34	0	0	26.362	-6215.3
33963	242.35	0	0	26.362	-6215.3
33964	242.42	0	0	26.362	-6215.3
33965	242.46	0	0	26.362	-6215.3
33966	242.24	0	0	26.362	-6215.3
33967	242.31	0	0	26.362	-6215.3
33968	242.5	0	0	26.362	-6215.3
33969	242.33	0	0	26.362	-6215.3
33970	242.27	0	0	26.362	-6215.3
33971	242.25	0	0	26.362	-6215.3
33972	242.3	0	0	26.362	-6215.3
33973	242.38	0	0	26.362	-6215.3
33974	242.35	0	0	26.362	-6215.3
33975	242.21	0	0	26.362	-6215.3
33976	242.42	0	0	26.362	-6215.3
33977	242.22	0	0	26.362	-6215.3
33978	242.2	0	0	26.362	-6215.3
33979	242.27	0	0	26.362	-6215.3

33980	242.24	0	0	26.362	-6215.3
33981	242.3	0	0	26.362	-6215.3
33982	242.15	0	0	26.362	-6215.3
33983	242.21	0	0	26.362	-6215.3
33984	242	0	0	26.362	-6215.3
33985	242.36	0	0	26.362	-6215.3
33986	242.15	0	0	26.362	-6215.3
33987	242.23	0	0	26.362	-6215.3
33988	242.17	0	0	26.362	-6215.3
33989	242.13	0	0	26.362	-6215.3
33990	242.18	0	0	26.362	-6215.3
33991	242.1	0	0	26.362	-6215.3
33992	242.38	0	0	26.362	-6215.3
33993	242.24	0	0	26.362	-6215.3
33994	242.23	0	0	26.362	-6215.3
33995	242.44	0	0	26.362	-6215.3
33996	242.36	0	0	26.362	-6215.3
33997	242.42	0	0	26.362	-6215.3
33998	242.44	0	0	26.362	-6215.3
33999	242.43	0	0	26.362	-6215.3
34000	242.47	0	0	26.362	-6215.3
34001	242.56	0	0	26.362	-6215.3
34002	242.52	0	0	26.362	-6215.3
34003	242.51	0	0	26.362	-6215.3
34004	242.5	0	0	26.362	-6215.3
34005	242.46	0	0	26.362	-6215.3
34006	242.48	0	0	26.362	-6215.3
34007	242.52	0	0	26.362	-6215.3
34008	242.5	0	0	26.362	-6215.3
34009	242.57	0	0	26.362	-6215.3
34010	242.57	0	0	26.362	-6215.3
34011	242.59	0	0	26.362	-6215.3
34012	242.6	0	0	26.362	-6215.3
34013	242.56	0	0	26.362	-6215.3
34014	242.56	0	0	26.362	-6215.3
34015	242.56	0	0	26.362	-6215.3
34016	242.63	0	0	26.362	-6215.3
34017	242.57	0	0	26.362	-6215.3
34018	242.58	0	0	26.362	-6215.3
34019	242.57	0	0	26.362	-6215.3
34020	242.52	0	0	26.362	-6215.3
34021	242.56	0	0	26.362	-6215.3
34022	242.55	0	0	26.362	-6215.3
34023	242.56	0	0	26.362	-6215.3
34024	242.52	0	0	26.362	-6215.3
34025	242.6	0	0	26.362	-6215.3
34026	242.55	0	0	26.362	-6215.3

34027	242.53	0	0	26.362	-6215.3
34028	242.52	0	0	26.362	-6215.3
34029	242.54	0	0	26.362	-6215.3
34030	242.54	0	0	26.362	-6215.3
34031	242.54	0	0	26.362	-6215.3
34032	242.5	0	0	26.362	-6215.3
34033	242.46	0	0	26.362	-6215.3
34034	242.55	0	0	26.362	-6215.3
34035	242.5	0	0	26.362	-6215.3
34036	242.49	0	0	26.362	-6215.3
34037	242.56	0	0	26.362	-6215.3
34038	242.56	0	0	26.362	-6215.3
34039	242.59	0	0	26.362	-6215.3
34040	242.52	0	0	26.362	-6215.3
34041	242.57	0	0	26.362	-6215.3
34042	242.58	0	0	26.362	-6215.3
34043	242.53	0	0	26.362	-6215.3
34044	242.58	0	0	26.362	-6215.3
34045	242.58	0	0	26.362	-6215.3
34046	242.61	0	0	26.362	-6215.3
34047	242.63	0	0	26.362	-6215.3
34048	242.64	0	0	26.362	-6215.3
34049	242.6	0	0	26.362	-6215.3
34050	242.64	0	0	26.362	-6215.3
34051	242.56	0	0	26.362	-6215.3
34052	242.54	0	0	26.362	-6215.3
34053	242.61	0	0	26.362	-6215.3
34054	241.92	0	0	26.362	-6215.3
34055	242.45	0	0	26.362	-6215.3
34056	242.39	0	0	26.362	-6215.3
34057	242.44	0	0	26.362	-6215.3
34058	242.47	0	0	26.362	-6215.3
34059	242.55	0	0	26.362	-6215.3
34060	242.47	0	0	26.362	-6215.3
34061	242.46	0	0	26.362	-6215.3
34062	242.45	0	0	26.362	-6215.3
34063	242.54	0	0	26.362	-6215.3
34064	242.47	0	0	26.362	-6215.3
34065	242.43	0	0	26.362	-6215.3
34066	242.49	0	0	26.362	-6215.3
34067	242.41	0	0	26.362	-6215.3
34068	242.44	0	0	26.362	-6215.3
34069	242.53	0	0	26.362	-6215.3
34070	242.49	0	0	26.362	-6215.3
34071	242.53	0	0	26.362	-6215.3
34072	242.51	0	0	26.362	-6215.3
34073	242.57	0	0	26.362	-6215.3

34074	242.5	0	0	26.362	-6215.3
34075	242.51	0	0	26.362	-6215.3
34076	242.51	0	0	26.362	-6215.3
34077	242.59	0	0	26.362	-6215.3
34078	242.54	0	0	26.362	-6215.3
34079	242.49	0	0	26.362	-6215.3
34080	242.49	0	0	26.362	-6215.3
34081	242.52	0	0	26.362	-6215.3
34082	242.47	0	0	26.362	-6215.3
34083	242.42	0	0	26.362	-6215.3
34084	242.47	0	0	26.362	-6215.3
34085	242.4	0	0	26.362	-6215.3
34086	242.48	0	0	26.362	-6215.3
34087	242.43	0	0	26.362	-6215.3
34088	242.47	0	0	26.362	-6215.3
34089	242.46	0	0	26.362	-6215.3
34090	242.44	0	0	26.362	-6215.3
34091	242.44	0	0	26.362	-6215.3
34092	242.41	0	0	26.362	-6215.3
34093	242.46	0	0	26.362	-6215.3
34094	242.39	0	0	26.362	-6215.3
34095	242.42	0	0	26.362	-6215.3
34096	242.42	0	0	26.362	-6215.3
34097	242.45	0	0	26.362	-6215.3
34098	242.43	0	0	26.362	-6215.3
34099	242.44	0	0	26.362	-6215.3
34100	242.47	0	0	26.362	-6215.3
34101	242.42	0	0	26.362	-6215.3
34102	242.47	0	0	26.362	-6215.3
34103	242.36	0	0	26.362	-6215.3
34104	242.27	0	0	26.362	-6215.3
34105	242.23	0	0	26.362	-6215.3
34106	242.37	0	0	26.362	-6215.3
34107	242.34	0	0	26.362	-6215.3
34108	242.3	0	0	26.362	-6215.3
34109	242.36	0	0	26.362	-6215.3
34110	242.42	0	0	26.362	-6215.3
34111	242.45	0	0	26.362	-6215.3
34112	242.44	0	0	26.362	-6215.3
34113	242.42	0	0	26.362	-6215.3
34114	242.44	0	0	26.362	-6215.3
34115	242.37	0	0	26.362	-6215.3
34116	242.31	0	0	26.362	-6215.3
34117	242.39	0	0	26.362	-6215.3
34118	242.33	0	0	26.362	-6215.3
34119	242.3	0	0	26.362	-6215.3
34120	242.36	0	0	26.362	-6215.3

34121	242.38	0	0	26.362	-6215.3
34122	242.29	0	0	26.362	-6215.3
34123	242.3	0	0	26.362	-6215.3
34124	242.23	0	0	26.362	-6215.3
34125	242.31	0	0	26.362	-6215.3
34126	242.23	0	0	26.362	-6215.3
34127	242.25	0	0	26.362	-6215.3
34128	242.16	0	0	26.362	-6215.3
34129	242.19	0	0	26.362	-6215.3
34130	242.26	0	0	26.362	-6215.3
34131	242.21	0	0	26.362	-6215.3
34132	242.28	0	0	26.362	-6215.3
34133	242.27	0	0	26.362	-6215.3
34134	242.22	0	0	26.362	-6215.3
34135	242.26	0	0	26.362	-6215.3
34136	242.18	0	0	26.362	-6215.3
34137	242.17	0	0	26.362	-6215.3
34138	242.12	0	0	26.362	-6215.3
34139	242.12	0	0	26.362	-6215.3
34140	242.11	0	0	26.362	-6215.3
34141	242.23	0	0	26.362	-6215.3
34142	242.22	0	0	26.362	-6215.3
34143	242.16	0	0	26.362	-6215.3
34144	242.14	0	0	26.362	-6215.3
34145	242.19	0	0	26.362	-6215.3
34146	242.19	0	0	26.362	-6215.3
34147	242.17	0	0	26.362	-6215.3
34148	242.13	0	0	26.362	-6215.3
34149	242.17	0	0	26.362	-6215.3
34150	242.12	0	0	26.362	-6215.3
34151	241.97	0	0	26.362	-6215.3
34152	242	0	0	26.362	-6215.3
34153	242.08	0	0	26.362	-6215.3
34154	241.98	0	0	26.362	-6215.3
34155	242.1	0	0	26.362	-6215.3
34156	241.97	0	0	26.362	-6215.3
34157	241.96	0	0	26.362	-6215.3
34158	241.98	0	0	26.362	-6215.3
34159	241.92	0	0	26.362	-6215.3
34160	241.96	0	0	26.362	-6215.3
34161	241.97	0	0	26.362	-6215.3
34162	241.96	0	0	26.362	-6215.3
34163	241.91	0	0	26.362	-6215.3
34164	242.12	0	0	26.362	-6215.3
34165	242.11	0	0	26.362	-6215.3
34166	242.12	0	0	26.362	-6215.3
34167	242.1	0	0	26.362	-6215.3

34168	241.98	0	0	26.362	-6215.3
34169	242.03	0	0	26.362	-6215.3
34170	242.11	0	0	26.362	-6215.3
34171	241.97	0	0	26.362	-6215.3
34172	242.04	0	0	26.362	-6215.3
34173	242.05	0	0	26.362	-6215.3
34174	241.98	0	0	26.362	-6215.3
34175	242	0	0	26.362	-6215.3
34176	242.15	0	0	26.362	-6215.3
34177	242.17	0	0	26.362	-6215.3
34178	242.2	0	0	26.362	-6215.3
34179	242.11	0	0	26.362	-6215.3
34180	241.89	0	0	26.362	-6215.3
34181	242.09	0	0	26.362	-6215.3
34182	241.97	0	0	26.362	-6215.3
34183	242.13	0	0	26.362	-6215.3
34184	242.13	0	0	26.362	-6215.3
34185	242.09	0	0	26.362	-6215.3
34186	241.8	0	0	26.362	-6215.3
34187	242.04	0	0	26.362	-6215.3
34188	242.02	0	0	26.362	-6215.3
34189	241.98	0	0	26.362	-6215.3
34190	242.02	0	0	26.362	-6215.3
34191	242.04	0	0	26.362	-6215.3
34192	242.07	0	0	26.362	-6215.3
34193	242.15	0	0	26.362	-6215.3
34194	242.16	0	0	26.362	-6215.3
34195	242.21	0	0	26.362	-6215.3
34196	242.23	0	0	26.362	-6215.3
34197	242.14	0	0	26.362	-6215.3
34198	242.22	0	0	26.362	-6215.3
34199	241.98	0	0	26.362	-6215.3
34200	242.35	0	0	26.362	-6215.3
34201	242.09	0	0	26.362	-6215.3
34202	242.29	0	0	26.362	-6215.3
34203	242.18	0	0	26.362	-6215.3
34204	242.27	0	0	26.362	-6215.3
34205	242.17	0	0	26.362	-6215.3
34206	242.03	0	0	26.362	-6215.3
34207	242.28	0	0	26.362	-6215.3
34208	242.17	0	0	26.362	-6215.3
34209	242.05	0	0	26.362	-6215.3
34210	242.31	0	0	26.362	-6215.3
34211	242.18	0	0	26.362	-6215.3
34212	242.26	0	0	26.362	-6215.3
34213	242.15	0	0	26.362	-6215.3
34214	242.33	0	0	26.362	-6215.3

34215	242.3	0	0	26.362	-6215.3
34216	242.18	0	0	26.362	-6215.3
34217	242.19	0	0	26.362	-6215.3
34218	242.23	0	0	26.362	-6215.3
34219	242.34	0	0	26.362	-6215.3
34220	242.26	0	0	26.362	-6215.3
34221	242.28	0	0	26.362	-6215.3
34222	242.27	0	0	26.362	-6215.3
34223	242.21	0	0	26.362	-6215.3
34224	242.31	0	0	26.362	-6215.3
34225	242.21	0	0	26.362	-6215.3
34226	242.41	0	0	26.362	-6215.3
34227	242.33	0	0	26.362	-6215.3
34228	242.39	0	0	26.362	-6215.3
34229	242.38	0	0	26.362	-6215.3
34230	242.12	0	0	26.362	-6215.3
34231	242.28	0	0	26.362	-6215.3
34232	242.17	0	0	26.362	-6215.3
34233	242.14	0	0	26.362	-6215.3
34234	242.23	0	0	26.362	-6215.3
34235	242.16	0	0	26.362	-6215.3
34236	242.28	0	0	26.362	-6215.3
34237	242.2	0	0	26.362	-6215.3
34238	242.25	0	0	26.362	-6215.3
34239	242.24	0	0	26.362	-6215.3
34240	242.1	0	0	26.362	-6215.3
34241	242.11	0	0	26.362	-6215.3
34242	242.29	0	0	26.362	-6215.3
34243	242.21	0	0	26.362	-6215.3
34244	242.33	0	0	26.362	-6215.3
34245	242.24	0	0	26.362	-6215.3
34246	242.32	0	0	26.362	-6215.3
34247	242.37	0	0	26.362	-6215.3
34248	242.28	0	0	26.362	-6215.3
34249	242.33	0	0	26.362	-6215.3
34250	242.3	0	0	26.362	-6215.3
34251	242.39	0	0	26.362	-6215.3
34252	242.17	0	0	26.362	-6215.3
34253	242.13	0	0	26.362	-6215.3
34254	242.42	0	0	26.362	-6215.3
34255	242.4	0	0	26.362	-6215.3
34256	242.08	0	0	26.362	-6215.3
34257	242.15	0	0	26.362	-6215.3
34258	242.37	0	0	26.362	-6215.3
34259	242.4	0	0	26.362	-6215.3
34260	242.24	0	0	26.362	-6215.3
34261	242.16	0	0	26.362	-6215.3

34262	242.28	0	0	26.362	-6215.3
34263	242.1	0	0	26.362	-6215.3
34264	242.2	0	0	26.362	-6215.3
34265	242.22	0	0	26.362	-6215.3
34266	242.19	0	0	26.362	-6215.3
34267	242.32	0	0	26.362	-6215.3
34268	242.26	0	0	26.362	-6215.3
34269	242.28	0	0	26.362	-6215.3
34270	242.17	0	0	26.362	-6215.3
34271	242.08	0	0	26.362	-6215.3
34272	242.06	0	0	26.362	-6215.3
34273	242	0	0	26.362	-6215.3
34274	242.22	0	0	26.362	-6215.3
34275	242.32	0	0	26.362	-6215.3
34276	241.98	0	0	26.362	-6215.3
34277	242.08	0	0	26.362	-6215.3
34278	242.17	0	0	26.362	-6215.3
34279	242.19	0	0	26.362	-6215.3
34280	242.23	0	0	26.362	-6215.3
34281	242.22	0	0	26.362	-6215.3
34282	242.04	0	0	26.362	-6215.3
34283	241.93	0	0	26.362	-6215.3
34284	242.12	0	0	26.362	-6215.3
34285	242.02	0	0	26.362	-6215.3
34286	241.92	0	0	26.362	-6215.3
34287	242.05	0	0	26.362	-6215.3
34288	241.93	0	0	26.362	-6215.3
34289	242.09	0	0	26.362	-6215.3
34290	241.97	0	0	26.362	-6215.3
34291	241.96	0	0	26.362	-6215.3
34292	242.05	0	0	26.362	-6215.3
34293	242.03	0	0	26.362	-6215.3
34294	242.01	0	0	26.362	-6215.3
34295	241.99	0	0	26.362	-6215.3
34296	242.04	0	0	26.362	-6215.3
34297	241.89	0	0	26.362	-6215.3
34298	241.79	0	0	26.362	-6215.3
34299	242	0	0	26.362	-6215.3
34300	241.98	0	0	26.362	-6215.3
34301	241.84	0	0	26.362	-6215.3
34302	241.81	0	0	26.362	-6215.3
34303	241.95	0	0	26.362	-6215.3
34304	241.87	0	0	26.362	-6215.3
34305	241.92	0	0	26.362	-6215.3
34306	241.86	0	0	26.362	-6215.3
34307	241.8	0	0	26.362	-6215.3
34308	241.92	0	0	26.362	-6215.3

34309	241.93	0	0	26.362	-6215.3
34310	241.94	0	0	26.362	-6215.3
34311	241.96	0	0	26.362	-6215.3
34312	241.88	0	0	26.362	-6215.3
34313	241.9	0	0	26.362	-6215.3
34314	241.93	0	0	26.362	-6215.3
34315	241.98	0	0	26.362	-6215.3
34316	242.05	0	0	26.362	-6215.3
34317	242.07	0	0	26.362	-6215.3
34318	242.04	0	0	26.362	-6215.3
34319	241.36	0	0	26.362	-6215.3
34320	241.31	0	0	26.362	-6215.3
34321	241.81	0	0	26.362	-6215.3
34322	241.85	0	0	26.362	-6215.3
34323	241.81	0	0	26.362	-6215.3
34324	241.89	0	0	26.362	-6215.3
34325	241.92	0	0	26.362	-6215.3
34326	241.7	0	0	26.362	-6215.3
34327	241.68	0	0	26.362	-6215.3
34328	241.77	0	0	26.362	-6215.3
34329	241.93	0	0	26.362	-6215.3
34330	241.93	0	0	26.362	-6215.3
34331	241.98	0	0	26.362	-6215.3
34332	241.74	0	0	26.362	-6215.3
34333	241.85	0	0	26.362	-6215.3
34334	241.9	0	0	26.362	-6215.3
34335	242.05	0	0	26.362	-6215.3
34336	242.05	0	0	26.362	-6215.3
34337	242.07	0	0	26.362	-6215.3
34338	242.19	0	0	26.362	-6215.3
34339	242.18	0	0	26.362	-6215.3
34340	242.14	0	0	26.362	-6215.3
34341	242.16	0	0	26.362	-6215.3
34342	242.13	0	0	26.362	-6215.3
34343	242.06	0	0	26.362	-6215.3
34344	241.71	0	0	26.362	-6215.3
34345	241.71	0	0	26.362	-6215.3
34346	241.76	0	0	26.362	-6215.3
34347	241.82	0	0	26.362	-6215.3
34348	241.88	0	0	26.362	-6215.3
34349	242.1	0	0	26.362	-6215.3
34350	242.21	0	0	26.362	-6215.3
34351	242	0	0	26.362	-6215.3
34352	242.14	0	0	26.362	-6215.3
34353	242.03	0	0	26.362	-6215.3
34354	242.29	0	0	26.362	-6215.3
34355	242.32	0	0	26.362	-6215.3

34356	241.92	0	0	26.362	-6215.3
34357	241.97	0	0	26.362	-6215.3
34358	241.91	0	0	26.362	-6215.3
34359	241.99	0	0	26.362	-6215.3
34360	241.84	0	0	26.362	-6215.3
34361	241.94	0	0	26.362	-6215.3
34362	242.31	0	0	26.362	-6215.3
34363	241.99	0	0	26.362	-6215.3
34364	241.87	0	0	26.362	-6215.3
34365	242.06	0	0	26.362	-6215.3
34366	242.07	0	0	26.362	-6215.3
34367	242.02	0	0	26.362	-6215.3
34368	242.15	0	0	26.362	-6215.3
34369	242.03	0	0	26.362	-6215.3
34370	241.99	0	0	26.362	-6215.3
34371	242.23	0	0	26.362	-6215.3
34372	242.17	0	0	26.362	-6215.3
34373	242.27	0	0	26.362	-6215.3
34374	242.31	0	0	26.362	-6215.3
34375	242.22	0	0	26.362	-6215.3
34376	242.27	0	0	26.362	-6215.3
34377	242.08	0	0	26.362	-6215.3
34378	242.19	0	0	26.362	-6215.3
34379	242.21	0	0	26.362	-6215.3
34380	242.13	0	0	26.362	-6215.3
34381	242.19	0	0	26.362	-6215.3
34382	242.12	0	0	26.362	-6215.3
34383	242.13	0	0	26.362	-6215.3
34384	242.21	0	0	26.362	-6215.3
34385	242.26	0	0	26.362	-6215.3
34386	242.14	0	0	26.362	-6215.3
34387	242.26	0	0	26.362	-6215.3
34388	242.08	0	0	26.362	-6215.3
34389	242.04	0	0	26.362	-6215.3
34390	242.17	0	0	26.362	-6215.3
34391	242.27	0	0	26.362	-6215.3
34392	242.25	0	0	26.362	-6215.3
34393	242.3	0	0	26.362	-6215.3
34394	242.35	0	0	26.362	-6215.3
34395	242.35	0	0	26.362	-6215.3
34396	242.33	0	0	26.362	-6215.3
34397	242.27	0	0	26.362	-6215.3
34398	242.32	0	0	26.362	-6215.3
34399	242.3	0	0	26.362	-6215.3
34400	242.25	0	0	26.362	-6215.3
34401	241.99	0	0	26.362	-6215.3
34402	242.06	0	0	26.362	-6215.3

34403	242.15	0	0	26.362	-6215.3
34404	242.38	0	0	26.362	-6215.3
34405	242.4	0	0	26.362	-6215.3
34406	242.21	0	0	26.362	-6215.3
34407	242.25	0	0	26.362	-6215.3
34408	242.14	0	0	26.362	-6215.3
34409	242.2	0	0	26.362	-6215.3
34410	242.3	0	0	26.362	-6215.3
34411	242.27	0	0	26.362	-6215.3
34412	242.28	0	0	26.362	-6215.3
34413	242.4	0	0	26.362	-6215.3
34414	242.31	0	0	26.362	-6215.3
34415	242.34	0	0	26.362	-6215.3
34416	242.32	0	0	26.362	-6215.3
34417	242.26	0	0	26.362	-6215.3
34418	242.31	0	0	26.362	-6215.3
34419	242.29	0	0	26.362	-6215.3
34420	242.1	0	0	26.362	-6215.3
34421	242.3	0	0	26.362	-6215.3
34422	242.19	0	0	26.362	-6215.3
34423	242.16	0	0	26.362	-6215.3
34424	242.21	0	0	26.362	-6215.3
34425	242.21	0	0	26.362	-6215.3
34426	242.14	0	0	26.362	-6215.3
34427	242.16	0	0	26.362	-6215.3
34428	242.15	0	0	26.362	-6215.3
34429	242.1	0	0	26.362	-6215.3
34430	242.05	0	0	26.362	-6215.3
34431	242.09	0	0	26.362	-6215.3
34432	242.09	0	0	26.362	-6215.3
34433	242.03	0	0	26.362	-6215.3
34434	242.1	0	0	26.362	-6215.3
34435	242.13	0	0	26.362	-6215.3
34436	242.28	0	0	26.362	-6215.3
34437	241.93	0	0	26.362	-6215.3
34438	242.13	0	0	26.362	-6215.3
34439	242.15	0	0	26.362	-6215.3
34440	242.2	0	0	26.362	-6215.3
34441	242.41	0	0	26.362	-6215.3
34442	241.96	0	0	26.362	-6215.3
34443	242.05	0	0	26.362	-6215.3
34444	242.27	0	0	26.362	-6215.3
34445	242.08	0	0	26.362	-6215.3
34446	242.21	0	0	26.362	-6215.3
34447	242.01	0	0	26.362	-6215.3
34448	242.09	0	0	26.362	-6215.3
34449	242.4	0	0	26.362	-6215.3

34450	242.37	0	0	26.362	-6215.3
34451	242.06	0	0	26.362	-6215.3
34452	242.32	0	0	26.362	-6215.3
34453	242.04	0	0	26.362	-6215.3
34454	242.45	0	0	26.362	-6215.3
34455	242.19	0	0	26.362	-6215.3
34456	242.25	0	0	26.362	-6215.3
34457	242.34	0	0	26.362	-6215.3
34458	242.32	0	0	26.362	-6215.3
34459	242.15	0	0	26.362	-6215.3
34460	242.25	0	0	26.362	-6215.3
34461	242.26	0	0	26.362	-6215.3
34462	242.22	0	0	26.362	-6215.3
34463	242.19	0	0	26.362	-6215.3
34464	242.22	0	0	26.362	-6215.3
34465	242.3	0	0	26.362	-6215.3
34466	242.21	0	0	26.362	-6215.3
34467	242.22	0	0	26.362	-6215.3
34468	242.16	0	0	26.362	-6215.3
34469	242.17	0	0	26.362	-6215.3
34470	242.24	0	0	26.362	-6215.3
34471	242.31	0	0	26.362	-6215.3
34472	242.27	0	0	26.362	-6215.3
34473	242.29	0	0	26.362	-6215.3
34474	242.37	0	0	26.362	-6215.3
34475	242.21	0	0	26.362	-6215.3
34476	242.24	0	0	26.362	-6215.3
34477	242.35	0	0	26.362	-6215.3
34478	242.35	0	0	26.362	-6215.3
34479	242.34	0	0	26.362	-6215.3
34480	242.43	0	0	26.362	-6215.3
34481	242.25	0	0	26.362	-6215.3
34482	242.32	0	0	26.362	-6215.3
34483	242.02	0	0	26.362	-6215.3
34484	242.21	0	0	26.362	-6215.3
34485	242.32	0	0	26.362	-6215.3
34486	242.32	0	0	26.362	-6215.3
34487	242.11	0	0	26.362	-6215.3
34488	242.31	0	0	26.362	-6215.3
34489	242.26	0	0	26.362	-6215.3
34490	242.23	0	0	26.362	-6215.3
34491	242.15	0	0	26.362	-6215.3
34492	242.27	0	0	26.362	-6215.3
34493	242.3	0	0	26.362	-6215.3
34494	242.28	0	0	26.362	-6215.3
34495	242.14	0	0	26.362	-6215.3
34496	242.27	0	0	26.362	-6215.3

34497	242.28	0	0	26.362	-6215.3
34498	242.29	0	0	26.362	-6215.3
34499	242.28	0	0	26.362	-6215.3
34500	242.37	0	0	26.362	-6215.3
34501	242.39	0	0	26.362	-6215.3
34502	242.41	0	0	26.362	-6215.3
34503	242.37	0	0	26.362	-6215.3
34504	242.47	0	0	26.362	-6215.3
34505	242.24	0	0	26.362	-6215.3
34506	242.36	0	0	26.362	-6215.3
34507	242.43	0	0	26.362	-6215.3
34508	242.44	0	0	26.362	-6215.3
34509	242.41	0	0	26.362	-6215.3
34510	242.38	0	0	26.362	-6215.3
34511	242.22	0	0	26.362	-6215.3
34512	242.28	0	0	26.362	-6215.3
34513	242.29	0	0	26.362	-6215.3
34514	242.3	0	0	26.362	-6215.3
34515	242.19	0	0	26.362	-6215.3
34516	242.33	0	0	26.362	-6215.3
34517	242.28	0	0	26.362	-6215.3
34518	242.2	0	0	26.362	-6215.3
34519	242.46	0	0	26.362	-6215.3
34520	242.53	0	0	26.362	-6215.3
34521	242.43	0	0	26.362	-6215.3
34522	242.38	0	0	26.362	-6215.3
34523	242.32	0	0	26.362	-6215.3
34524	242.36	0	0	26.362	-6215.3
34525	242.44	0	0	26.362	-6215.3
34526	242.45	0	0	26.362	-6215.3
34527	242.4	0	0	26.362	-6215.3
34528	242.4	0	0	26.362	-6215.3
34529	242.22	0	0	26.362	-6215.3
34530	242.32	0	0	26.362	-6215.3
34531	242.1	0	0	26.362	-6215.3
34532	242.29	0	0	26.362	-6215.3
34533	242.37	0	0	26.362	-6215.3
34534	242.09	0	0	26.362	-6215.3
34535	242.11	0	0	26.362	-6215.3
34536	242.16	0	0	26.362	-6215.3
34537	241.93	0	0	26.362	-6215.3
34538	242.14	0	0	26.362	-6215.3
34539	242.09	0	0	26.362	-6215.3
34540	242.53	0	0	26.362	-6215.3
34541	242.53	0	0	26.362	-6215.3
34542	242.35	0	0	26.362	-6215.3
34543	242.43	0	0	26.362	-6215.3

34544	242.49	0	0	26.362	-6215.3
34545	242.45	0	0	26.362	-6215.3
34546	242.45	0	0	26.362	-6215.3
34547	242.28	0	0	26.362	-6215.3
34548	242.26	0	0	26.362	-6215.3
34549	242.41	0	0	26.362	-6215.3
34550	242.35	0	0	26.362	-6215.3
34551	242.33	0	0	26.362	-6215.3
34552	242.33	0	0	26.362	-6215.3
34553	242.32	0	0	26.362	-6215.3
34554	242.29	0	0	26.362	-6215.3
34555	242.28	0	0	26.362	-6215.3
34556	242.19	0	0	26.362	-6215.3
34557	242.14	0	0	26.362	-6215.3
34558	242.26	0	0	26.362	-6215.3
34559	242.25	0	0	26.362	-6215.3
34560	242.26	0	0	26.362	-6215.3
34561	242.3	0	0	26.362	-6215.3
34562	242.22	0	0	26.362	-6215.3
34563	242.39	0	0	26.362	-6215.3
34564	242.29	0	0	26.362	-6215.3
34565	242.35	0	0	26.362	-6215.3
34566	242.28	0	0	26.362	-6215.3
34567	242.29	0	0	26.362	-6215.3
34568	242.35	0	0	26.362	-6215.3
34569	242.3	0	0	26.362	-6215.3
34570	242.33	0	0	26.362	-6215.3
34571	242.28	0	0	26.362	-6215.3
34572	242.3	0	0	26.362	-6215.3
34573	242.37	0	0	26.362	-6215.3
34574	242.22	0	0	26.362	-6215.3
34575	242.24	0	0	26.362	-6215.3
34576	242.11	0	0	26.362	-6215.3
34577	242.35	0	0	26.362	-6215.3
34578	242.25	0	0	26.362	-6215.3
34579	242.28	0	0	26.362	-6215.3
34580	242.31	0	0	26.362	-6215.3
34581	242.26	0	0	26.362	-6215.3
34582	242.32	0	0	26.362	-6215.3
34583	242.23	0	0	26.362	-6215.3
34584	242.32	0	0	26.362	-6215.3
34585	242.27	0	0	26.362	-6215.3
34586	242.35	0	0	26.362	-6215.3
34587	242.34	0	0	26.362	-6215.3
34588	242.23	0	0	26.362	-6215.3
34589	242.27	0	0	26.362	-6215.3
34590	242.28	0	0	26.362	-6215.3

34591	242.26	0	0	26.362	-6215.3
34592	242.22	0	0	26.362	-6215.3
34593	242.48	0	0	26.362	-6215.3
34594	242.33	0	0	26.362	-6215.3
34595	242.28	0	0	26.362	-6215.3
34596	242.34	0	0	26.362	-6215.3
34597	242.22	0	0	26.362	-6215.3
34598	242.3	0	0	26.362	-6215.3
34599	242.18	0	0	26.362	-6215.3
34600	242.16	0	0	26.362	-6215.3
34601	242.15	0	0	26.362	-6215.3
34602	242.23	0	0	26.362	-6215.3
34603	242.49	0	0	26.362	-6215.3
34604	242.39	0	0	26.362	-6215.3
34605	242.37	0	0	26.362	-6215.3
34606	242.48	0	0	26.362	-6215.3
34607	242.39	0	0	26.362	-6215.3
34608	242.48	0	0	26.362	-6215.3
34609	242.49	0	0	26.362	-6215.3
34610	242.48	0	0	26.362	-6215.3
34611	242.47	0	0	26.362	-6215.3
34612	242.47	0	0	26.362	-6215.3
34613	242.43	0	0	26.362	-6215.3
34614	242.45	0	0	26.362	-6215.3
34615	242.48	0	0	26.362	-6215.3
34616	242.5	0	0	26.362	-6215.3
34617	242.46	0	0	26.362	-6215.3
34618	242.4	0	0	26.362	-6215.3
34619	242.55	0	0	26.362	-6215.3
34620	242.51	0	0	26.362	-6215.3
34621	242.64	0	0	26.362	-6215.3
34622	242.54	0	0	26.362	-6215.3
34623	242.55	0	0	26.362	-6215.3
34624	242.47	0	0	26.362	-6215.3
34625	242.51	0	0	26.362	-6215.3
34626	242.55	0	0	26.362	-6215.3
34627	242.54	0	0	26.362	-6215.3
34628	242.48	0	0	26.362	-6215.3
34629	242.39	0	0	26.362	-6215.3
34630	242.46	0	0	26.362	-6215.3
34631	242.45	0	0	26.362	-6215.3
34632	242.43	0	0	26.362	-6215.3
34633	242.37	0	0	26.362	-6215.3
34634	242.34	0	0	26.362	-6215.3
34635	242.27	0	0	26.362	-6215.3
34636	242.25	0	0	26.362	-6215.3
34637	242.2	0	0	26.362	-6215.3

34638	242.25	0	0	26.362	-6215.3
34639	242.19	0	0	26.362	-6215.3
34640	242.21	0	0	26.362	-6215.3
34641	242.25	0	0	26.362	-6215.3
34642	242.08	0	0	26.362	-6215.3
34643	242.23	0	0	26.362	-6215.3
34644	242.16	0	0	26.362	-6215.3
34645	242.2	0	0	26.362	-6215.3
34646	242.28	0	0	26.362	-6215.3
34647	242.3	0	0	26.362	-6215.3
34648	242.26	0	0	26.362	-6215.3
34649	242.17	0	0	26.362	-6215.3
34650	242.13	0	0	26.362	-6215.3
34651	242.1	0	0	26.362	-6215.3
34652	242.23	0	0	26.362	-6215.3
34653	242.24	0	0	26.362	-6215.3
34654	242.06	0	0	26.362	-6215.3
34655	242.19	0	0	26.362	-6215.3
34656	242.1	0	0	26.362	-6215.3
34657	242.15	0	0	26.362	-6215.3
34658	242.12	0	0	26.362	-6215.3
34659	242.2	0	0	26.362	-6215.3
34660	242.33	0	0	26.362	-6215.3
34661	242.28	0	0	26.362	-6215.3
34662	242.32	0	0	26.362	-6215.3
34663	242.43	0	0	26.362	-6215.3
34664	242.4	0	0	26.362	-6215.3
34665	242.26	0	0	26.362	-6215.3
34666	242.23	0	0	26.362	-6215.3
34667	242.35	0	0	26.362	-6215.3
34668	242.28	0	0	26.362	-6215.3
34669	242.35	0	0	26.362	-6215.3
34670	242.38	0	0	26.362	-6215.3
34671	242.15	0	0	26.362	-6215.3
34672	242.39	0	0	26.362	-6215.3
34673	242.31	0	0	26.362	-6215.3
34674	242.22	0	0	26.362	-6215.3
34675	242.34	0	0	26.362	-6215.3
34676	242.36	0	0	26.362	-6215.3
34677	242.47	0	0	26.362	-6215.3
34678	242.27	0	0	26.362	-6215.3
34679	242.17	0	0	26.362	-6215.3
34680	242.34	0	0	26.362	-6215.3
34681	242.29	0	0	26.362	-6215.3
34682	242.38	0	0	26.362	-6215.3
34683	242.4	0	0	26.362	-6215.3
34684	242.41	0	0	26.362	-6215.3

34685	242.46	0	0	26.362	-6215.3
34686	242.53	0	0	26.362	-6215.3
34687	242.48	0	0	26.362	-6215.3
34688	242.53	0	0	26.362	-6215.3
34689	242.55	0	0	26.362	-6215.3
34690	242.42	0	0	26.362	-6215.3
34691	242.41	0	0	26.362	-6215.3
34692	242.43	0	0	26.362	-6215.3
34693	242.41	0	0	26.362	-6215.3
34694	242.44	0	0	26.362	-6215.3
34695	242.37	0	0	26.362	-6215.3
34696	242.26	0	0	26.362	-6215.3
34697	242.27	0	0	26.362	-6215.3
34698	242.29	0	0	26.362	-6215.3
34699	242.31	0	0	26.362	-6215.3
34700	242.36	0	0	26.362	-6215.3
34701	242.41	0	0	26.362	-6215.3
34702	242.29	0	0	26.362	-6215.3
34703	242.21	0	0	26.362	-6215.3
34704	242.31	0	0	26.362	-6215.3
34705	242.34	0	0	26.362	-6215.3
34706	242.5	0	0	26.362	-6215.3
34707	242.42	0	0	26.362	-6215.3
34708	242.49	0	0	26.362	-6215.3
34709	242.23	0	0	26.362	-6215.3
34710	242.43	0	0	26.362	-6215.3
34711	242.37	0	0	26.362	-6215.3
34712	242.54	0	0	26.362	-6215.3
34713	242.38	0	0	26.362	-6215.3
34714	242.38	0	0	26.362	-6215.3
34715	242.44	0	0	26.362	-6215.3
34716	242.38	0	0	26.362	-6215.3
34717	242.37	0	0	26.362	-6215.3
34718	242.46	0	0	26.362	-6215.3
34719	242.35	0	0	26.362	-6215.3
34720	242.46	0	0	26.362	-6215.3
34721	242.47	0	0	26.362	-6215.3
34722	242.49	0	0	26.362	-6215.3
34723	242.46	0	0	26.362	-6215.3
34724	242.35	0	0	26.362	-6215.3
34725	242.27	0	0	26.362	-6215.3
34726	242.28	0	0	26.362	-6215.3
34727	242.34	0	0	26.362	-6215.3
34728	242.32	0	0	26.362	-6215.3
34729	242.31	0	0	26.362	-6215.3
34730	242.3	0	0	26.362	-6215.3
34731	242.36	0	0	26.362	-6215.3

34732	241.61	0	0	26.362	-6215.3
34733	242.17	0	0	26.362	-6215.3
34734	242.35	0	0	26.362	-6215.3
34735	242.28	0	0	26.362	-6215.3
34736	242.25	0	0	26.362	-6215.3
34737	242.4	0	0	26.362	-6215.3
34738	242.34	0	0	26.362	-6215.3
34739	242.4	0	0	26.362	-6215.3
34740	242.32	0	0	26.362	-6215.3
34741	242.32	0	0	26.362	-6215.3
34742	242.32	0	0	26.362	-6215.3
34743	242.36	0	0	26.362	-6215.3
34744	242.3	0	0	26.362	-6215.3
34745	242.29	0	0	26.362	-6215.3
34746	242.35	0	0	26.362	-6215.3
34747	242.25	0	0	26.362	-6215.3
34748	242.22	0	0	26.362	-6215.3
34749	242.38	0	0	26.362	-6215.3
34750	242.17	0	0	26.362	-6215.3
34751	241.99	0	0	26.362	-6215.3
34752	242.45	0	0	26.362	-6215.3
34753	242.48	0	0	26.362	-6215.3
34754	242.22	0	0	26.362	-6215.3
34755	242.19	0	0	26.362	-6215.3
34756	242.24	0	0	26.362	-6215.3
34757	242.08	0	0	26.362	-6215.3
34758	242.29	0	0	26.362	-6215.3
34759	242.48	0	0	26.362	-6215.3
34760	242.18	0	0	26.362	-6215.3
34761	242.24	0	0	26.362	-6215.3
34762	242.23	0	0	26.362	-6215.3
34763	242.1	0	0	26.362	-6215.3
34764	242.21	0	0	26.362	-6215.3
34765	242.06	0	0	26.362	-6215.3
34766	242.29	0	0	26.362	-6215.3
34767	242.24	0	0	26.362	-6215.3
34768	242.29	0	0	26.362	-6215.3
34769	242.2	0	0	26.362	-6215.3
34770	242.21	0	0	26.362	-6215.3
34771	242.19	0	0	26.362	-6215.3
34772	242.2	0	0	26.362	-6215.3
34773	242.3	0	0	26.362	-6215.3
34774	242.25	0	0	26.362	-6215.3
34775	242.32	0	0	26.362	-6215.3
34776	242.25	0	0	26.362	-6215.3
34777	242.54	0	0	26.362	-6215.3
34778	242.29	0	0	26.362	-6215.3

34779	242.47	0	0	26.362	-6215.3
34780	242.38	0	0	26.362	-6215.3
34781	242.58	0	0	26.362	-6215.3
34782	242.17	0	0	26.362	-6215.3
34783	242.36	0	0	26.362	-6215.3
34784	242.54	0	0	26.362	-6215.3
34785	242.43	0	0	26.362	-6215.3
34786	242.4	0	0	26.362	-6215.3
34787	242.4	0	0	26.362	-6215.3
34788	242.48	0	0	26.362	-6215.3
34789	242.46	0	0	26.362	-6215.3
34790	242.55	0	0	26.362	-6215.3
34791	242.5	0	0	26.362	-6215.3
34792	242.41	0	0	26.362	-6215.3
34793	242.49	0	0	26.362	-6215.3
34794	242.54	0	0	26.362	-6215.3
34795	242.42	0	0	26.362	-6215.3
34796	242.55	0	0	26.362	-6215.3
34797	242.46	0	0	26.362	-6215.3
34798	242.46	0	0	26.362	-6215.3
34799	242.45	0	0	26.362	-6215.3
34800	242.47	0	0	26.362	-6215.3
34801	242.49	0	0	26.362	-6215.3
34802	242.41	0	0	26.362	-6215.3
34803	242.32	0	0	26.362	-6215.3
34804	242.5	0	0	26.362	-6215.3
34805	242.58	0	0	26.362	-6215.3
34806	242.44	0	0	26.362	-6215.3
34807	242.46	0	0	26.362	-6215.3
34808	242.51	0	0	26.362	-6215.3
34809	242.42	0	0	26.362	-6215.3
34810	242.57	0	0	26.362	-6215.3
34811	242.51	0	0	26.362	-6215.3
34812	242.51	0	0	26.362	-6215.3
34813	242.58	0	0	26.362	-6215.3
34814	242.53	0	0	26.362	-6215.3
34815	242.6	0	0	26.362	-6215.3
34816	242.54	0	0	26.362	-6215.3
34817	242.39	0	0	26.362	-6215.3
34818	242.6	0	0	26.362	-6215.3
34819	242.48	0	0	26.362	-6215.3
34820	242.46	0	0	26.362	-6215.3
34821	242.54	0	0	26.362	-6215.3
34822	242.58	0	0	26.362	-6215.3
34823	242.41	0	0	26.362	-6215.3
34824	242.54	0	0	26.362	-6215.3
34825	242.53	0	0	26.362	-6215.3

34826	242.54	0	0	26.362	-6215.3
34827	242.41	0	0	26.362	-6215.3
34828	242.49	0	0	26.362	-6215.3
34829	242.45	0	0	26.362	-6215.3
34830	242.47	0	0	26.362	-6215.3
34831	242.57	0	0	26.362	-6215.3
34832	242.46	0	0	26.362	-6215.3
34833	242.57	0	0	26.362	-6215.3
34834	242.56	0	0	26.362	-6215.3
34835	242.5	0	0	26.362	-6215.3
34836	242.55	0	0	26.362	-6215.3
34837	242.46	0	0	26.362	-6215.3
34838	242.63	0	0	26.362	-6215.3
34839	242.56	0	0	26.362	-6215.3
34840	242.61	0	0	26.362	-6215.3
34841	242.62	0	0	26.362	-6215.3
34842	242.48	0	0	26.362	-6215.3
34843	242.56	0	0	26.362	-6215.3
34844	242.49	0	0	26.362	-6215.3
34845	242.49	0	0	26.362	-6215.3
34846	242.65	0	0	26.362	-6215.3
34847	242.44	0	0	26.362	-6215.3
34848	242.64	0	0	26.362	-6215.3
34849	242.64	0	0	26.362	-6215.3
34850	242.59	0	0	26.362	-6215.3
34851	242.65	0	0	26.362	-6215.3
34852	242.73	0	0	26.362	-6215.3
34853	242.55	0	0	26.362	-6215.3
34854	242.69	0	0	26.362	-6215.3
34855	242.74	0	0	26.362	-6215.3
34856	242.54	0	0	26.362	-6215.3
34857	242.53	0	0	26.362	-6215.3
34858	242.64	0	0	26.362	-6215.3
34859	242.85	0	0	26.362	-6215.3
34860	242.61	0	0	26.362	-6215.3
34861	242.58	0	0	26.362	-6215.3
34862	242.45	0	0	26.362	-6215.3
34863	242.59	0	0	26.362	-6215.3
34864	242.56	0	0	26.362	-6215.3
34865	242.6	0	0	26.362	-6215.3
34866	242.58	0	0	26.362	-6215.3
34867	242.52	0	0	26.362	-6215.3
34868	242.64	0	0	26.362	-6215.3
34869	242.51	0	0	26.362	-6215.3
34870	242.68	0	0	26.362	-6215.3
34871	242.6	0	0	26.362	-6215.3
34872	242.63	0	0	26.362	-6215.3

34873	242.66	0	0	26.362	-6215.3
34874	242.65	0	0	26.362	-6215.3
34875	242.67	0	0	26.362	-6215.3
34876	242.63	0	0	26.362	-6215.3
34877	242.58	0	0	26.362	-6215.3
34878	242.48	0	0	26.362	-6215.3
34879	242.55	0	0	26.362	-6215.3
34880	242.63	0	0	26.362	-6215.3
34881	242.55	0	0	26.362	-6215.3
34882	242.65	0	0	26.362	-6215.3
34883	242.55	0	0	26.362	-6215.3
34884	242.55	0	0	26.362	-6215.3
34885	242.67	0	0	26.362	-6215.3
34886	242.54	0	0	26.362	-6215.3
34887	242.58	0	0	26.362	-6215.3
34888	242.57	0	0	26.362	-6215.3
34889	242.62	0	0	26.362	-6215.3
34890	242.54	0	0	26.362	-6215.3
34891	242.52	0	0	26.362	-6215.3
34892	242.7	0	0	26.362	-6215.3
34893	242.62	0	0	26.362	-6215.3
34894	242.62	0	0	26.362	-6215.3
34895	242.67	0	0	26.362	-6215.3
34896	242.71	0	0	26.362	-6215.3
34897	242.59	0	0	26.362	-6215.3
34898	242.71	0	0	26.362	-6215.3
34899	242.67	0	0	26.362	-6215.3
34900	242.67	0	0	26.362	-6215.3
34901	242.68	0	0	26.362	-6215.3
34902	242.57	0	0	26.362	-6215.3
34903	242.66	0	0	26.362	-6215.3
34904	242.6	0	0	26.362	-6215.3
34905	242.55	0	0	26.362	-6215.3
34906	242.59	0	0	26.362	-6215.3
34907	242.64	0	0	26.362	-6215.3
34908	242.66	0	0	26.362	-6215.3
34909	242.58	0	0	26.362	-6215.3
34910	242.6	0	0	26.362	-6215.3
34911	242.44	0	0	26.362	-6215.3
34912	242.58	0	0	26.362	-6215.3
34913	242.59	0	0	26.362	-6215.3
34914	242.65	0	0	26.362	-6215.3
34915	242.59	0	0	26.362	-6215.3
34916	242.61	0	0	26.362	-6215.3
34917	242.61	0	0	26.362	-6215.3
34918	242.64	0	0	26.362	-6215.3
34919	242.65	0	0	26.362	-6215.3

34920	242.56	0	0	26.362	-6215.3
34921	242.55	0	0	26.362	-6215.3
34922	242.59	0	0	26.362	-6215.3
34923	242.58	0	0	26.362	-6215.3
34924	242.61	0	0	26.362	-6215.3
34925	242.63	0	0	26.362	-6215.3
34926	242.45	0	0	26.362	-6215.3
34927	242.47	0	0	26.362	-6215.3
34928	242.55	0	0	26.362	-6215.3
34929	242.52	0	0	26.362	-6215.3
34930	242.71	0	0	26.362	-6215.3
34931	242.61	0	0	26.362	-6215.3
34932	242.7	0	0	26.362	-6215.3
34933	242.74	0	0	26.362	-6215.3
34934	242.76	0	0	26.362	-6215.3
34935	242.68	0	0	26.362	-6215.3
34936	242.74	0	0	26.362	-6215.3
34937	242.66	0	0	26.362	-6215.3
34938	242.59	0	0	26.362	-6215.3
34939	242.66	0	0	26.362	-6215.3
34940	242.55	0	0	26.362	-6215.3
34941	242.69	0	0	26.362	-6215.3
34942	242.69	0	0	26.362	-6215.3
34943	242.59	0	0	26.362	-6215.3
34944	242.59	0	0	26.362	-6215.3
34945	242.64	0	0	26.362	-6215.3
34946	242.52	0	0	26.362	-6215.3
34947	242.7	0	0	26.362	-6215.3
34948	242.65	0	0	26.362	-6215.3
34949	242.68	0	0	26.362	-6215.3
34950	242.65	0	0	26.362	-6215.3
34951	242.71	0	0	26.362	-6215.3
34952	242.66	0	0	26.362	-6215.3
34953	242.7	0	0	26.362	-6215.3
34954	242.75	0	0	26.362	-6215.3
34955	242.76	0	0	26.362	-6215.3
34956	242.66	0	0	26.362	-6215.3
34957	242.74	0	0	26.362	-6215.3
34958	242.74	0	0	26.362	-6215.3
34959	242.72	0	0	26.362	-6215.3
34960	242.71	0	0	26.362	-6215.3
34961	242.79	0	0	26.362	-6215.3
34962	242.73	0	0	26.362	-6215.3
34963	242.74	0	0	26.362	-6215.3
34964	242.79	0	0	26.362	-6215.3
34965	242.77	0	0	26.362	-6215.3
34966	242.67	0	0	26.362	-6215.3

34967	242.68	0	0	26.362	-6215.3
34968	242.78	0	0	26.362	-6215.3
34969	242.63	0	0	26.362	-6215.3
34970	242.61	0	0	26.362	-6215.3
34971	242.69	0	0	26.362	-6215.3
34972	242.66	0	0	26.362	-6215.3
34973	242.67	0	0	26.362	-6215.3
34974	242.7	0	0	26.362	-6215.3
34975	242.7	0	0	26.362	-6215.3
34976	242.79	0	0	26.362	-6215.3
34977	242.75	0	0	26.362	-6215.3
34978	242.78	0	0	26.362	-6215.3
34979	242.73	0	0	26.362	-6215.3
34980	242.66	0	0	26.362	-6215.3
34981	242.72	0	0	26.362	-6215.3
34982	242.69	0	0	26.362	-6215.3
34983	242.67	0	0	26.362	-6215.3
34984	242.68	0	0	26.362	-6215.3
34985	242.65	0	0	26.362	-6215.3
34986	242.63	0	0	26.362	-6215.3
34987	242.62	0	0	26.362	-6215.3
34988	242.67	0	0	26.362	-6215.3
34989	242.53	0	0	26.362	-6215.3
34990	242.63	0	0	26.362	-6215.3
34991	242.57	0	0	26.362	-6215.3
34992	242.53	0	0	26.362	-6215.3
34993	242.65	0	0	26.362	-6215.3
34994	242.55	0	0	26.362	-6215.3
34995	242.53	0	0	26.362	-6215.3
34996	242.4	0	0	26.362	-6215.3
34997	242.55	0	0	26.362	-6215.3
34998	242.54	0	0	26.362	-6215.3
34999	242.46	0	0	26.362	-6215.3
35000	242.48	0	0	26.362	-6215.3
35001	242.52	0	0	26.362	-6215.3
35002	242.36	0	0	26.362	-6215.3
35003	242.56	0	0	26.362	-6215.3
35004	242.42	0	0	26.362	-6215.3
35005	242.49	0	0	26.362	-6215.3
35006	242.46	0	0	26.362	-6215.3
35007	242.5	0	0	26.362	-6215.3
35008	242.35	0	0	26.362	-6215.3
35009	242.44	0	0	26.362	-6215.3
35010	242.38	0	0	26.362	-6215.3
35011	242.52	0	0	26.362	-6215.3
35012	242.54	0	0	26.362	-6215.3
35013	242.57	0	0	26.362	-6215.3

35014	242.35	0	0	26.362	-6215.3
35015	242.42	0	0	26.362	-6215.3
35016	242.45	0	0	26.362	-6215.3
35017	242.46	0	0	26.362	-6215.3
35018	242.42	0	0	26.362	-6215.3
35019	242.58	0	0	26.362	-6215.3
35020	242.43	0	0	26.362	-6215.3
35021	242.46	0	0	26.362	-6215.3
35022	242.48	0	0	26.362	-6215.3
35023	242.48	0	0	26.362	-6215.3
35024	242.62	0	0	26.362	-6215.3
35025	242.61	0	0	26.362	-6215.3
35026	242.72	0	0	26.362	-6215.3
35027	242.64	0	0	26.362	-6215.3
35028	242.55	0	0	26.362	-6215.3
35029	242.58	0	0	26.362	-6215.3
35030	242.52	0	0	26.362	-6215.3
35031	242.59	0	0	26.362	-6215.3
35032	242.63	0	0	26.362	-6215.3
35033	242.58	0	0	26.362	-6215.3
35034	242.58	0	0	26.362	-6215.3
35035	242.55	0	0	26.362	-6215.3
35036	242.63	0	0	26.362	-6215.3
35037	242.67	0	0	26.362	-6215.3
35038	242.56	0	0	26.362	-6215.3
35039	242.63	0	0	26.362	-6215.3
35040	242.61	0	0	26.362	-6215.3
35041	242.56	0	0	26.362	-6215.3
35042	242.54	0	0	26.362	-6215.3
35043	242.68	0	0	26.362	-6215.3
35044	242.65	0	0	26.362	-6215.3
35045	242.67	0	0	26.362	-6215.3
35046	242.7	0	0	26.362	-6215.3
35047	242.67	0	0	26.362	-6215.3
35048	242.7	0	0	26.362	-6215.3
35049	242.67	0	0	26.362	-6215.3
35050	242.7	0	0	26.362	-6215.3
35051	242.73	0	0	26.362	-6215.3
35052	242.74	0	0	26.362	-6215.3
35053	242.64	0	0	26.362	-6215.3
35054	242.59	0	0	26.362	-6215.3
35055	242.63	0	0	26.362	-6215.3
35056	242.61	0	0	26.362	-6215.3
35057	242.58	0	0	26.362	-6215.3
35058	242.57	0	0	26.362	-6215.3
35059	242.68	0	0	26.362	-6215.3
35060	242.61	0	0	26.362	-6215.3

35061	242.7	0	0	26.362	-6215.3
35062	242.66	0	0	26.362	-6215.3
35063	242.65	0	0	26.362	-6215.3
35064	242.68	0	0	26.362	-6215.3
35065	242.56	0	0	26.362	-6215.3
35066	242.65	0	0	26.362	-6215.3
35067	242.63	0	0	26.362	-6215.3
35068	242.62	0	0	26.362	-6215.3
35069	242.59	0	0	26.362	-6215.3
35070	242.58	0	0	26.362	-6215.3
35071	242.62	0	0	26.362	-6215.3
35072	242.56	0	0	26.362	-6215.3
35073	242.62	0	0	26.362	-6215.3
35074	242.7	0	0	26.362	-6215.3
35075	242.68	0	0	26.362	-6215.3
35076	242.61	0	0	26.362	-6215.3
35077	242.66	0	0	26.362	-6215.3
35078	242.61	0	0	26.362	-6215.3
35079	242.71	0	0	26.362	-6215.3
35080	242.72	0	0	26.362	-6215.3
35081	242.67	0	0	26.362	-6215.3
35082	242.67	0	0	26.362	-6215.3
35083	242.65	0	0	26.362	-6215.3
35084	242.7	0	0	26.362	-6215.3
35085	242.68	0	0	26.362	-6215.3
35086	242.76	0	0	26.362	-6215.3
35087	242.65	0	0	26.362	-6215.3
35088	242.67	0	0	26.362	-6215.3
35089	242.72	0	0	26.362	-6215.3
35090	242.63	0	0	26.362	-6215.3
35091	242.57	0	0	26.362	-6215.3
35092	242.73	0	0	26.362	-6215.3
35093	242.72	0	0	26.362	-6215.3
35094	242.61	0	0	26.362	-6215.3
35095	242.55	0	0	26.362	-6215.3
35096	242.6	0	0	26.362	-6215.3
35097	242.6	0	0	26.362	-6215.3
35098	242.57	0	0	26.362	-6215.3
35099	242.55	0	0	26.362	-6215.3
35100	242.57	0	0	26.362	-6215.3
35101	242.64	0	0	26.362	-6215.3
35102	242.62	0	0	26.362	-6215.3
35103	242.6	0	0	26.362	-6215.3
35104	242.56	0	0	26.362	-6215.3
35105	242.57	0	0	26.362	-6215.3
35106	242.53	0	0	26.362	-6215.3
35107	242.53	0	0	26.362	-6215.3

35108	242.52	0	0	26.362	-6215.3
35109	242.51	0	0	26.362	-6215.3
35110	242.49	0	0	26.362	-6215.3
35111	242.46	0	0	26.362	-6215.3
35112	242.52	0	0	26.362	-6215.3
35113	242.44	0	0	26.362	-6215.3
35114	242.44	0	0	26.362	-6215.3
35115	242.41	0	0	26.362	-6215.3
35116	242.37	0	0	26.362	-6215.3
35117	242.33	0	0	26.362	-6215.3
35118	242.29	0	0	26.362	-6215.3
35119	242.35	0	0	26.362	-6215.3
35120	242.42	0	0	26.362	-6215.3
35121	242.31	0	0	26.362	-6215.3
35122	242.42	0	0	26.362	-6215.3
35123	242.38	0	0	26.362	-6215.3
35124	242.45	0	0	26.362	-6215.3
35125	242.37	0	0	26.362	-6215.3
35126	242.44	0	0	26.362	-6215.3
35127	242.42	0	0	26.362	-6215.3
35128	242.42	0	0	26.362	-6215.3
35129	242.42	0	0	26.362	-6215.3
35130	242.44	0	0	26.362	-6215.3
35131	242.45	0	0	26.362	-6215.3
35132	242.43	0	0	26.362	-6215.3
35133	242.45	0	0	26.362	-6215.3
35134	242.49	0	0	26.362	-6215.3
35135	242.48	0	0	26.362	-6215.3
35136	242.5	0	0	26.362	-6215.3
35137	242.44	0	0	26.362	-6215.3
35138	242.51	0	0	26.362	-6215.3
35139	242.56	0	0	26.362	-6215.3
35140	242.45	0	0	26.362	-6215.3
35141	242.55	0	0	26.362	-6215.3
35142	242.54	0	0	26.362	-6215.3
35143	242.56	0	0	26.362	-6215.3
35144	242.64	0	0	26.362	-6215.3
35145	241.97	0	0	26.362	-6215.3
35146	242.57	0	0	26.362	-6215.3
35147	242.48	0	0	26.362	-6215.3
35148	242.54	0	0	26.362	-6215.3
35149	242.47	0	0	26.362	-6215.3
35150	242.49	0	0	26.362	-6215.3
35151	242.48	0	0	26.362	-6215.3
35152	242.46	0	0	26.362	-6215.3
35153	242.47	0	0	26.362	-6215.3
35154	242.5	0	0	26.362	-6215.3

35155	242.38	0	0	26.362	-6215.3
35156	242.5	0	0	26.362	-6215.3
35157	242.49	0	0	26.362	-6215.3
35158	242.48	0	0	26.362	-6215.3
35159	242.33	0	0	26.362	-6215.3
35160	242.43	0	0	26.362	-6215.3
35161	242.4	0	0	26.362	-6215.3
35162	242.39	0	0	26.362	-6215.3
35163	242.46	0	0	26.362	-6215.3
35164	242.47	0	0	26.362	-6215.3
35165	242.56	0	0	26.362	-6215.3
35166	242.55	0	0	26.362	-6215.3
35167	242.5	0	0	26.362	-6215.3
35168	242.51	0	0	26.362	-6215.3
35169	242.49	0	0	26.362	-6215.3
35170	242.5	0	0	26.362	-6215.3
35171	242.5	0	0	26.362	-6215.3
35172	242.5	0	0	26.362	-6215.3
35173	242.53	0	0	26.362	-6215.3
35174	242.48	0	0	26.362	-6215.3
35175	242.55	0	0	26.362	-6215.3
35176	242.57	0	0	26.362	-6215.3
35177	242.48	0	0	26.362	-6215.3
35178	242.57	0	0	26.362	-6215.3
35179	242.63	0	0	26.362	-6215.3
35180	242.55	0	0	26.362	-6215.3
35181	242.54	0	0	26.362	-6215.3
35182	242.63	0	0	26.362	-6215.3
35183	242.56	0	0	26.362	-6215.3
35184	242.56	0	0	26.362	-6215.3
35185	242.64	0	0	26.362	-6215.3
35186	242.64	0	0	26.362	-6215.3
35187	242.48	0	0	26.362	-6215.3
35188	242.61	0	0	26.362	-6215.3
35189	242.68	0	0	26.362	-6215.3
35190	242.63	0	0	26.362	-6215.3
35191	242.61	0	0	26.362	-6215.3
35192	242.73	0	0	26.362	-6215.3
35193	242.67	0	0	26.362	-6215.3
35194	242.63	0	0	26.362	-6215.3
35195	242.62	0	0	26.362	-6215.3
35196	242.68	0	0	26.362	-6215.3
35197	242.58	0	0	26.362	-6215.3
35198	242.62	0	0	26.362	-6215.3
35199	242.55	0	0	26.362	-6215.3
35200	242.53	0	0	26.362	-6215.3
35201	242.6	0	0	26.362	-6215.3

35202	242.62	0	0	26.362	-6215.3
35203	242.59	0	0	26.362	-6215.3
35204	242.62	0	0	26.362	-6215.3
35205	242.6	0	0	26.362	-6215.3
35206	242.63	0	0	26.362	-6215.3
35207	242.64	0	0	26.362	-6215.3
35208	242.71	0	0	26.362	-6215.3
35209	242.75	0	0	26.362	-6215.3
35210	242.66	0	0	26.362	-6215.3
35211	242.59	0	0	26.362	-6215.3
35212	242.65	0	0	26.362	-6215.3
35213	242.61	0	0	26.362	-6215.3
35214	242.64	0	0	26.362	-6215.3
35215	242.54	0	0	26.362	-6215.3
35216	242.53	0	0	26.362	-6215.3
35217	242.52	0	0	26.362	-6215.3
35218	242.55	0	0	26.362	-6215.3
35219	241.52	0	0	26.362	-6215.3
35220	242.19	0	0	26.362	-6215.3
35221	242.21	0	0	26.362	-6215.3
35222	242.24	0	0	26.362	-6215.3
35223	242.23	0	0	26.362	-6215.3
35224	242.24	0	0	26.362	-6215.3
35225	242.26	0	0	26.362	-6215.3
35226	242.26	0	0	26.362	-6215.3
35227	242.3	0	0	26.362	-6215.3
35228	242.25	0	0	26.362	-6215.3
35229	242.27	0	0	26.362	-6215.3
35230	242.32	0	0	26.362	-6215.3
35231	242.3	0	0	26.362	-6215.3
35232	242.32	0	0	26.362	-6215.3
35233	242.28	0	0	26.362	-6215.3
35234	242.28	0	0	26.362	-6215.3
35235	242.27	0	0	26.362	-6215.3
35236	242.19	0	0	26.362	-6215.3
35237	242.21	0	0	26.362	-6215.3
35238	242.25	0	0	26.362	-6215.3
35239	242.19	0	0	26.362	-6215.3
35240	242.22	0	0	26.362	-6215.3
35241	242.24	0	0	26.362	-6215.3
35242	242.25	0	0	26.362	-6215.3
35243	242.2	0	0	26.362	-6215.3
35244	242.14	0	0	26.362	-6215.3
35245	242.17	0	0	26.362	-6215.3
35246	242.25	0	0	26.362	-6215.3
35247	242.23	0	0	26.362	-6215.3
35248	242.17	0	0	26.362	-6215.3

35249	241.95	0	0	26.362	-6215.3
35250	242.07	0	0	26.362	-6215.3
35251	242.21	0	0	26.362	-6215.3
35252	242.15	0	0	26.362	-6215.3
35253	242.04	0	0	26.362	-6215.3
35254	242.18	0	0	26.362	-6215.3
35255	242.11	0	0	26.362	-6215.3
35256	242.15	0	0	26.362	-6215.3
35257	241.98	0	0	26.362	-6215.3
35258	242.09	0	0	26.362	-6215.3
35259	241.96	0	0	26.362	-6215.3
35260	242.09	0	0	26.362	-6215.3
35261	242.1	0	0	26.362	-6215.3
35262	241.91	0	0	26.362	-6215.3
35263	242.17	0	0	26.362	-6215.3
35264	242.09	0	0	26.362	-6215.3
35265	242.1	0	0	26.362	-6215.3
35266	242.1	0	0	26.362	-6215.3
35267	242.09	0	0	26.362	-6215.3
35268	242.1	0	0	26.362	-6215.3
35269	242.17	0	0	26.362	-6215.3
35270	241.95	0	0	26.362	-6215.3
35271	242.15	0	0	26.362	-6215.3
35272	242.05	0	0	26.362	-6215.3
35273	241.96	0	0	26.362	-6215.3
35274	242.16	0	0	26.362	-6215.3
35275	242.06	0	0	26.362	-6215.3
35276	241.99	0	0	26.362	-6215.3
35277	242.16	0	0	26.362	-6215.3
35278	242.07	0	0	26.362	-6215.3
35279	242.15	0	0	26.362	-6215.3
35280	242.11	0	0	26.362	-6215.3
35281	242.15	0	0	26.362	-6215.3
35282	242.08	0	0	26.362	-6215.3
35283	242.22	0	0	26.362	-6215.3
35284	242.09	0	0	26.362	-6215.3
35285	242.2	0	0	26.362	-6215.3
35286	242.24	0	0	26.362	-6215.3
35287	242.17	0	0	26.362	-6215.3
35288	242.19	0	0	26.362	-6215.3
35289	242.24	0	0	26.362	-6215.3
35290	242.3	0	0	26.362	-6215.3
35291	242.29	0	0	26.362	-6215.3
35292	242.33	0	0	26.362	-6215.3
35293	242.29	0	0	26.362	-6215.3
35294	242.32	0	0	26.362	-6215.3
35295	242.3	0	0	26.362	-6215.3

35296	242.31	0	0	26.362	-6215.3
35297	242.28	0	0	26.362	-6215.3
35298	242.19	0	0	26.362	-6215.3
35299	242.27	0	0	26.362	-6215.3
35300	242.32	0	0	26.362	-6215.3
35301	242.23	0	0	26.362	-6215.3
35302	242.27	0	0	26.362	-6215.3
35303	242.3	0	0	26.362	-6215.3
35304	242.34	0	0	26.362	-6215.3
35305	242.28	0	0	26.362	-6215.3
35306	242.3	0	0	26.362	-6215.3
35307	242.31	0	0	26.362	-6215.3
35308	242.21	0	0	26.362	-6215.3
35309	242.26	0	0	26.362	-6215.3
35310	242.24	0	0	26.362	-6215.3
35311	242.26	0	0	26.362	-6215.3
35312	242.26	0	0	26.362	-6215.3
35313	242.31	0	0	26.362	-6215.3
35314	242.26	0	0	26.362	-6215.3
35315	242.31	0	0	26.362	-6215.3
35316	242.32	0	0	26.362	-6215.3
35317	242.32	0	0	26.362	-6215.3
35318	242.35	0	0	26.362	-6215.3
35319	242.28	0	0	26.362	-6215.3
35320	242.35	0	0	26.362	-6215.3
35321	242.33	0	0	26.362	-6215.3
35322	242.41	0	0	26.362	-6215.3
35323	242.29	0	0	26.362	-6215.3
35324	242.31	0	0	26.362	-6215.3
35325	242.33	0	0	26.362	-6215.3
35326	242.31	0	0	26.362	-6215.3
35327	242.29	0	0	26.362	-6215.3
35328	242.35	0	0	26.362	-6215.3
35329	242.24	0	0	26.362	-6215.3
35330	242.31	0	0	26.362	-6215.3
35331	242.27	0	0	26.362	-6215.3
35332	242.25	0	0	26.362	-6215.3
35333	242.26	0	0	26.362	-6215.3
35334	242.2	0	0	26.362	-6215.3
35335	242.21	0	0	26.362	-6215.3
35336	242.17	0	0	26.362	-6215.3
35337	242.15	0	0	26.362	-6215.3
35338	242.2	0	0	26.362	-6215.3
35339	242.18	0	0	26.362	-6215.3
35340	242.13	0	0	26.362	-6215.3
35341	242.16	0	0	26.362	-6215.3
35342	242.22	0	0	26.362	-6215.3

35343	242.12	0	0	26.362	-6215.3
35344	242.2	0	0	26.362	-6215.3
35345	242.15	0	0	26.362	-6215.3
35346	242.12	0	0	26.362	-6215.3
35347	242.09	0	0	26.362	-6215.3
35348	242.09	0	0	26.362	-6215.3
35349	242.09	0	0	26.362	-6215.3
35350	242.11	0	0	26.362	-6215.3
35351	242.07	0	0	26.362	-6215.3
35352	242.11	0	0	26.362	-6215.3
35353	242.1	0	0	26.362	-6215.3
35354	242.02	0	0	26.362	-6215.3
35355	242.02	0	0	26.362	-6215.3
35356	242.1	0	0	26.362	-6215.3
35357	242.06	0	0	26.362	-6215.3
35358	242.14	0	0	26.362	-6215.3
35359	242.15	0	0	26.362	-6215.3
35360	242.12	0	0	26.362	-6215.3
35361	242.2	0	0	26.362	-6215.3
35362	242.12	0	0	26.362	-6215.3
35363	242.15	0	0	26.362	-6215.3
35364	242.16	0	0	26.362	-6215.3
35365	242.18	0	0	26.362	-6215.3
35366	242.23	0	0	26.362	-6215.3
35367	242.17	0	0	26.362	-6215.3
35368	242.18	0	0	26.362	-6215.3
35369	242.18	0	0	26.362	-6215.3
35370	242.25	0	0	26.362	-6215.3
35371	242.23	0	0	26.362	-6215.3
35372	242.38	0	0	26.362	-6215.3
35373	242.26	0	0	26.362	-6215.3
35374	242.42	0	0	26.362	-6215.3
35375	242.4	0	0	26.362	-6215.3
35376	242.46	0	0	26.362	-6215.3
35377	242.4	0	0	26.362	-6215.3
35378	242.47	0	0	26.362	-6215.3
35379	242.43	0	0	26.362	-6215.3
35380	242.4	0	0	26.362	-6215.3
35381	242.41	0	0	26.362	-6215.3
35382	242.36	0	0	26.362	-6215.3
35383	242.47	0	0	26.362	-6215.3
35384	242.37	0	0	26.362	-6215.3
35385	242.41	0	0	26.362	-6215.3
35386	242.43	0	0	26.362	-6215.3
35387	242.4	0	0	26.362	-6215.3
35388	242.44	0	0	26.362	-6215.3
35389	242.43	0	0	26.362	-6215.3

35390	242.32	0	0	26.362	-6215.3
35391	242.4	0	0	26.362	-6215.3
35392	242.43	0	0	26.362	-6215.3
35393	242.37	0	0	26.362	-6215.3
35394	242.43	0	0	26.362	-6215.3
35395	242.44	0	0	26.362	-6215.3
35396	242.36	0	0	26.362	-6215.3
35397	242.41	0	0	26.362	-6215.3
35398	242.44	0	0	26.362	-6215.3
35399	242.36	0	0	26.362	-6215.3
35400	242.4	0	0	26.362	-6215.3
35401	242.4	0	0	26.362	-6215.3
35402	242.35	0	0	26.362	-6215.3
35403	242.4	0	0	26.362	-6215.3
35404	242.4	0	0	26.362	-6215.3
35405	242.44	0	0	26.362	-6215.3
35406	242.39	0	0	26.362	-6215.3
35407	242.45	0	0	26.362	-6215.3
35408	242.42	0	0	26.362	-6215.3
35409	242.43	0	0	26.362	-6215.3
35410	242.39	0	0	26.362	-6215.3
35411	242.34	0	0	26.362	-6215.3
35412	242.4	0	0	26.362	-6215.3
35413	242.35	0	0	26.362	-6215.3
35414	242.38	0	0	26.362	-6215.3
35415	242.38	0	0	26.362	-6215.3
35416	242.4	0	0	26.362	-6215.3
35417	242.36	0	0	26.362	-6215.3
35418	242.37	0	0	26.362	-6215.3
35419	242.37	0	0	26.362	-6215.3
35420	242.4	0	0	26.362	-6215.3
35421	242.32	0	0	26.362	-6215.3
35422	242.35	0	0	26.362	-6215.3
35423	242.36	0	0	26.362	-6215.3
35424	242.35	0	0	26.362	-6215.3
35425	242.28	0	0	26.362	-6215.3
35426	242.26	0	0	26.362	-6215.3
35427	242.3	0	0	26.362	-6215.3
35428	242.32	0	0	26.362	-6215.3
35429	242.18	0	0	26.362	-6215.3
35430	242.27	0	0	26.362	-6215.3
35431	242.23	0	0	26.362	-6215.3
35432	242.24	0	0	26.362	-6215.3
35433	242.24	0	0	26.362	-6215.3
35434	242.23	0	0	26.362	-6215.3
35435	242.25	0	0	26.362	-6215.3
35436	242.3	0	0	26.362	-6215.3

35437	242.32	0	0	26.362	-6215.3
35438	242.38	0	0	26.362	-6215.3
35439	242.28	0	0	26.362	-6215.3
35440	242.3	0	0	26.362	-6215.3
35441	242.3	0	0	26.362	-6215.3
35442	242.28	0	0	26.362	-6215.3
35443	242.29	0	0	26.362	-6215.3
35444	242.27	0	0	26.362	-6215.3
35445	242.25	0	0	26.362	-6215.3
35446	242.26	0	0	26.362	-6215.3
35447	242.29	0	0	26.362	-6215.3
35448	242.3	0	0	26.362	-6215.3
35449	242.31	0	0	26.362	-6215.3
35450	242.33	0	0	26.362	-6215.3
35451	242.23	0	0	26.362	-6215.3
35452	242.27	0	0	26.362	-6215.3
35453	242.33	0	0	26.362	-6215.3
35454	242.31	0	0	26.362	-6215.3
35455	242.34	0	0	26.362	-6215.3
35456	242.33	0	0	26.362	-6215.3
35457	242.34	0	0	26.362	-6215.3
35458	242.33	0	0	26.362	-6215.3
35459	242.36	0	0	26.362	-6215.3
35460	242.32	0	0	26.362	-6215.3
35461	242.35	0	0	26.362	-6215.3
35462	242.33	0	0	26.362	-6215.3
35463	242.41	0	0	26.362	-6215.3
35464	242.3	0	0	26.362	-6215.3
35465	242.32	0	0	26.362	-6215.3
35466	242.35	0	0	26.362	-6215.3
35467	242.27	0	0	26.362	-6215.3
35468	242.25	0	0	26.362	-6215.3
35469	242.35	0	0	26.362	-6215.3
35470	242.42	0	0	26.362	-6215.3
35471	242.38	0	0	26.362	-6215.3
35472	242.39	0	0	26.362	-6215.3
35473	242.35	0	0	26.362	-6215.3
35474	242.46	0	0	26.362	-6215.3
35475	242.4	0	0	26.362	-6215.3
35476	242.38	0	0	26.362	-6215.3
35477	242.47	0	0	26.362	-6215.3
35478	242.48	0	0	26.362	-6215.3
35479	242.49	0	0	26.362	-6215.3
35480	242.47	0	0	26.362	-6215.3
35481	242.5	0	0	26.362	-6215.3
35482	242.54	0	0	26.362	-6215.3
35483	242.5	0	0	26.362	-6215.3

35484	242.48	0	0	26.362	-6215.3
35485	242.45	0	0	26.362	-6215.3
35486	242.44	0	0	26.362	-6215.3
35487	242.49	0	0	26.362	-6215.3
35488	242.45	0	0	26.362	-6215.3
35489	242.46	0	0	26.362	-6215.3
35490	242.54	0	0	26.362	-6215.3
35491	242.49	0	0	26.362	-6215.3
35492	242.43	0	0	26.362	-6215.3
35493	242.54	0	0	26.362	-6215.3
35494	242.5	0	0	26.362	-6215.3
35495	242.51	0	0	26.362	-6215.3
35496	242.46	0	0	26.362	-6215.3
35497	242.44	0	0	26.362	-6215.3
35498	242.49	0	0	26.362	-6215.3
35499	242.54	0	0	26.362	-6215.3
35500	242.55	0	0	26.362	-6215.3
35501	242.53	0	0	26.362	-6215.3
35502	242.54	0	0	26.362	-6215.3
35503	242.5	0	0	26.362	-6215.3
35504	242.59	0	0	26.362	-6215.3
35505	242.49	0	0	26.362	-6215.3
35506	242.54	0	0	26.362	-6215.3
35507	242.47	0	0	26.362	-6215.3
35508	242.46	0	0	26.362	-6215.3
35509	242.52	0	0	26.362	-6215.3
35510	242.4	0	0	26.362	-6215.3
35511	242.52	0	0	26.362	-6215.3
35512	242.47	0	0	26.362	-6215.3
35513	242.43	0	0	26.362	-6215.3
35514	242.36	0	0	26.362	-6215.3
35515	242.33	0	0	26.362	-6215.3
35516	242.33	0	0	26.362	-6215.3
35517	242.33	0	0	26.362	-6215.3
35518	242.4	0	0	26.362	-6215.3
35519	242.32	0	0	26.362	-6215.3
35520	242.37	0	0	26.362	-6215.3
35521	242.35	0	0	26.362	-6215.3
35522	242.38	0	0	26.362	-6215.3
35523	242.38	0	0	26.362	-6215.3
35524	242.3	0	0	26.362	-6215.3
35525	242.32	0	0	26.362	-6215.3
35526	242.37	0	0	26.362	-6215.3
35527	242.36	0	0	26.362	-6215.3
35528	242.36	0	0	26.362	-6215.3
35529	242.37	0	0	26.362	-6215.3
35530	242.4	0	0	26.362	-6215.3

35531	242.31	0	0	26.362	-6215.3
35532	242.34	0	0	26.362	-6215.3
35533	242.39	0	0	26.362	-6215.3
35534	242.4	0	0	26.362	-6215.3
35535	242.34	0	0	26.362	-6215.3
35536	242.29	0	0	26.362	-6215.3
35537	242.38	0	0	26.362	-6215.3
35538	242.32	0	0	26.362	-6215.3
35539	242.33	0	0	26.362	-6215.3
35540	242.38	0	0	26.362	-6215.3
35541	242.41	0	0	26.362	-6215.3
35542	242.32	0	0	26.362	-6215.3
35543	242.17	0	0	26.362	-6215.3
35544	242.32	0	0	26.362	-6215.3
35545	242.23	0	0	26.362	-6215.3
35546	242.24	0	0	26.362	-6215.3
35547	242.19	0	0	26.362	-6215.3
35548	242.26	0	0	26.362	-6215.3
35549	242.14	0	0	26.362	-6215.3
35550	242.27	0	0	26.362	-6215.3
35551	242.13	0	0	26.362	-6215.3
35552	242.26	0	0	26.362	-6215.3
35553	242.24	0	0	26.362	-6215.3
35554	242.18	0	0	26.362	-6215.3
35555	242.25	0	0	26.362	-6215.3
35556	242.22	0	0	26.362	-6215.3
35557	242.13	0	0	26.362	-6215.3
35558	242.11	0	0	26.362	-6215.3
35559	242.18	0	0	26.362	-6215.3
35560	242.08	0	0	26.362	-6215.3
35561	242.11	0	0	26.362	-6215.3
35562	242.09	0	0	26.362	-6215.3
35563	242.12	0	0	26.362	-6215.3
35564	241.24	0	0	26.362	-6215.3
35565	242.03	0	0	26.362	-6215.3
35566	241.95	0	0	26.362	-6215.3
35567	242.08	0	0	26.362	-6215.3
35568	242.03	0	0	26.362	-6215.3
35569	242.05	0	0	26.362	-6215.3
35570	242.07	0	0	26.362	-6215.3
35571	242.22	0	0	26.362	-6215.3
35572	242.26	0	0	26.362	-6215.3
35573	242.31	0	0	26.362	-6215.3
35574	242.22	0	0	26.362	-6215.3
35575	242.28	0	0	26.362	-6215.3
35576	242.19	0	0	26.362	-6215.3
35577	242.22	0	0	26.362	-6215.3

35578	242.13	0	0	26.362	-6215.3
35579	242.21	0	0	26.362	-6215.3
35580	242.13	0	0	26.362	-6215.3
35581	242.13	0	0	26.362	-6215.3
35582	242.24	0	0	26.362	-6215.3
35583	242.33	0	0	26.362	-6215.3
35584	242.33	0	0	26.362	-6215.3
35585	242.35	0	0	26.362	-6215.3
35586	242.34	0	0	26.362	-6215.3
35587	242.43	0	0	26.362	-6215.3
35588	242.33	0	0	26.362	-6215.3
35589	242.41	0	0	26.362	-6215.3
35590	242.37	0	0	26.362	-6215.3
35591	242.34	0	0	26.362	-6215.3
35592	242.32	0	0	26.362	-6215.3
35593	242.42	0	0	26.362	-6215.3
35594	242.4	0	0	26.362	-6215.3
35595	242.43	0	0	26.362	-6215.3
35596	242.42	0	0	26.362	-6215.3
35597	242.35	0	0	26.362	-6215.3
35598	242.38	0	0	26.362	-6215.3
35599	242.33	0	0	26.362	-6215.3
35600	242.34	0	0	26.362	-6215.3
35601	242.29	0	0	26.362	-6215.3
35602	242.37	0	0	26.362	-6215.3
35603	242.34	0	0	26.362	-6215.3
35604	242.34	0	0	26.362	-6215.3
35605	242.35	0	0	26.362	-6215.3
35606	242.73	0	0	26.362	-6215.3
35607	242.79	0	0	26.362	-6215.3
35608	242.8	0	0	26.362	-6215.3
35609	242.79	0	0	26.362	-6215.3
35610	242.74	0	0	26.362	-6215.3
35611	242.71	0	0	26.362	-6215.3
35612	242.71	0	0	26.362	-6215.3
35613	242.76	0	0	26.362	-6215.3
35614	242.81	0	0	26.362	-6215.3
35615	242.7	0	0	26.362	-6215.3
35616	242.78	0	0	26.362	-6215.3
35617	242.86	0	0	26.362	-6215.3
35618	242.85	0	0	26.362	-6215.3
35619	242.84	0	0	26.362	-6215.3
35620	242.82	0	0	26.362	-6215.3
35621	242.85	0	0	26.362	-6215.3
35622	242.81	0	0	26.362	-6215.3
35623	242.91	0	0	26.362	-6215.3
35624	242.86	0	0	26.362	-6215.3

35625	242.89	0	0	26.362	-6215.3
35626	242.87	0	0	26.362	-6215.3
35627	242.87	0	0	26.362	-6215.3
35628	242.83	0	0	26.362	-6215.3
35629	242.84	0	0	26.362	-6215.3
35630	242.81	0	0	26.362	-6215.3
35631	242.88	0	0	26.362	-6215.3
35632	242.81	0	0	26.362	-6215.3
35633	242.82	0	0	26.362	-6215.3
35634	242.87	0	0	26.362	-6215.3
35635	242.82	0	0	26.362	-6215.3
35636	242.81	0	0	26.362	-6215.3
35637	242.77	0	0	26.362	-6215.3
35638	242.75	0	0	26.362	-6215.3
35639	242.71	0	0	26.362	-6215.3
35640	242.7	0	0	26.362	-6215.3
35641	242.85	0	0	26.362	-6215.3
35642	242.88	0	0	26.362	-6215.3
35643	242.79	0	0	26.362	-6215.3
35644	242.82	0	0	26.362	-6215.3
35645	242.76	0	0	26.362	-6215.3
35646	242.8	0	0	26.362	-6215.3
35647	242.82	0	0	26.362	-6215.3
35648	242.83	0	0	26.362	-6215.3
35649	242.87	0	0	26.362	-6215.3
35650	242.93	0	0	26.362	-6215.3
35651	242.85	0	0	26.362	-6215.3
35652	242.85	0	0	26.362	-6215.3
35653	242.88	0	0	26.362	-6215.3
35654	242.88	0	0	26.362	-6215.3
35655	242.91	0	0	26.362	-6215.3
35656	242.85	0	0	26.362	-6215.3
35657	242.89	0	0	26.362	-6215.3
35658	242.82	0	0	26.362	-6215.3
35659	242.88	0	0	26.362	-6215.3
35660	242.83	0	0	26.362	-6215.3
35661	242.89	0	0	26.362	-6215.3
35662	242.81	0	0	26.362	-6215.3
35663	242.82	0	0	26.362	-6215.3
35664	242.84	0	0	26.362	-6215.3
35665	242.84	0	0	26.362	-6215.3
35666	242.86	0	0	26.362	-6215.3
35667	242.88	0	0	26.362	-6215.3
35668	242.8	0	0	26.362	-6215.3
35669	242.78	0	0	26.362	-6215.3
35670	242.88	0	0	26.362	-6215.3
35671	242.88	0	0	26.362	-6215.3

35672	242.91	0	0	26.362	-6215.3
35673	242.81	0	0	26.362	-6215.3
35674	242.85	0	0	26.362	-6215.3
35675	242.79	0	0	26.362	-6215.3
35676	242.73	0	0	26.362	-6215.3
35677	242.78	0	0	26.362	-6215.3
35678	242.78	0	0	26.362	-6215.3
35679	242.85	0	0	26.362	-6215.3
35680	242.74	0	0	26.362	-6215.3
35681	242.79	0	0	26.362	-6215.3
35682	242.82	0	0	26.362	-6215.3
35683	242.78	0	0	26.362	-6215.3
35684	242.82	0	0	26.362	-6215.3
35685	242.72	0	0	26.362	-6215.3
35686	242.76	0	0	26.362	-6215.3
35687	242.72	0	0	26.362	-6215.3
35688	242.75	0	0	26.362	-6215.3
35689	242.83	0	0	26.362	-6215.3
35690	242.76	0	0	26.362	-6215.3
35691	242.62	0	0	26.362	-6215.3
35692	242.68	0	0	26.362	-6215.3
35693	242.72	0	0	26.362	-6215.3
35694	242.73	0	0	26.362	-6215.3
35695	242.7	0	0	26.362	-6215.3
35696	242.65	0	0	26.362	-6215.3
35697	242.68	0	0	26.362	-6215.3
35698	242.72	0	0	26.362	-6215.3
35699	242.67	0	0	26.362	-6215.3
35700	242.6	0	0	26.362	-6215.3
35701	242.68	0	0	26.362	-6215.3
35702	242.7	0	0	26.362	-6215.3
35703	242.69	0	0	26.362	-6215.3
35704	242.64	0	0	26.362	-6215.3
35705	242.63	0	0	26.362	-6215.3
35706	242.68	0	0	26.362	-6215.3
35707	242.66	0	0	26.362	-6215.3
35708	242.73	0	0	26.362	-6215.3
35709	242.7	0	0	26.362	-6215.3
35710	242.7	0	0	26.362	-6215.3
35711	242.73	0	0	26.362	-6215.3
35712	242.69	0	0	26.362	-6215.3
35713	242.72	0	0	26.362	-6215.3
35714	242.74	0	0	26.362	-6215.3
35715	242.78	0	0	26.362	-6215.3
35716	242.74	0	0	26.362	-6215.3
35717	242.76	0	0	26.362	-6215.3
35718	242.77	0	0	26.362	-6215.3

35719	242.78	0	0	26.362	-6215.3
35720	242.72	0	0	26.362	-6215.3
35721	242.69	0	0	26.362	-6215.3
35722	242.71	0	0	26.362	-6215.3
35723	242.78	0	0	26.362	-6215.3
35724	242.74	0	0	26.362	-6215.3
35725	242.75	0	0	26.362	-6215.3
35726	242.72	0	0	26.362	-6215.3
35727	242.82	0	0	26.362	-6215.3
35728	242.86	0	0	26.362	-6215.3
35729	242.88	0	0	26.362	-6215.3
35730	242.84	0	0	26.362	-6215.3
35731	242.92	0	0	26.362	-6215.3
35732	242.99	0	0	26.362	-6215.3
35733	242.89	0	0	26.362	-6215.3
35734	242.9	0	0	26.362	-6215.3
35735	243	0	0	26.362	-6215.3
35736	242.91	0	0	26.362	-6215.3
35737	242.94	0	0	26.362	-6215.3
35738	242.95	0	0	26.362	-6215.3
35739	243.01	0	0	26.362	-6215.3
35740	242.92	0	0	26.362	-6215.3
35741	242.98	0	0	26.362	-6215.3
35742	242.88	0	0	26.362	-6215.3
35743	242.97	0	0	26.362	-6215.3
35744	242.89	0	0	26.362	-6215.3
35745	242.91	0	0	26.362	-6215.3
35746	242.91	0	0	26.362	-6215.3
35747	242.91	0	0	26.362	-6215.3
35748	242.87	0	0	26.362	-6215.3
35749	242.89	0	0	26.362	-6215.3
35750	242.95	0	0	26.362	-6215.3
35751	242.91	0	0	26.362	-6215.3
35752	242.95	0	0	26.362	-6215.3
35753	242.96	0	0	26.362	-6215.3
35754	242.94	0	0	26.362	-6215.3
35755	242.91	0	0	26.362	-6215.3
35756	242.95	0	0	26.362	-6215.3
35757	242.89	0	0	26.362	-6215.3
35758	242.91	0	0	26.362	-6215.3
35759	242.89	0	0	26.362	-6215.3
35760	242.84	0	0	26.362	-6215.3
35761	242.96	0	0	26.362	-6215.3
35762	242.9	0	0	26.362	-6215.3
35763	242.92	0	0	26.362	-6215.3
35764	242.89	0	0	26.362	-6215.3
35765	242.91	0	0	26.362	-6215.3

35766	242.94	0	0	26.362	-6215.3
35767	242.91	0	0	26.362	-6215.3
35768	242.96	0	0	26.362	-6215.3
35769	243.01	0	0	26.362	-6215.3
35770	242.99	0	0	26.362	-6215.3
35771	242.9	0	0	26.362	-6215.3
35772	242.96	0	0	26.362	-6215.3
35773	242.94	0	0	26.362	-6215.3
35774	242.96	0	0	26.362	-6215.3
35775	242.91	0	0	26.362	-6215.3
35776	242.88	0	0	26.362	-6215.3
35777	242.91	0	0	26.362	-6215.3
35778	242.85	0	0	26.362	-6215.3
35779	242.88	0	0	26.362	-6215.3
35780	242.84	0	0	26.362	-6215.3
35781	242.91	0	0	26.362	-6215.3
35782	242.9	0	0	26.362	-6215.3
35783	242.91	0	0	26.362	-6215.3
35784	242.85	0	0	26.362	-6215.3
35785	242.84	0	0	26.362	-6215.3
35786	242.89	0	0	26.362	-6215.3
35787	242.8	0	0	26.362	-6215.3
35788	242.9	0	0	26.362	-6215.3
35789	243.03	0	0	26.362	-6215.3
35790	242.98	0	0	26.362	-6215.3
35791	243.01	0	0	26.362	-6215.3
35792	243	0	0	26.362	-6215.3
35793	242.96	0	0	26.362	-6215.3
35794	243.06	0	0	26.362	-6215.3
35795	242.93	0	0	26.362	-6215.3
35796	242.91	0	0	26.362	-6215.3
35797	242.91	0	0	26.362	-6215.3
35798	242.85	0	0	26.362	-6215.3
35799	242.86	0	0	26.362	-6215.3
35800	242.89	0	0	26.362	-6215.3
35801	242.85	0	0	26.362	-6215.3
35802	242.81	0	0	26.362	-6215.3
35803	242.89	0	0	26.362	-6215.3
35804	242.84	0	0	26.362	-6215.3
35805	242.86	0	0	26.362	-6215.3
35806	242.91	0	0	26.362	-6215.3
35807	242.82	0	0	26.362	-6215.3
35808	242.8	0	0	26.362	-6215.3
35809	242.87	0	0	26.362	-6215.3
35810	242.77	0	0	26.362	-6215.3
35811	242.83	0	0	26.362	-6215.3
35812	242.85	0	0	26.362	-6215.3

35813	242.8	0	0	26.362	-6215.3
35814	242.89	0	0	26.362	-6215.3
35815	242.86	0	0	26.362	-6215.3
35816	242.87	0	0	26.362	-6215.3
35817	242.8	0	0	26.362	-6215.3
35818	242.84	0	0	26.362	-6215.3
35819	242.84	0	0	26.362	-6215.3
35820	242.87	0	0	26.362	-6215.3
35821	242.8	0	0	26.362	-6215.3
35822	242.81	0	0	26.362	-6215.3
35823	242.78	0	0	26.362	-6215.3
35824	242.81	0	0	26.362	-6215.3
35825	242.86	0	0	26.362	-6215.3
35826	242.77	0	0	26.362	-6215.3
35827	242.81	0	0	26.362	-6215.3
35828	242.77	0	0	26.362	-6215.3
35829	242.96	0	0	26.362	-6215.3
35830	242.76	0	0	26.362	-6215.3
35831	242.84	0	0	26.362	-6215.3
35832	242.91	0	0	26.362	-6215.3
35833	242.94	0	0	26.362	-6215.3
35834	242.99	0	0	26.362	-6215.3
35835	242.97	0	0	26.362	-6215.3
35836	242.95	0	0	26.362	-6215.3
35837	242.98	0	0	26.362	-6215.3
35838	242.96	0	0	26.362	-6215.3
35839	242.98	0	0	26.362	-6215.3
35840	242.89	0	0	26.362	-6215.3
35841	242.98	0	0	26.362	-6215.3
35842	243.09	0	0	26.362	-6215.3
35843	243.07	0	0	26.362	-6215.3
35844	242.97	0	0	26.362	-6215.3
35845	242.88	0	0	26.362	-6215.3
35846	242.93	0	0	26.362	-6215.3
35847	242.83	0	0	26.362	-6215.3
35848	242.88	0	0	26.362	-6215.3
35849	242.99	0	0	26.362	-6215.3
35850	242.84	0	0	26.362	-6215.3
35851	242.95	0	0	26.362	-6215.3
35852	243.03	0	0	26.362	-6215.3
35853	243	0	0	26.362	-6215.3
35854	243.01	0	0	26.362	-6215.3
35855	243.02	0	0	26.362	-6215.3
35856	243.04	0	0	26.362	-6215.3
35857	243.05	0	0	26.362	-6215.3
35858	243.08	0	0	26.362	-6215.3
35859	243.01	0	0	26.362	-6215.3

35860	243.06	0	0	26.362	-6215.3
35861	243.08	0	0	26.362	-6215.3
35862	243.05	0	0	26.362	-6215.3
35863	243	0	0	26.362	-6215.3
35864	243.02	0	0	26.362	-6215.3
35865	243.12	0	0	26.362	-6215.3
35866	243.02	0	0	26.362	-6215.3
35867	242.9	0	0	26.362	-6215.3
35868	242.9	0	0	26.362	-6215.3
35869	242.91	0	0	26.362	-6215.3
35870	242.99	0	0	26.362	-6215.3
35871	243.04	0	0	26.362	-6215.3
35872	242.98	0	0	26.362	-6215.3
35873	242.94	0	0	26.362	-6215.3
35874	242.91	0	0	26.362	-6215.3
35875	242.95	0	0	26.362	-6215.3
35876	242.99	0	0	26.362	-6215.3
35877	242.79	0	0	26.362	-6215.3
35878	242.9	0	0	26.362	-6215.3
35879	242.91	0	0	26.362	-6215.3
35880	242.87	0	0	26.362	-6215.3
35881	242.86	0	0	26.362	-6215.3
35882	242.83	0	0	26.362	-6215.3
35883	242.87	0	0	26.362	-6215.3
35884	242.95	0	0	26.362	-6215.3
35885	242.8	0	0	26.362	-6215.3
35886	242.94	0	0	26.362	-6215.3
35887	242.9	0	0	26.362	-6215.3
35888	242.86	0	0	26.362	-6215.3
35889	242.96	0	0	26.362	-6215.3
35890	242.79	0	0	26.362	-6215.3
35891	242.82	0	0	26.362	-6215.3
35892	242.87	0	0	26.362	-6215.3
35893	242.89	0	0	26.362	-6215.3
35894	242.91	0	0	26.362	-6215.3
35895	242.97	0	0	26.362	-6215.3
35896	242.91	0	0	26.362	-6215.3
35897	242.86	0	0	26.362	-6215.3
35898	242.85	0	0	26.362	-6215.3
35899	242.86	0	0	26.362	-6215.3
35900	242.82	0	0	26.362	-6215.3
35901	242.85	0	0	26.362	-6215.3
35902	242.88	0	0	26.362	-6215.3
35903	242.78	0	0	26.362	-6215.3
35904	242.76	0	0	26.362	-6215.3
35905	242.83	0	0	26.362	-6215.3
35906	242.84	0	0	26.362	-6215.3

35907	242.81	0	0	26.362	-6215.3
35908	242.8	0	0	26.362	-6215.3
35909	242.8	0	0	26.362	-6215.3
35910	242.67	0	0	26.362	-6215.3
35911	242.86	0	0	26.362	-6215.3
35912	242.82	0	0	26.362	-6215.3
35913	242.81	0	0	26.362	-6215.3
35914	242.82	0	0	26.362	-6215.3
35915	242.78	0	0	26.362	-6215.3
35916	242.87	0	0	26.362	-6215.3
35917	242.73	0	0	26.362	-6215.3
35918	242.83	0	0	26.362	-6215.3
35919	242.83	0	0	26.362	-6215.3
35920	242.83	0	0	26.362	-6215.3
35921	242.82	0	0	26.362	-6215.3
35922	242.83	0	0	26.362	-6215.3
35923	242.72	0	0	26.362	-6215.3
35924	242.81	0	0	26.362	-6215.3
35925	242.81	0	0	26.362	-6215.3
35926	242.73	0	0	26.362	-6215.3
35927	242.88	0	0	26.362	-6215.3
35928	242.88	0	0	26.362	-6215.3
35929	242.88	0	0	26.362	-6215.3
35930	242.73	0	0	26.362	-6215.3
35931	242.8	0	0	26.362	-6215.3
35932	242.84	0	0	26.362	-6215.3
35933	242.78	0	0	26.362	-6215.3
35934	242.79	0	0	26.362	-6215.3
35935	242.86	0	0	26.362	-6215.3
35936	242.77	0	0	26.362	-6215.3
35937	242.88	0	0	26.362	-6215.3
35938	242.82	0	0	26.362	-6215.3
35939	242.81	0	0	26.362	-6215.3
35940	242.85	0	0	26.362	-6215.3
35941	242.94	0	0	26.362	-6215.3
35942	242.87	0	0	26.362	-6215.3
35943	242.86	0	0	26.362	-6215.3
35944	242.9	0	0	26.362	-6215.3
35945	242.91	0	0	26.362	-6215.3
35946	242.89	0	0	26.362	-6215.3
35947	242.93	0	0	26.362	-6215.3
35948	243.01	0	0	26.362	-6215.3
35949	242.97	0	0	26.362	-6215.3
35950	242.94	0	0	26.362	-6215.3
35951	242.92	0	0	26.362	-6215.3
35952	243.05	0	0	26.362	-6215.3
35953	243	0	0	26.362	-6215.3

35954	242.82	0	0	26.362	-6215.3
35955	242.89	0	0	26.362	-6215.3
35956	242.97	0	0	26.362	-6215.3
35957	242.94	0	0	26.362	-6215.3
35958	243.01	0	0	26.362	-6215.3
35959	243	0	0	26.362	-6215.3
35960	243.01	0	0	26.362	-6215.3
35961	242.9	0	0	26.362	-6215.3
35962	242.99	0	0	26.362	-6215.3
35963	242.96	0	0	26.362	-6215.3
35964	242.91	0	0	26.362	-6215.3
35965	242.93	0	0	26.362	-6215.3
35966	242.97	0	0	26.362	-6215.3
35967	242.98	0	0	26.362	-6215.3
35968	243.03	0	0	26.362	-6215.3
35969	243.1	0	0	26.362	-6215.3
35970	243.04	0	0	26.362	-6215.3
35971	242.98	0	0	26.362	-6215.3
35972	243.02	0	0	26.362	-6215.3
35973	242.99	0	0	26.362	-6215.3
35974	242.97	0	0	26.362	-6215.3
35975	242.95	0	0	26.362	-6215.3
35976	242.84	0	0	26.362	-6215.3
35977	242.87	0	0	26.362	-6215.3
35978	243.01	0	0	26.362	-6215.3
35979	242.9	0	0	26.362	-6215.3
35980	242.99	0	0	26.362	-6215.3
35981	242.83	0	0	26.362	-6215.3
35982	242.18	0	0	26.362	-6215.3
35983	242.84	0	0	26.362	-6215.3
35984	242.81	0	0	26.362	-6215.3
35985	242.79	0	0	26.362	-6215.3
35986	242.85	0	0	26.362	-6215.3
35987	242.82	0	0	26.362	-6215.3
35988	242.87	0	0	26.362	-6215.3
35989	242.97	0	0	26.362	-6215.3
35990	242.87	0	0	26.362	-6215.3
35991	242.87	0	0	26.362	-6215.3
35992	242.85	0	0	26.362	-6215.3
35993	242.77	0	0	26.362	-6215.3
35994	242.86	0	0	26.362	-6215.3
35995	242.83	0	0	26.362	-6215.3
35996	242.89	0	0	26.362	-6215.3
35997	242.84	0	0	26.362	-6215.3
35998	242.86	0	0	26.362	-6215.3
35999	242.91	0	0	26.362	-6215.3
36000	242.83	0	0	26.362	-6215.3

36001	242.91	0	0	26.362	-6215.3
36002	242.84	0	0	26.362	-6215.3
36003	242.84	0	0	26.362	-6215.3
36004	242.87	0	0	26.362	-6215.3
36005	242.83	0	0	26.362	-6215.3
36006	242.85	0	0	26.362	-6215.3
36007	242.91	0	0	26.362	-6215.3
36008	242.8	0	0	26.362	-6215.3
36009	242.84	0	0	26.362	-6215.3
36010	242.73	0	0	26.362	-6215.3
36011	242.78	0	0	26.362	-6215.3
36012	242.79	0	0	26.362	-6215.3
36013	242.74	0	0	26.362	-6215.3
36014	242.82	0	0	26.362	-6215.3
36015	242.79	0	0	26.362	-6215.3
36016	242.69	0	0	26.362	-6215.3
36017	242.8	0	0	26.362	-6215.3
36018	242.72	0	0	26.362	-6215.3
36019	242.73	0	0	26.362	-6215.3
36020	242.79	0	0	26.362	-6215.3
36021	242.83	0	0	26.362	-6215.3
36022	242.92	0	0	26.362	-6215.3
36023	242.95	0	0	26.362	-6215.3
36024	242.9	0	0	26.362	-6215.3
36025	242.84	0	0	26.362	-6215.3
36026	242.95	0	0	26.362	-6215.3
36027	243.01	0	0	26.362	-6215.3
36028	242.9	0	0	26.362	-6215.3
36029	242.92	0	0	26.362	-6215.3
36030	242.87	0	0	26.362	-6215.3
36031	242.8	0	0	26.362	-6215.3
36032	242.85	0	0	26.362	-6215.3
36033	242.98	0	0	26.362	-6215.3
36034	243.01	0	0	26.362	-6215.3
36035	242.96	0	0	26.362	-6215.3
36036	242.91	0	0	26.362	-6215.3
36037	242.91	0	0	26.362	-6215.3
36038	242.88	0	0	26.362	-6215.3
36039	243.05	0	0	26.362	-6215.3
36040	242.92	0	0	26.362	-6215.3
36041	243.06	0	0	26.362	-6215.3
36042	242.95	0	0	26.362	-6215.3
36043	243.01	0	0	26.362	-6215.3
36044	243.1	0	0	26.362	-6215.3
36045	243.06	0	0	26.362	-6215.3
36046	243.05	0	0	26.362	-6215.3
36047	242.99	0	0	26.362	-6215.3

36048	242.93	0	0	26.362	-6215.3
36049	242.96	0	0	26.362	-6215.3
36050	242.93	0	0	26.362	-6215.3
36051	242.97	0	0	26.362	-6215.3
36052	243	0	0	26.362	-6215.3
36053	242.88	0	0	26.362	-6215.3
36054	243	0	0	26.362	-6215.3
36055	242.95	0	0	26.362	-6215.3
36056	242.88	0	0	26.362	-6215.3
36057	242.98	0	0	26.362	-6215.3
36058	242.95	0	0	26.362	-6215.3
36059	243.03	0	0	26.362	-6215.3
36060	243.03	0	0	26.362	-6215.3
36061	243.09	0	0	26.362	-6215.3
36062	243.05	0	0	26.362	-6215.3
36063	242.93	0	0	26.362	-6215.3
36064	242.87	0	0	26.362	-6215.3
36065	243.02	0	0	26.362	-6215.3
36066	243.09	0	0	26.362	-6215.3
36067	243.11	0	0	26.362	-6215.3
36068	242.96	0	0	26.362	-6215.3
36069	242.96	0	0	26.362	-6215.3
36070	242.98	0	0	26.362	-6215.3
36071	243.01	0	0	26.362	-6215.3
36072	242.94	0	0	26.362	-6215.3
36073	242.96	0	0	26.362	-6215.3
36074	242.85	0	0	26.362	-6215.3
36075	242.95	0	0	26.362	-6215.3
36076	242.91	0	0	26.362	-6215.3
36077	242.94	0	0	26.362	-6215.3
36078	242.9	0	0	26.362	-6215.3
36079	242.93	0	0	26.362	-6215.3
36080	242.84	0	0	26.362	-6215.3
36081	242.93	0	0	26.362	-6215.3
36082	243.01	0	0	26.362	-6215.3
36083	242.93	0	0	26.362	-6215.3
36084	243	0	0	26.362	-6215.3
36085	242.88	0	0	26.362	-6215.3
36086	242.99	0	0	26.362	-6215.3
36087	242.91	0	0	26.362	-6215.3
36088	242.97	0	0	26.362	-6215.3
36089	242.87	0	0	26.362	-6215.3
36090	242.91	0	0	26.362	-6215.3
36091	242.88	0	0	26.362	-6215.3
36092	242.88	0	0	26.362	-6215.3
36093	242.96	0	0	26.362	-6215.3
36094	242.92	0	0	26.362	-6215.3

36095	242.96	0	0	26.362	-6215.3
36096	242.89	0	0	26.362	-6215.3
36097	242.94	0	0	26.362	-6215.3
36098	242.89	0	0	26.362	-6215.3
36099	242.93	0	0	26.362	-6215.3
36100	242.8	0	0	26.362	-6215.3
36101	242.85	0	0	26.362	-6215.3
36102	242.88	0	0	26.362	-6215.3
36103	242.89	0	0	26.362	-6215.3
36104	242.85	0	0	26.362	-6215.3
36105	242.96	0	0	26.362	-6215.3
36106	243.01	0	0	26.362	-6215.3
36107	242.94	0	0	26.362	-6215.3
36108	242.94	0	0	26.362	-6215.3
36109	242.94	0	0	26.362	-6215.3
36110	242.9	0	0	26.362	-6215.3
36111	242.92	0	0	26.362	-6215.3
36112	242.98	0	0	26.362	-6215.3
36113	242.94	0	0	26.362	-6215.3
36114	242.87	0	0	26.362	-6215.3
36115	242.98	0	0	26.362	-6215.3
36116	243.03	0	0	26.362	-6215.3
36117	242.94	0	0	26.362	-6215.3
36118	242.93	0	0	26.362	-6215.3
36119	242.98	0	0	26.362	-6215.3
36120	242.92	0	0	26.362	-6215.3
36121	243	0	0	26.362	-6215.3
36122	242.99	0	0	26.362	-6215.3
36123	242.96	0	0	26.362	-6215.3
36124	242.89	0	0	26.362	-6215.3
36125	242.91	0	0	26.362	-6215.3
36126	242.97	0	0	26.362	-6215.3
36127	243.09	0	0	26.362	-6215.3
36128	243.04	0	0	26.362	-6215.3
36129	243.06	0	0	26.362	-6215.3
36130	243.07	0	0	26.362	-6215.3
36131	243.07	0	0	26.362	-6215.3
36132	243.05	0	0	26.362	-6215.3
36133	243.04	0	0	26.362	-6215.3
36134	242.99	0	0	26.362	-6215.3
36135	243.03	0	0	26.362	-6215.3
36136	243.03	0	0	26.362	-6215.3
36137	242.99	0	0	26.362	-6215.3
36138	243.02	0	0	26.362	-6215.3
36139	243.06	0	0	26.362	-6215.3
36140	243	0	0	26.362	-6215.3
36141	242.96	0	0	26.362	-6215.3

36142	243	0	0	26.362	-6215.3
36143	242.99	0	0	26.362	-6215.3
36144	243.04	0	0	26.362	-6215.3
36145	243.06	0	0	26.362	-6215.3
36146	242.99	0	0	26.362	-6215.3
36147	243.05	0	0	26.362	-6215.3
36148	243.06	0	0	26.362	-6215.3
36149	243.03	0	0	26.362	-6215.3
36150	243	0	0	26.362	-6215.3
36151	242.99	0	0	26.362	-6215.3
36152	243.02	0	0	26.362	-6215.3
36153	243.04	0	0	26.362	-6215.3
36154	243.05	0	0	26.362	-6215.3
36155	243.07	0	0	26.362	-6215.3
36156	242.96	0	0	26.362	-6215.3
36157	242.97	0	0	26.362	-6215.3
36158	242.96	0	0	26.362	-6215.3
36159	243.04	0	0	26.362	-6215.3
36160	243.01	0	0	26.362	-6215.3
36161	243.08	0	0	26.362	-6215.3
36162	243.02	0	0	26.362	-6215.3
36163	243.06	0	0	26.362	-6215.3
36164	242.96	0	0	26.362	-6215.3
36165	242.94	0	0	26.362	-6215.3
36166	242.96	0	0	26.362	-6215.3
36167	243.04	0	0	26.362	-6215.3
36168	243.08	0	0	26.362	-6215.3
36169	243.03	0	0	26.362	-6215.3
36170	242.94	0	0	26.362	-6215.3
36171	243	0	0	26.362	-6215.3
36172	243.16	0	0	26.362	-6215.3
36173	243.13	0	0	26.362	-6215.3
36174	243.02	0	0	26.362	-6215.3
36175	243.05	0	0	26.362	-6215.3
36176	243.05	0	0	26.362	-6215.3
36177	243.24	0	0	26.362	-6215.3
36178	243.15	0	0	26.362	-6215.3
36179	243.03	0	0	26.362	-6215.3
36180	243.21	0	0	26.362	-6215.3
36181	243.04	0	0	26.362	-6215.3
36182	243.08	0	0	26.362	-6215.3
36183	243.09	0	0	26.362	-6215.3
36184	243.01	0	0	26.362	-6215.3
36185	243.21	0	0	26.362	-6215.3
36186	243.16	0	0	26.362	-6215.3
36187	243.16	0	0	26.362	-6215.3
36188	243.11	0	0	26.362	-6215.3

36189	243.08	0	0	26.362	-6215.3
36190	243.09	0	0	26.362	-6215.3
36191	243.01	0	0	26.362	-6215.3
36192	243.04	0	0	26.362	-6215.3
36193	243.04	0	0	26.362	-6215.3
36194	243.08	0	0	26.362	-6215.3
36195	243.08	0	0	26.362	-6215.3
36196	243	0	0	26.362	-6215.3
36197	243.2	0	0	26.362	-6215.3
36198	243.1	0	0	26.362	-6215.3
36199	243.14	0	0	26.362	-6215.3
36200	243.01	0	0	26.362	-6215.3
36201	243.13	0	0	26.362	-6215.3
36202	243.09	0	0	26.362	-6215.3
36203	243.05	0	0	26.362	-6215.3
36204	243	0	0	26.362	-6215.3
36205	242.95	0	0	26.362	-6215.3
36206	242.94	0	0	26.362	-6215.3
36207	243.11	0	0	26.362	-6215.3
36208	242.94	0	0	26.362	-6215.3
36209	243.06	0	0	26.362	-6215.3
36210	243.03	0	0	26.362	-6215.3
36211	243.03	0	0	26.362	-6215.3
36212	243.1	0	0	26.362	-6215.3
36213	243.05	0	0	26.362	-6215.3
36214	242.99	0	0	26.362	-6215.3
36215	243.04	0	0	26.362	-6215.3
36216	243	0	0	26.362	-6215.3
36217	242.93	0	0	26.362	-6215.3
36218	243	0	0	26.362	-6215.3
36219	243.07	0	0	26.362	-6215.3
36220	243	0	0	26.362	-6215.3
36221	242.95	0	0	26.362	-6215.3
36222	242.97	0	0	26.362	-6215.3
36223	243.08	0	0	26.362	-6215.3
36224	242.97	0	0	26.362	-6215.3
36225	242.99	0	0	26.362	-6215.3
36226	243	0	0	26.362	-6215.3
36227	242.96	0	0	26.362	-6215.3
36228	243.01	0	0	26.362	-6215.3
36229	243.05	0	0	26.362	-6215.3
36230	243.09	0	0	26.362	-6215.3
36231	243.09	0	0	26.362	-6215.3
36232	243.07	0	0	26.362	-6215.3
36233	242.99	0	0	26.362	-6215.3
36234	242.98	0	0	26.362	-6215.3
36235	243.02	0	0	26.362	-6215.3

36236	242.97	0	0	26.362	-6215.3
36237	242.95	0	0	26.362	-6215.3
36238	243.1	0	0	26.362	-6215.3
36239	243.07	0	0	26.362	-6215.3
36240	243.18	0	0	26.362	-6215.3
36241	243.1	0	0	26.362	-6215.3
36242	243.1	0	0	26.362	-6215.3
36243	243.02	0	0	26.362	-6215.3
36244	243.06	0	0	26.362	-6215.3
36245	242.92	0	0	26.362	-6215.3
36246	243.04	0	0	26.362	-6215.3
36247	243.12	0	0	26.362	-6215.3
36248	243.05	0	0	26.362	-6215.3
36249	243.15	0	0	26.362	-6215.3
36250	243.04	0	0	26.362	-6215.3
36251	243.1	0	0	26.362	-6215.3
36252	243.11	0	0	26.362	-6215.3
36253	243.22	0	0	26.362	-6215.3
36254	243.12	0	0	26.362	-6215.3
36255	243.19	0	0	26.362	-6215.3
36256	243.16	0	0	26.362	-6215.3
36257	243.12	0	0	26.362	-6215.3
36258	243.17	0	0	26.362	-6215.3
36259	243.07	0	0	26.362	-6215.3
36260	243.1	0	0	26.362	-6215.3
36261	243.05	0	0	26.362	-6215.3
36262	243.16	0	0	26.362	-6215.3
36263	243.1	0	0	26.362	-6215.3
36264	243.12	0	0	26.362	-6215.3
36265	243.1	0	0	26.362	-6215.3
36266	243.01	0	0	26.362	-6215.3
36267	243.11	0	0	26.362	-6215.3
36268	243.12	0	0	26.362	-6215.3
36269	243.04	0	0	26.362	-6215.3
36270	243.2	0	0	26.362	-6215.3
36271	243.2	0	0	26.362	-6215.3
36272	243.13	0	0	26.362	-6215.3
36273	243.11	0	0	26.362	-6215.3
36274	243.14	0	0	26.362	-6215.3
36275	243.14	0	0	26.362	-6215.3
36276	243.12	0	0	26.362	-6215.3
36277	243.19	0	0	26.362	-6215.3
36278	243.14	0	0	26.362	-6215.3
36279	243.13	0	0	26.362	-6215.3
36280	243.07	0	0	26.362	-6215.3
36281	243.08	0	0	26.362	-6215.3
36282	243.11	0	0	26.362	-6215.3

36283	243.03	0	0	26.362	-6215.3
36284	242.99	0	0	26.362	-6215.3
36285	243.03	0	0	26.362	-6215.3
36286	243.1	0	0	26.362	-6215.3
36287	243.05	0	0	26.362	-6215.3
36288	243	0	0	26.362	-6215.3
36289	242.95	0	0	26.362	-6215.3
36290	243.2	0	0	26.362	-6215.3
36291	243.27	0	0	26.362	-6215.3
36292	243.21	0	0	26.362	-6215.3
36293	243.07	0	0	26.362	-6215.3
36294	242.99	0	0	26.362	-6215.3
36295	243.12	0	0	26.362	-6215.3
36296	243.03	0	0	26.362	-6215.3
36297	243.07	0	0	26.362	-6215.3
36298	243.07	0	0	26.362	-6215.3
36299	243.02	0	0	26.362	-6215.3
36300	243.03	0	0	26.362	-6215.3
36301	243.04	0	0	26.362	-6215.3
36302	243.06	0	0	26.362	-6215.3
36303	243.01	0	0	26.362	-6215.3
36304	243.06	0	0	26.362	-6215.3
36305	242.98	0	0	26.362	-6215.3
36306	242.98	0	0	26.362	-6215.3
36307	243.04	0	0	26.362	-6215.3
36308	242.78	0	0	26.362	-6215.3
36309	242.99	0	0	26.362	-6215.3
36310	242.98	0	0	26.362	-6215.3
36311	242.85	0	0	26.362	-6215.3
36312	242.92	0	0	26.362	-6215.3
36313	242.89	0	0	26.362	-6215.3
36314	242.89	0	0	26.362	-6215.3
36315	242.95	0	0	26.362	-6215.3
36316	242.87	0	0	26.362	-6215.3
36317	242.93	0	0	26.362	-6215.3
36318	242.86	0	0	26.362	-6215.3
36319	242.92	0	0	26.362	-6215.3
36320	242.85	0	0	26.362	-6215.3
36321	242.95	0	0	26.362	-6215.3
36322	242.88	0	0	26.362	-6215.3
36323	242.86	0	0	26.362	-6215.3
36324	242.88	0	0	26.362	-6215.3
36325	242.88	0	0	26.362	-6215.3
36326	242.82	0	0	26.362	-6215.3
36327	242.8	0	0	26.362	-6215.3
36328	242.82	0	0	26.362	-6215.3
36329	242.89	0	0	26.362	-6215.3

36330	242.8	0	0	26.362	-6215.3
36331	242.82	0	0	26.362	-6215.3
36332	242.81	0	0	26.362	-6215.3
36333	242.93	0	0	26.362	-6215.3
36334	242.08	0	0	26.362	-6215.3
36335	242.8	0	0	26.362	-6215.3
36336	242.71	0	0	26.362	-6215.3
36337	242.73	0	0	26.362	-6215.3
36338	242.75	0	0	26.362	-6215.3
36339	242.79	0	0	26.362	-6215.3
36340	242.83	0	0	26.362	-6215.3
36341	242.75	0	0	26.362	-6215.3
36342	242.76	0	0	26.362	-6215.3
36343	242.76	0	0	26.362	-6215.3
36344	242.73	0	0	26.362	-6215.3
36345	242.79	0	0	26.362	-6215.3
36346	242.74	0	0	26.362	-6215.3
36347	242.72	0	0	26.362	-6215.3
36348	242.73	0	0	26.362	-6215.3
36349	242.7	0	0	26.362	-6215.3
36350	242.71	0	0	26.362	-6215.3
36351	242.77	0	0	26.362	-6215.3
36352	242.72	0	0	26.362	-6215.3
36353	242.71	0	0	26.362	-6215.3
36354	242.77	0	0	26.362	-6215.3
36355	242.7	0	0	26.362	-6215.3
36356	242.79	0	0	26.362	-6215.3
36357	242.76	0	0	26.362	-6215.3
36358	242.75	0	0	26.362	-6215.3
36359	242.81	0	0	26.362	-6215.3
36360	242.81	0	0	26.362	-6215.3
36361	242.76	0	0	26.362	-6215.3
36362	242.8	0	0	26.362	-6215.3
36363	242.78	0	0	26.362	-6215.3
36364	242.86	0	0	26.362	-6215.3
36365	242.9	0	0	26.362	-6215.3
36366	242.86	0	0	26.362	-6215.3
36367	242.8	0	0	26.362	-6215.3
36368	242.94	0	0	26.362	-6215.3
36369	242.86	0	0	26.362	-6215.3
36370	242.92	0	0	26.362	-6215.3
36371	242.99	0	0	26.362	-6215.3
36372	242.92	0	0	26.362	-6215.3
36373	242.81	0	0	26.362	-6215.3
36374	242.79	0	0	26.362	-6215.3
36375	242.96	0	0	26.362	-6215.3
36376	243	0	0	26.362	-6215.3

36377	243	0	0	26.362	-6215.3
36378	242.97	0	0	26.362	-6215.3
36379	242.85	0	0	26.362	-6215.3
36380	242.94	0	0	26.362	-6215.3
36381	242.9	0	0	26.362	-6215.3
36382	242.2	0	0	26.362	-6215.3
36383	242.8	0	0	26.362	-6215.3
36384	242.86	0	0	26.362	-6215.3
36385	242.83	0	0	26.362	-6215.3
36386	242.84	0	0	26.362	-6215.3
36387	242.85	0	0	26.362	-6215.3
36388	242.83	0	0	26.362	-6215.3
36389	242.81	0	0	26.362	-6215.3
36390	242.81	0	0	26.362	-6215.3
36391	242.78	0	0	26.362	-6215.3
36392	242.8	0	0	26.362	-6215.3
36393	242.74	0	0	26.362	-6215.3
36394	242.78	0	0	26.362	-6215.3
36395	242.75	0	0	26.362	-6215.3
36396	242.77	0	0	26.362	-6215.3
36397	242.79	0	0	26.362	-6215.3
36398	242.8	0	0	26.362	-6215.3
36399	242.84	0	0	26.362	-6215.3
36400	242.83	0	0	26.362	-6215.3
36401	242.85	0	0	26.362	-6215.3
36402	242.84	0	0	26.362	-6215.3
36403	242.81	0	0	26.362	-6215.3
36404	242.77	0	0	26.362	-6215.3
36405	242.79	0	0	26.362	-6215.3
36406	242.73	0	0	26.362	-6215.3
36407	242.84	0	0	26.362	-6215.3
36408	242.73	0	0	26.362	-6215.3
36409	242.82	0	0	26.362	-6215.3
36410	242.81	0	0	26.362	-6215.3
36411	242.75	0	0	26.362	-6215.3
36412	242.76	0	0	26.362	-6215.3
36413	242.79	0	0	26.362	-6215.3
36414	242.71	0	0	26.362	-6215.3
36415	242.73	0	0	26.362	-6215.3
36416	242.73	0	0	26.362	-6215.3
36417	242.68	0	0	26.362	-6215.3
36418	242.7	0	0	26.362	-6215.3
36419	242.68	0	0	26.362	-6215.3
36420	242.73	0	0	26.362	-6215.3
36421	242.54	0	0	26.362	-6215.3
36422	242.86	0	0	26.362	-6215.3
36423	242.82	0	0	26.362	-6215.3

36424	242.77	0	0	26.362	-6215.3
36425	242.65	0	0	26.362	-6215.3
36426	242.59	0	0	26.362	-6215.3
36427	242.69	0	0	26.362	-6215.3
36428	242.7	0	0	26.362	-6215.3
36429	242.7	0	0	26.362	-6215.3
36430	242.79	0	0	26.362	-6215.3
36431	242.73	0	0	26.362	-6215.3
36432	242.65	0	0	26.362	-6215.3
36433	242.74	0	0	26.362	-6215.3
36434	242.66	0	0	26.362	-6215.3
36435	242.66	0	0	26.362	-6215.3
36436	242.76	0	0	26.362	-6215.3
36437	242.65	0	0	26.362	-6215.3
36438	242.88	0	0	26.362	-6215.3
36439	242.96	0	0	26.362	-6215.3
36440	242.91	0	0	26.362	-6215.3
36441	242.75	0	0	26.362	-6215.3
36442	242.81	0	0	26.362	-6215.3
36443	242.78	0	0	26.362	-6215.3
36444	242.79	0	0	26.362	-6215.3
36445	242.78	0	0	26.362	-6215.3
36446	242.67	0	0	26.362	-6215.3
36447	242.71	0	0	26.362	-6215.3
36448	242.83	0	0	26.362	-6215.3
36449	242.81	0	0	26.362	-6215.3
36450	242.81	0	0	26.362	-6215.3
36451	242.88	0	0	26.362	-6215.3
36452	242.78	0	0	26.362	-6215.3
36453	242.78	0	0	26.362	-6215.3
36454	242.85	0	0	26.362	-6215.3
36455	242.81	0	0	26.362	-6215.3
36456	242.83	0	0	26.362	-6215.3
36457	242.73	0	0	26.362	-6215.3
36458	242.82	0	0	26.362	-6215.3
36459	242.84	0	0	26.362	-6215.3
36460	242.96	0	0	26.362	-6215.3
36461	242.86	0	0	26.362	-6215.3
36462	242.83	0	0	26.362	-6215.3
36463	242.78	0	0	26.362	-6215.3
36464	242.86	0	0	26.362	-6215.3
36465	242.88	0	0	26.362	-6215.3
36466	242.87	0	0	26.362	-6215.3
36467	242.83	0	0	26.362	-6215.3
36468	242.84	0	0	26.362	-6215.3
36469	242.92	0	0	26.362	-6215.3
36470	242.76	0	0	26.362	-6215.3

36471	242.86	0	0	26.362	-6215.3
36472	242.82	0	0	26.362	-6215.3
36473	242.9	0	0	26.362	-6215.3
36474	242.89	0	0	26.362	-6215.3
36475	242.86	0	0	26.362	-6215.3
36476	242.8	0	0	26.362	-6215.3
36477	242.82	0	0	26.362	-6215.3
36478	242.82	0	0	26.362	-6215.3
36479	242.88	0	0	26.362	-6215.3
36480	242.94	0	0	26.362	-6215.3
36481	242.86	0	0	26.362	-6215.3
36482	242.88	0	0	26.362	-6215.3
36483	242.9	0	0	26.362	-6215.3
36484	242.93	0	0	26.362	-6215.3
36485	242.92	0	0	26.362	-6215.3
36486	242.95	0	0	26.362	-6215.3
36487	242.94	0	0	26.362	-6215.3
36488	242.95	0	0	26.362	-6215.3
36489	242.99	0	0	26.362	-6215.3
36490	243.03	0	0	26.362	-6215.3
36491	242.99	0	0	26.362	-6215.3
36492	242.98	0	0	26.362	-6215.3
36493	242.97	0	0	26.362	-6215.3
36494	243.02	0	0	26.362	-6215.3
36495	242.97	0	0	26.362	-6215.3
36496	242.9	0	0	26.362	-6215.3
36497	242.9	0	0	26.362	-6215.3
36498	242.87	0	0	26.362	-6215.3
36499	242.83	0	0	26.362	-6215.3
36500	242.8	0	0	26.362	-6215.3
36501	242.87	0	0	26.362	-6215.3
36502	242.86	0	0	26.362	-6215.3
36503	242.81	0	0	26.362	-6215.3
36504	242.83	0	0	26.362	-6215.3
36505	242.84	0	0	26.362	-6215.3
36506	242.83	0	0	26.362	-6215.3
36507	242.89	0	0	26.362	-6215.3
36508	242.95	0	0	26.362	-6215.3
36509	242.91	0	0	26.362	-6215.3
36510	242.89	0	0	26.362	-6215.3
36511	242.89	0	0	26.362	-6215.3
36512	242.89	0	0	26.362	-6215.3
36513	242.89	0	0	26.362	-6215.3
36514	242.9	0	0	26.362	-6215.3
36515	242.92	0	0	26.362	-6215.3
36516	242.92	0	0	26.362	-6215.3
36517	242.88	0	0	26.362	-6215.3

36518	242.84	0	0	26.362	-6215.3
36519	242.9	0	0	26.362	-6215.3
36520	242.93	0	0	26.362	-6215.3
36521	242.98	0	0	26.362	-6215.3
36522	242.97	0	0	26.362	-6215.3
36523	242.98	0	0	26.362	-6215.3
36524	242.95	0	0	26.362	-6215.3
36525	242.94	0	0	26.362	-6215.3
36526	242.97	0	0	26.362	-6215.3
36527	242.95	0	0	26.362	-6215.3
36528	243.01	0	0	26.362	-6215.3
36529	243.05	0	0	26.362	-6215.3
36530	243.09	0	0	26.362	-6215.3
36531	242.93	0	0	26.362	-6215.3
36532	243	0	0	26.362	-6215.3
36533	243.11	0	0	26.362	-6215.3
36534	242.94	0	0	26.362	-6215.3
36535	242.98	0	0	26.362	-6215.3
36536	242.94	0	0	26.362	-6215.3
36537	243.09	0	0	26.362	-6215.3
36538	242.91	0	0	26.362	-6215.3
36539	243.04	0	0	26.362	-6215.3
36540	243.07	0	0	26.362	-6215.3
36541	242.97	0	0	26.362	-6215.3
36542	243.04	0	0	26.362	-6215.3
36543	243.05	0	0	26.362	-6215.3
36544	242.96	0	0	26.362	-6215.3
36545	243.05	0	0	26.362	-6215.3
36546	243.02	0	0	26.362	-6215.3
36547	242.97	0	0	26.362	-6215.3
36548	242.97	0	0	26.362	-6215.3
36549	243.02	0	0	26.362	-6215.3
36550	242.94	0	0	26.362	-6215.3
36551	242.98	0	0	26.362	-6215.3
36552	242.92	0	0	26.362	-6215.3
36553	242.92	0	0	26.362	-6215.3
36554	242.95	0	0	26.362	-6215.3
36555	242.98	0	0	26.362	-6215.3
36556	242.91	0	0	26.362	-6215.3
36557	242.91	0	0	26.362	-6215.3
36558	242.91	0	0	26.362	-6215.3
36559	242.87	0	0	26.362	-6215.3
36560	242.91	0	0	26.362	-6215.3
36561	242.94	0	0	26.362	-6215.3
36562	242.88	0	0	26.362	-6215.3
36563	242.98	0	0	26.362	-6215.3
36564	242.99	0	0	26.362	-6215.3

36565	242.93	0	0	26.362	-6215.3
36566	242.96	0	0	26.362	-6215.3
36567	242.98	0	0	26.362	-6215.3
36568	242.98	0	0	26.362	-6215.3
36569	243.01	0	0	26.362	-6215.3
36570	243	0	0	26.362	-6215.3
36571	243.02	0	0	26.362	-6215.3
36572	243.04	0	0	26.362	-6215.3
36573	243.05	0	0	26.362	-6215.3
36574	243.01	0	0	26.362	-6215.3
36575	243.05	0	0	26.362	-6215.3
36576	243.02	0	0	26.362	-6215.3
36577	243.02	0	0	26.362	-6215.3
36578	242.97	0	0	26.362	-6215.3
36579	243.13	0	0	26.362	-6215.3
36580	243.05	0	0	26.362	-6215.3
36581	243.11	0	0	26.362	-6215.3
36582	243.13	0	0	26.362	-6215.3
36583	243.21	0	0	26.362	-6215.3
36584	243.25	0	0	26.362	-6215.3
36585	243.2	0	0	26.362	-6215.3
36586	243.13	0	0	26.362	-6215.3
36587	243.25	0	0	26.362	-6215.3
36588	243.13	0	0	26.362	-6215.3
36589	243.13	0	0	26.362	-6215.3
36590	243.17	0	0	26.362	-6215.3
36591	243.17	0	0	26.362	-6215.3
36592	243.1	0	0	26.362	-6215.3
36593	243.17	0	0	26.362	-6215.3
36594	242.99	0	0	26.362	-6215.3
36595	243.16	0	0	26.362	-6215.3
36596	242.94	0	0	26.362	-6215.3
36597	243.02	0	0	26.362	-6215.3
36598	243.03	0	0	26.362	-6215.3
36599	243.03	0	0	26.362	-6215.3
36600	243.05	0	0	26.362	-6215.3
36601	243.1	0	0	26.362	-6215.3
36602	243.13	0	0	26.362	-6215.3
36603	243	0	0	26.362	-6215.3
36604	243.21	0	0	26.362	-6215.3
36605	243.22	0	0	26.362	-6215.3
36606	243.18	0	0	26.362	-6215.3
36607	243.22	0	0	26.362	-6215.3
36608	243.26	0	0	26.362	-6215.3
36609	243.24	0	0	26.362	-6215.3
36610	243.27	0	0	26.362	-6215.3
36611	243.3	0	0	26.362	-6215.3

36612	243.24	0	0	26.362	-6215.3
36613	243.27	0	0	26.362	-6215.3
36614	243.35	0	0	26.362	-6215.3
36615	243.55	0	0	26.362	-6215.3
36616	243.56	0	0	26.362	-6215.3
36617	243.52	0	0	26.362	-6215.3
36618	243.51	0	0	26.362	-6215.3
36619	243.48	0	0	26.362	-6215.3
36620	243.56	0	0	26.362	-6215.3
36621	243.56	0	0	26.362	-6215.3
36622	243.58	0	0	26.362	-6215.3
36623	243.6	0	0	26.362	-6215.3
36624	243.51	0	0	26.362	-6215.3
36625	243.58	0	0	26.362	-6215.3
36626	243.57	0	0	26.362	-6215.3
36627	243.67	0	0	26.362	-6215.3
36628	243.63	0	0	26.362	-6215.3
36629	243.52	0	0	26.362	-6215.3
36630	243.6	0	0	26.362	-6215.3
36631	243.58	0	0	26.362	-6215.3
36632	243.6	0	0	26.362	-6215.3
36633	243.57	0	0	26.362	-6215.3
36634	243.6	0	0	26.362	-6215.3
36635	243.54	0	0	26.362	-6215.3
36636	243.58	0	0	26.362	-6215.3
36637	243.52	0	0	26.362	-6215.3
36638	243.52	0	0	26.362	-6215.3
36639	243.5	0	0	26.362	-6215.3
36640	243.48	0	0	26.362	-6215.3
36641	243.49	0	0	26.362	-6215.3
36642	243.49	0	0	26.362	-6215.3
36643	243.42	0	0	26.362	-6215.3
36644	243.5	0	0	26.362	-6215.3
36645	243.45	0	0	26.362	-6215.3
36646	243.55	0	0	26.362	-6215.3
36647	243.5	0	0	26.362	-6215.3
36648	243.55	0	0	26.362	-6215.3
36649	243.45	0	0	26.362	-6215.3
36650	243.44	0	0	26.362	-6215.3
36651	243.52	0	0	26.362	-6215.3
36652	243.45	0	0	26.362	-6215.3
36653	243.45	0	0	26.362	-6215.3
36654	243.44	0	0	26.362	-6215.3
36655	243.49	0	0	26.362	-6215.3
36656	243.5	0	0	26.362	-6215.3
36657	243.37	0	0	26.362	-6215.3
36658	243.48	0	0	26.362	-6215.3

36659	243.51	0	0	26.362	-6215.3
36660	243.5	0	0	26.362	-6215.3
36661	243.43	0	0	26.362	-6215.3
36662	243.43	0	0	26.362	-6215.3
36663	243.39	0	0	26.362	-6215.3
36664	243.4	0	0	26.362	-6215.3
36665	243.51	0	0	26.362	-6215.3
36666	243.48	0	0	26.362	-6215.3
36667	243.49	0	0	26.362	-6215.3
36668	243.49	0	0	26.362	-6215.3
36669	243.48	0	0	26.362	-6215.3
36670	243.47	0	0	26.362	-6215.3
36671	243.44	0	0	26.362	-6215.3
36672	243.46	0	0	26.362	-6215.3
36673	243.45	0	0	26.362	-6215.3
36674	243.46	0	0	26.362	-6215.3
36675	243.11	0	0	26.362	-6215.3
36676	243.04	0	0	26.362	-6215.3
36677	243.05	0	0	26.362	-6215.3
36678	243.12	0	0	26.362	-6215.3
36679	242.99	0	0	26.362	-6215.3
36680	242.94	0	0	26.362	-6215.3
36681	243.04	0	0	26.362	-6215.3
36682	242.98	0	0	26.362	-6215.3
36683	242.95	0	0	26.362	-6215.3
36684	242.95	0	0	26.362	-6215.3
36685	242.93	0	0	26.362	-6215.3
36686	242.99	0	0	26.362	-6215.3
36687	243	0	0	26.362	-6215.3
36688	243.08	0	0	26.362	-6215.3
36689	243.02	0	0	26.362	-6215.3
36690	242.96	0	0	26.362	-6215.3
36691	243.03	0	0	26.362	-6215.3
36692	242.97	0	0	26.362	-6215.3
36693	243.08	0	0	26.362	-6215.3
36694	242.95	0	0	26.362	-6215.3
36695	243	0	0	26.362	-6215.3
36696	242.98	0	0	26.362	-6215.3
36697	243	0	0	26.362	-6215.3
36698	242.99	0	0	26.362	-6215.3
36699	243.06	0	0	26.362	-6215.3
36700	242.99	0	0	26.362	-6215.3
36701	242.99	0	0	26.362	-6215.3
36702	243	0	0	26.362	-6215.3
36703	242.94	0	0	26.362	-6215.3
36704	242.94	0	0	26.362	-6215.3
36705	243.02	0	0	26.362	-6215.3

36706	242.99	0	0	26.362	-6215.3
36707	242.95	0	0	26.362	-6215.3
36708	243.01	0	0	26.362	-6215.3
36709	243.02	0	0	26.362	-6215.3
36710	242.99	0	0	26.362	-6215.3
36711	243.03	0	0	26.362	-6215.3
36712	243.02	0	0	26.362	-6215.3
36713	242.98	0	0	26.362	-6215.3
36714	242.97	0	0	26.362	-6215.3
36715	242.92	0	0	26.362	-6215.3
36716	242.99	0	0	26.362	-6215.3
36717	242.96	0	0	26.362	-6215.3
36718	243	0	0	26.362	-6215.3
36719	243.02	0	0	26.362	-6215.3
36720	242.95	0	0	26.362	-6215.3
36721	243	0	0	26.362	-6215.3
36722	243.01	0	0	26.362	-6215.3
36723	242.97	0	0	26.362	-6215.3
36724	242.94	0	0	26.362	-6215.3
36725	242.99	0	0	26.362	-6215.3
36726	242.95	0	0	26.362	-6215.3
36727	243.02	0	0	26.362	-6215.3
36728	243.01	0	0	26.362	-6215.3
36729	243.09	0	0	26.362	-6215.3
36730	243.15	0	0	26.362	-6215.3
36731	243.12	0	0	26.362	-6215.3
36732	243.1	0	0	26.362	-6215.3
36733	243.14	0	0	26.362	-6215.3
36734	243.1	0	0	26.362	-6215.3
36735	243.15	0	0	26.362	-6215.3
36736	243.12	0	0	26.362	-6215.3
36737	243.12	0	0	26.362	-6215.3
36738	243.15	0	0	26.362	-6215.3
36739	243.14	0	0	26.362	-6215.3
36740	243.18	0	0	26.362	-6215.3
36741	243.1	0	0	26.362	-6215.3
36742	243.16	0	0	26.362	-6215.3
36743	243.16	0	0	26.362	-6215.3
36744	243.17	0	0	26.362	-6215.3
36745	243.18	0	0	26.362	-6215.3
36746	243.17	0	0	26.362	-6215.3
36747	243.17	0	0	26.362	-6215.3
36748	243.16	0	0	26.362	-6215.3
36749	243.13	0	0	26.362	-6215.3
36750	243.19	0	0	26.362	-6215.3
36751	243.18	0	0	26.362	-6215.3
36752	243.14	0	0	26.362	-6215.3

36753	243.17	0	0	26.362	-6215.3
36754	243.16	0	0	26.362	-6215.3
36755	243.19	0	0	26.362	-6215.3
36756	243.11	0	0	26.362	-6215.3
36757	243.09	0	0	26.362	-6215.3
36758	243.07	0	0	26.362	-6215.3
36759	243.17	0	0	26.362	-6215.3
36760	243.13	0	0	26.362	-6215.3
36761	243.16	0	0	26.362	-6215.3
36762	243.16	0	0	26.362	-6215.3
36763	243.12	0	0	26.362	-6215.3
36764	243.13	0	0	26.362	-6215.3
36765	243.15	0	0	26.362	-6215.3
36766	243.17	0	0	26.362	-6215.3
36767	243.12	0	0	26.362	-6215.3
36768	243.17	0	0	26.362	-6215.3
36769	243.12	0	0	26.362	-6215.3
36770	243.11	0	0	26.362	-6215.3
36771	243.11	0	0	26.362	-6215.3
36772	243.17	0	0	26.362	-6215.3
36773	243.16	0	0	26.362	-6215.3
36774	243.15	0	0	26.362	-6215.3
36775	243.16	0	0	26.362	-6215.3
36776	243.2	0	0	26.362	-6215.3
36777	243.17	0	0	26.362	-6215.3
36778	243.16	0	0	26.362	-6215.3
36779	243.21	0	0	26.362	-6215.3
36780	243.18	0	0	26.362	-6215.3
36781	243.2	0	0	26.362	-6215.3
36782	243.25	0	0	26.362	-6215.3
36783	242.47	0	0	26.362	-6215.3
36784	242.67	0	0	26.362	-6215.3
36785	243.13	0	0	26.362	-6215.3
36786	243.15	0	0	26.362	-6215.3
36787	243.09	0	0	26.362	-6215.3
36788	243.1	0	0	26.362	-6215.3
36789	243.13	0	0	26.362	-6215.3
36790	243.07	0	0	26.362	-6215.3
36791	243.03	0	0	26.362	-6215.3
36792	243.09	0	0	26.362	-6215.3
36793	243.08	0	0	26.362	-6215.3
36794	243.04	0	0	26.362	-6215.3
36795	243.09	0	0	26.362	-6215.3
36796	243.01	0	0	26.362	-6215.3
36797	243	0	0	26.362	-6215.3
36798	243.01	0	0	26.362	-6215.3
36799	243.04	0	0	26.362	-6215.3

36800	243.1	0	0	26.362	-6215.3
36801	243.02	0	0	26.362	-6215.3
36802	243.02	0	0	26.362	-6215.3
36803	243.07	0	0	26.362	-6215.3
36804	242.95	0	0	26.362	-6215.3
36805	243.08	0	0	26.362	-6215.3
36806	243.07	0	0	26.362	-6215.3
36807	243.01	0	0	26.362	-6215.3
36808	243	0	0	26.362	-6215.3
36809	243.05	0	0	26.362	-6215.3
36810	243.01	0	0	26.362	-6215.3
36811	243.05	0	0	26.362	-6215.3
36812	242.97	0	0	26.362	-6215.3
36813	243.07	0	0	26.362	-6215.3
36814	243.06	0	0	26.362	-6215.3
36815	243.05	0	0	26.362	-6215.3
36816	243.04	0	0	26.362	-6215.3
36817	242.99	0	0	26.362	-6215.3
36818	243.02	0	0	26.362	-6215.3
36819	243.01	0	0	26.362	-6215.3
36820	243	0	0	26.362	-6215.3
36821	243	0	0	26.362	-6215.3
36822	242.96	0	0	26.362	-6215.3
36823	242.96	0	0	26.362	-6215.3
36824	242.92	0	0	26.362	-6215.3
36825	242.94	0	0	26.362	-6215.3
36826	242.91	0	0	26.362	-6215.3
36827	243.04	0	0	26.362	-6215.3
36828	243.05	0	0	26.362	-6215.3
36829	243	0	0	26.362	-6215.3
36830	243.01	0	0	26.362	-6215.3
36831	243.04	0	0	26.362	-6215.3
36832	243.02	0	0	26.362	-6215.3
36833	243.02	0	0	26.362	-6215.3
36834	243.03	0	0	26.362	-6215.3
36835	243.04	0	0	26.362	-6215.3
36836	243.07	0	0	26.362	-6215.3
36837	243.02	0	0	26.362	-6215.3
36838	243.07	0	0	26.362	-6215.3
36839	243.04	0	0	26.362	-6215.3
36840	243.04	0	0	26.362	-6215.3
36841	243.08	0	0	26.362	-6215.3
36842	243.13	0	0	26.362	-6215.3
36843	243.05	0	0	26.362	-6215.3
36844	243.06	0	0	26.362	-6215.3
36845	243.09	0	0	26.362	-6215.3
36846	243.09	0	0	26.362	-6215.3

36847	243.1	0	0	26.362	-6215.3
36848	243.09	0	0	26.362	-6215.3
36849	243.1	0	0	26.362	-6215.3
36850	243.05	0	0	26.362	-6215.3
36851	243.09	0	0	26.362	-6215.3
36852	243.06	0	0	26.362	-6215.3
36853	243.1	0	0	26.362	-6215.3
36854	243.09	0	0	26.362	-6215.3
36855	243.17	0	0	26.362	-6215.3
36856	243.15	0	0	26.362	-6215.3
36857	243.14	0	0	26.362	-6215.3
36858	243.16	0	0	26.362	-6215.3
36859	243.16	0	0	26.362	-6215.3
36860	243.13	0	0	26.362	-6215.3
36861	243.16	0	0	26.362	-6215.3
36862	243.19	0	0	26.362	-6215.3
36863	243.17	0	0	26.362	-6215.3
36864	243.15	0	0	26.362	-6215.3
36865	243.17	0	0	26.362	-6215.3
36866	243.12	0	0	26.362	-6215.3
36867	243.13	0	0	26.362	-6215.3
36868	243.18	0	0	26.362	-6215.3
36869	243.17	0	0	26.362	-6215.3
36870	243.17	0	0	26.362	-6215.3
36871	243.19	0	0	26.362	-6215.3
36872	243.16	0	0	26.362	-6215.3
36873	243.15	0	0	26.362	-6215.3
36874	243.1	0	0	26.362	-6215.3
36875	243.17	0	0	26.362	-6215.3
36876	243.16	0	0	26.362	-6215.3
36877	243.17	0	0	26.362	-6215.3
36878	243.17	0	0	26.362	-6215.3
36879	243.19	0	0	26.362	-6215.3
36880	243.15	0	0	26.362	-6215.3
36881	243.18	0	0	26.362	-6215.3
36882	243.14	0	0	26.362	-6215.3
36883	243.13	0	0	26.362	-6215.3
36884	243.15	0	0	26.362	-6215.3
36885	243.18	0	0	26.362	-6215.3
36886	243.2	0	0	26.362	-6215.3
36887	243.17	0	0	26.362	-6215.3
36888	243.16	0	0	26.362	-6215.3
36889	243.14	0	0	26.362	-6215.3
36890	243.15	0	0	26.362	-6215.3
36891	243.12	0	0	26.362	-6215.3
36892	243.15	0	0	26.362	-6215.3
36893	243.19	0	0	26.362	-6215.3

36894	243.17	0	0	26.362	-6215.3
36895	243.19	0	0	26.362	-6215.3
36896	243.18	0	0	26.362	-6215.3
36897	243.25	0	0	26.362	-6215.3
36898	243.17	0	0	26.362	-6215.3
36899	243.2	0	0	26.362	-6215.3
36900	243.17	0	0	26.362	-6215.3
36901	243.16	0	0	26.362	-6215.3
36902	243.19	0	0	26.362	-6215.3
36903	243.14	0	0	26.362	-6215.3
36904	243.15	0	0	26.362	-6215.3
36905	243.16	0	0	26.362	-6215.3
36906	243.13	0	0	26.362	-6215.3
36907	243.11	0	0	26.362	-6215.3
36908	243.13	0	0	26.362	-6215.3
36909	243.12	0	0	26.362	-6215.3
36910	243.14	0	0	26.362	-6215.3
36911	243.13	0	0	26.362	-6215.3
36912	243.1	0	0	26.362	-6215.3
36913	243.08	0	0	26.362	-6215.3
36914	243.06	0	0	26.362	-6215.3
36915	243.02	0	0	26.362	-6215.3
36916	243.06	0	0	26.362	-6215.3
36917	243	0	0	26.362	-6215.3
36918	243.05	0	0	26.362	-6215.3
36919	243.07	0	0	26.362	-6215.3
36920	242.99	0	0	26.362	-6215.3
36921	243.01	0	0	26.362	-6215.3
36922	243.02	0	0	26.362	-6215.3
36923	242.98	0	0	26.362	-6215.3
36924	243.04	0	0	26.362	-6215.3
36925	243.01	0	0	26.362	-6215.3
36926	243.01	0	0	26.362	-6215.3
36927	243.07	0	0	26.362	-6215.3
36928	243.06	0	0	26.362	-6215.3
36929	243.07	0	0	26.362	-6215.3
36930	243.04	0	0	26.362	-6215.3
36931	243	0	0	26.362	-6215.3
36932	243	0	0	26.362	-6215.3
36933	242.97	0	0	26.362	-6215.3
36934	242.96	0	0	26.362	-6215.3
36935	242.96	0	0	26.362	-6215.3
36936	242.96	0	0	26.362	-6215.3
36937	242.97	0	0	26.362	-6215.3
36938	242.99	0	0	26.362	-6215.3
36939	243.05	0	0	26.362	-6215.3
36940	243.05	0	0	26.362	-6215.3

36941	243.07	0	0	26.362	-6215.3
36942	243.04	0	0	26.362	-6215.3
36943	243.07	0	0	26.362	-6215.3
36944	243.04	0	0	26.362	-6215.3
36945	243.03	0	0	26.362	-6215.3
36946	243.1	0	0	26.362	-6215.3
36947	243.08	0	0	26.362	-6215.3
36948	243.1	0	0	26.362	-6215.3
36949	243.04	0	0	26.362	-6215.3
36950	243.08	0	0	26.362	-6215.3
36951	243.1	0	0	26.362	-6215.3
36952	243.14	0	0	26.362	-6215.3
36953	243.13	0	0	26.362	-6215.3
36954	243.11	0	0	26.362	-6215.3
36955	243.08	0	0	26.362	-6215.3
36956	243.11	0	0	26.362	-6215.3
36957	243.11	0	0	26.362	-6215.3
36958	243.14	0	0	26.362	-6215.3
36959	243.16	0	0	26.362	-6215.3
36960	243.2	0	0	26.362	-6215.3
36961	243.21	0	0	26.362	-6215.3
36962	243.14	0	0	26.362	-6215.3
36963	243.14	0	0	26.362	-6215.3
36964	243.2	0	0	26.362	-6215.3
36965	243.22	0	0	26.362	-6215.3
36966	243.16	0	0	26.362	-6215.3
36967	243.18	0	0	26.362	-6215.3
36968	243.17	0	0	26.362	-6215.3
36969	243.19	0	0	26.362	-6215.3
36970	243.17	0	0	26.362	-6215.3
36971	243.19	0	0	26.362	-6215.3
36972	243.26	0	0	26.362	-6215.3
36973	243.29	0	0	26.362	-6215.3
36974	243.24	0	0	26.362	-6215.3
36975	243.24	0	0	26.362	-6215.3
36976	243.22	0	0	26.362	-6215.3
36977	243.2	0	0	26.362	-6215.3
36978	243.23	0	0	26.362	-6215.3
36979	243.23	0	0	26.362	-6215.3
36980	243.25	0	0	26.362	-6215.3
36981	243.29	0	0	26.362	-6215.3
36982	243.28	0	0	26.362	-6215.3
36983	243.25	0	0	26.362	-6215.3
36984	243.21	0	0	26.362	-6215.3
36985	243.23	0	0	26.362	-6215.3
36986	243.25	0	0	26.362	-6215.3
36987	243.31	0	0	26.362	-6215.3

36988	243.26	0	0	26.362	-6215.3
36989	243.27	0	0	26.362	-6215.3
36990	243.29	0	0	26.362	-6215.3
36991	243.26	0	0	26.362	-6215.3
36992	243.27	0	0	26.362	-6215.3
36993	243.3	0	0	26.362	-6215.3
36994	243.28	0	0	26.362	-6215.3
36995	243.25	0	0	26.362	-6215.3
36996	243.26	0	0	26.362	-6215.3
36997	243.19	0	0	26.362	-6215.3
36998	243.17	0	0	26.362	-6215.3
36999	243.21	0	0	26.362	-6215.3
37000	243.26	0	0	26.362	-6215.3
37001	243.23	0	0	26.362	-6215.3
37002	243.24	0	0	26.362	-6215.3
37003	243.29	0	0	26.362	-6215.3
37004	243.23	0	0	26.362	-6215.3
37005	243.26	0	0	26.362	-6215.3
37006	243.29	0	0	26.362	-6215.3
37007	243.27	0	0	26.362	-6215.3
37008	243.27	0	0	26.362	-6215.3
37009	243.22	0	0	26.362	-6215.3
37010	243.21	0	0	26.362	-6215.3
37011	243.25	0	0	26.362	-6215.3
37012	243.25	0	0	26.362	-6215.3
37013	243.26	0	0	26.362	-6215.3
37014	243.23	0	0	26.362	-6215.3
37015	243.18	0	0	26.362	-6215.3
37016	243.24	0	0	26.362	-6215.3
37017	243.18	0	0	26.362	-6215.3
37018	243.24	0	0	26.362	-6215.3
37019	243.24	0	0	26.362	-6215.3
37020	243.16	0	0	26.362	-6215.3
37021	243.14	0	0	26.362	-6215.3
37022	243.23	0	0	26.362	-6215.3
37023	243.21	0	0	26.362	-6215.3
37024	243.23	0	0	26.362	-6215.3
37025	243.26	0	0	26.362	-6215.3
37026	243.31	0	0	26.362	-6215.3
37027	243.23	0	0	26.362	-6215.3
37028	243.2	0	0	26.362	-6215.3
37029	243.27	0	0	26.362	-6215.3
37030	243.25	0	0	26.362	-6215.3
37031	243.2	0	0	26.362	-6215.3
37032	243.23	0	0	26.362	-6215.3
37033	243.21	0	0	26.362	-6215.3
37034	243.23	0	0	26.362	-6215.3

37035	243.17	0	0	26.362	-6215.3
37036	243.16	0	0	26.362	-6215.3
37037	243.19	0	0	26.362	-6215.3
37038	243.13	0	0	26.362	-6215.3
37039	243.12	0	0	26.362	-6215.3
37040	243.1	0	0	26.362	-6215.3
37041	243.07	0	0	26.362	-6215.3
37042	243.08	0	0	26.362	-6215.3
37043	243.07	0	0	26.362	-6215.3
37044	243.02	0	0	26.362	-6215.3
37045	243.03	0	0	26.362	-6215.3
37046	243.1	0	0	26.362	-6215.3
37047	243.05	0	0	26.362	-6215.3
37048	243.09	0	0	26.362	-6215.3
37049	243.1	0	0	26.362	-6215.3
37050	243.04	0	0	26.362	-6215.3
37051	243.04	0	0	26.362	-6215.3
37052	243.03	0	0	26.362	-6215.3
37053	243.07	0	0	26.362	-6215.3
37054	243.08	0	0	26.362	-6215.3
37055	243.08	0	0	26.362	-6215.3
37056	243.07	0	0	26.362	-6215.3
37057	243.08	0	0	26.362	-6215.3
37058	243.09	0	0	26.362	-6215.3
37059	243.09	0	0	26.362	-6215.3
37060	243.1	0	0	26.362	-6215.3
37061	243.06	0	0	26.362	-6215.3
37062	243.05	0	0	26.362	-6215.3
37063	243.03	0	0	26.362	-6215.3
37064	243.04	0	0	26.362	-6215.3
37065	243.11	0	0	26.362	-6215.3
37066	243.08	0	0	26.362	-6215.3
37067	243.08	0	0	26.362	-6215.3
37068	243.08	0	0	26.362	-6215.3
37069	243.06	0	0	26.362	-6215.3
37070	243.12	0	0	26.362	-6215.3
37071	243.02	0	0	26.362	-6215.3
37072	243.1	0	0	26.362	-6215.3
37073	243.07	0	0	26.362	-6215.3
37074	243.02	0	0	26.362	-6215.3
37075	243.05	0	0	26.362	-6215.3
37076	243	0	0	26.362	-6215.3
37077	242.97	0	0	26.362	-6215.3
37078	242.96	0	0	26.362	-6215.3
37079	243	0	0	26.362	-6215.3
37080	242.99	0	0	26.362	-6215.3
37081	242.98	0	0	26.362	-6215.3

37082	242.98	0	0	26.362	-6215.3
37083	242.97	0	0	26.362	-6215.3
37084	243.07	0	0	26.362	-6215.3
37085	243	0	0	26.362	-6215.3
37086	243.02	0	0	26.362	-6215.3
37087	243.03	0	0	26.362	-6215.3
37088	243.03	0	0	26.362	-6215.3
37089	243.05	0	0	26.362	-6215.3
37090	243.07	0	0	26.362	-6215.3
37091	243.13	0	0	26.362	-6215.3
37092	243.13	0	0	26.362	-6215.3
37093	243.13	0	0	26.362	-6215.3
37094	243.14	0	0	26.362	-6215.3
37095	243.1	0	0	26.362	-6215.3
37096	243.11	0	0	26.362	-6215.3
37097	243.13	0	0	26.362	-6215.3
37098	243.14	0	0	26.362	-6215.3
37099	243.14	0	0	26.362	-6215.3
37100	243.1	0	0	26.362	-6215.3
37101	243.14	0	0	26.362	-6215.3
37102	243.17	0	0	26.362	-6215.3
37103	243.18	0	0	26.362	-6215.3
37104	243.14	0	0	26.362	-6215.3
37105	243.25	0	0	26.362	-6215.3
37106	243.27	0	0	26.362	-6215.3
37107	243.22	0	0	26.362	-6215.3
37108	243.26	0	0	26.362	-6215.3
37109	243.29	0	0	26.362	-6215.3
37110	243.24	0	0	26.362	-6215.3
37111	243.22	0	0	26.362	-6215.3
37112	243.25	0	0	26.362	-6215.3
37113	243.22	0	0	26.362	-6215.3
37114	243.24	0	0	26.362	-6215.3
37115	243.21	0	0	26.362	-6215.3
37116	243.2	0	0	26.362	-6215.3
37117	243.2	0	0	26.362	-6215.3
37118	243.21	0	0	26.362	-6215.3
37119	243.18	0	0	26.362	-6215.3
37120	243.19	0	0	26.362	-6215.3
37121	243.12	0	0	26.362	-6215.3
37122	243.16	0	0	26.362	-6215.3
37123	243.15	0	0	26.362	-6215.3
37124	243.13	0	0	26.362	-6215.3
37125	243.14	0	0	26.362	-6215.3
37126	243.17	0	0	26.362	-6215.3
37127	243.13	0	0	26.362	-6215.3
37128	243.16	0	0	26.362	-6215.3

37129	243.09	0	0	26.362	-6215.3
37130	243.08	0	0	26.362	-6215.3
37131	243.09	0	0	26.362	-6215.3
37132	243.12	0	0	26.362	-6215.3
37133	243.06	0	0	26.362	-6215.3
37134	243.08	0	0	26.362	-6215.3
37135	243.08	0	0	26.362	-6215.3
37136	243.06	0	0	26.362	-6215.3
37137	243.04	0	0	26.362	-6215.3
37138	243.05	0	0	26.362	-6215.3
37139	242.99	0	0	26.362	-6215.3
37140	243.04	0	0	26.362	-6215.3
37141	243.03	0	0	26.362	-6215.3
37142	243.07	0	0	26.362	-6215.3
37143	243.05	0	0	26.362	-6215.3
37144	242.97	0	0	26.362	-6215.3
37145	242.99	0	0	26.362	-6215.3
37146	242.98	0	0	26.362	-6215.3
37147	243.07	0	0	26.362	-6215.3
37148	243.04	0	0	26.362	-6215.3
37149	243.07	0	0	26.362	-6215.3
37150	243.09	0	0	26.362	-6215.3
37151	243.04	0	0	26.362	-6215.3
37152	243.06	0	0	26.362	-6215.3
37153	243.02	0	0	26.362	-6215.3
37154	243.01	0	0	26.362	-6215.3
37155	243.01	0	0	26.362	-6215.3
37156	242.96	0	0	26.362	-6215.3
37157	242.95	0	0	26.362	-6215.3
37158	242.94	0	0	26.362	-6215.3
37159	242.96	0	0	26.362	-6215.3
37160	242.92	0	0	26.362	-6215.3
37161	242.97	0	0	26.362	-6215.3
37162	242.98	0	0	26.362	-6215.3
37163	242.99	0	0	26.362	-6215.3
37164	242.99	0	0	26.362	-6215.3
37165	242.99	0	0	26.362	-6215.3
37166	243.01	0	0	26.362	-6215.3
37167	243.03	0	0	26.362	-6215.3
37168	243.06	0	0	26.362	-6215.3
37169	243.06	0	0	26.362	-6215.3
37170	243.07	0	0	26.362	-6215.3
37171	243.09	0	0	26.362	-6215.3
37172	243.04	0	0	26.362	-6215.3
37173	243.04	0	0	26.362	-6215.3
37174	243.07	0	0	26.362	-6215.3
37175	243.09	0	0	26.362	-6215.3

37176	243.05	0	0	26.362	-6215.3
37177	243.06	0	0	26.362	-6215.3
37178	243.05	0	0	26.362	-6215.3
37179	243.07	0	0	26.362	-6215.3
37180	243.02	0	0	26.362	-6215.3
37181	243.04	0	0	26.362	-6215.3
37182	243.01	0	0	26.362	-6215.3
37183	243.03	0	0	26.362	-6215.3
37184	242.97	0	0	26.362	-6215.3
37185	243.01	0	0	26.362	-6215.3
37186	243.04	0	0	26.362	-6215.3
37187	243.04	0	0	26.362	-6215.3
37188	243.02	0	0	26.362	-6215.3
37189	243.06	0	0	26.362	-6215.3
37190	243.06	0	0	26.362	-6215.3
37191	243.04	0	0	26.362	-6215.3
37192	243.06	0	0	26.362	-6215.3
37193	242.34	0	0	26.362	-6215.3
37194	242.5	0	0	26.362	-6215.3
37195	243.03	0	0	26.362	-6215.3
37196	243.06	0	0	26.362	-6215.3
37197	243.05	0	0	26.362	-6215.3
37198	243.03	0	0	26.362	-6215.3
37199	243.01	0	0	26.362	-6215.3
37200	243.01	0	0	26.362	-6215.3
37201	242.97	0	0	26.362	-6215.3
37202	242.98	0	0	26.362	-6215.3
37203	242.95	0	0	26.362	-6215.3
37204	242.94	0	0	26.362	-6215.3
37205	242.97	0	0	26.362	-6215.3
37206	243	0	0	26.362	-6215.3
37207	242.96	0	0	26.362	-6215.3
37208	242.62	0	0	26.362	-6215.3
37209	242.95	0	0	26.362	-6215.3
37210	242.99	0	0	26.362	-6215.3
37211	243.11	0	0	26.362	-6215.3
37212	243.1	0	0	26.362	-6215.3
37213	243.1	0	0	26.362	-6215.3
37214	243	0	0	26.362	-6215.3
37215	243.02	0	0	26.362	-6215.3
37216	243.05	0	0	26.362	-6215.3
37217	243.04	0	0	26.362	-6215.3
37218	243.08	0	0	26.362	-6215.3
37219	243.07	0	0	26.362	-6215.3
37220	243.09	0	0	26.362	-6215.3
37221	243.02	0	0	26.362	-6215.3
37222	242.99	0	0	26.362	-6215.3

37223	243.02	0	0	26.362	-6215.3
37224	243.09	0	0	26.362	-6215.3
37225	243.02	0	0	26.362	-6215.3
37226	242.99	0	0	26.362	-6215.3
37227	243.01	0	0	26.362	-6215.3
37228	242.97	0	0	26.362	-6215.3
37229	242.74	0	0	26.362	-6215.3
37230	242.67	0	0	26.362	-6215.3
37231	242.64	0	0	26.362	-6215.3
37232	242.97	0	0	26.362	-6215.3
37233	242.87	0	0	26.362	-6215.3
37234	242.9	0	0	26.362	-6215.3
37235	242.68	0	0	26.362	-6215.3
37236	242.81	0	0	26.362	-6215.3
37237	242.71	0	0	26.362	-6215.3
37238	242.77	0	0	26.362	-6215.3
37239	242.81	0	0	26.362	-6215.3
37240	242.9	0	0	26.362	-6215.3
37241	242.67	0	0	26.362	-6215.3
37242	242.75	0	0	26.362	-6215.3
37243	242.79	0	0	26.362	-6215.3
37244	242.89	0	0	26.362	-6215.3
37245	242.93	0	0	26.362	-6215.3
37246	242.88	0	0	26.362	-6215.3
37247	242.92	0	0	26.362	-6215.3
37248	242.79	0	0	26.362	-6215.3
37249	242.93	0	0	26.362	-6215.3
37250	242.92	0	0	26.362	-6215.3
37251	242.98	0	0	26.362	-6215.3
37252	242.94	0	0	26.362	-6215.3
37253	242.93	0	0	26.362	-6215.3
37254	242.92	0	0	26.362	-6215.3
37255	242.86	0	0	26.362	-6215.3
37256	242.85	0	0	26.362	-6215.3
37257	242.9	0	0	26.362	-6215.3
37258	242.81	0	0	26.362	-6215.3
37259	242.77	0	0	26.362	-6215.3
37260	242.9	0	0	26.362	-6215.3
37261	242.83	0	0	26.362	-6215.3
37262	242.83	0	0	26.362	-6215.3
37263	242.93	0	0	26.362	-6215.3
37264	242.82	0	0	26.362	-6215.3
37265	242.91	0	0	26.362	-6215.3
37266	242.95	0	0	26.362	-6215.3
37267	242.9	0	0	26.362	-6215.3
37268	242.85	0	0	26.362	-6215.3
37269	242.85	0	0	26.362	-6215.3

37270	242.81	0	0	26.362	-6215.3
37271	242.86	0	0	26.362	-6215.3
37272	242.91	0	0	26.362	-6215.3
37273	242.89	0	0	26.362	-6215.3
37274	242.83	0	0	26.362	-6215.3
37275	242.91	0	0	26.362	-6215.3
37276	242.89	0	0	26.362	-6215.3
37277	242.9	0	0	26.362	-6215.3
37278	242.91	0	0	26.362	-6215.3
37279	242.8	0	0	26.362	-6215.3
37280	242.91	0	0	26.362	-6215.3
37281	242.79	0	0	26.362	-6215.3
37282	242.9	0	0	26.362	-6215.3
37283	242.77	0	0	26.362	-6215.3
37284	242.79	0	0	26.362	-6215.3
37285	242.78	0	0	26.362	-6215.3
37286	242.83	0	0	26.362	-6215.3
37287	242.79	0	0	26.362	-6215.3
37288	242.85	0	0	26.362	-6215.3
37289	242.89	0	0	26.362	-6215.3
37290	242.86	0	0	26.362	-6215.3
37291	242.81	0	0	26.362	-6215.3
37292	242.96	0	0	26.362	-6215.3
37293	242.84	0	0	26.362	-6215.3
37294	242.78	0	0	26.362	-6215.3
37295	242.81	0	0	26.362	-6215.3
37296	243.03	0	0	26.362	-6215.3
37297	242.8	0	0	26.362	-6215.3
37298	243	0	0	26.362	-6215.3
37299	242.92	0	0	26.362	-6215.3
37300	242.91	0	0	26.362	-6215.3
37301	242.97	0	0	26.362	-6215.3
37302	243	0	0	26.362	-6215.3
37303	242.94	0	0	26.362	-6215.3
37304	242.94	0	0	26.362	-6215.3
37305	243.04	0	0	26.362	-6215.3
37306	242.88	0	0	26.362	-6215.3
37307	243.05	0	0	26.362	-6215.3
37308	242.73	0	0	26.362	-6215.3
37309	242.99	0	0	26.362	-6215.3
37310	242.92	0	0	26.362	-6215.3
37311	242.76	0	0	26.362	-6215.3
37312	243	0	0	26.362	-6215.3
37313	243.01	0	0	26.362	-6215.3
37314	242.99	0	0	26.362	-6215.3
37315	242.77	0	0	26.362	-6215.3
37316	242.95	0	0	26.362	-6215.3

37317	243.01	0	0	26.362	-6215.3
37318	243.06	0	0	26.362	-6215.3
37319	242.87	0	0	26.362	-6215.3
37320	243	0	0	26.362	-6215.3
37321	243.02	0	0	26.362	-6215.3
37322	242.98	0	0	26.362	-6215.3
37323	242.97	0	0	26.362	-6215.3
37324	242.99	0	0	26.362	-6215.3
37325	242.78	0	0	26.362	-6215.3
37326	243.04	0	0	26.362	-6215.3
37327	242.94	0	0	26.362	-6215.3
37328	242.92	0	0	26.362	-6215.3
37329	242.78	0	0	26.362	-6215.3
37330	243.01	0	0	26.362	-6215.3
37331	242.93	0	0	26.362	-6215.3
37332	242.89	0	0	26.362	-6215.3
37333	242.95	0	0	26.362	-6215.3
37334	242.57	0	0	26.362	-6215.3
37335	243.26	0	0	26.362	-6215.3
37336	242.86	0	0	26.362	-6215.3
37337	243.06	0	0	26.362	-6215.3
37338	242.72	0	0	26.362	-6215.3
37339	242.99	0	0	26.362	-6215.3
37340	242.91	0	0	26.362	-6215.3
37341	243.02	0	0	26.362	-6215.3
37342	242.87	0	0	26.362	-6215.3
37343	242.83	0	0	26.362	-6215.3
37344	242.95	0	0	26.362	-6215.3
37345	242.89	0	0	26.362	-6215.3
37346	243.15	0	0	26.362	-6215.3
37347	242.56	0	0	26.362	-6215.3
37348	243.01	0	0	26.362	-6215.3
37349	242.98	0	0	26.362	-6215.3
37350	242.92	0	0	26.362	-6215.3
37351	243.11	0	0	26.362	-6215.3
37352	242.89	0	0	26.362	-6215.3
37353	242.71	0	0	26.362	-6215.3
37354	243.01	0	0	26.362	-6215.3
37355	242.7	0	0	26.362	-6215.3
37356	242.97	0	0	26.362	-6215.3
37357	242.6	0	0	26.362	-6215.3
37358	242.87	0	0	26.362	-6215.3
37359	243.02	0	0	26.362	-6215.3
37360	243.19	0	0	26.362	-6215.3
37361	242.68	0	0	26.362	-6215.3
37362	243.03	0	0	26.362	-6215.3
37363	242.97	0	0	26.362	-6215.3

37364	243.07	0	0	26.362	-6215.3
37365	242.91	0	0	26.362	-6215.3
37366	242.76	0	0	26.362	-6215.3
37367	243.12	0	0	26.362	-6215.3
37368	242.42	0	0	26.362	-6215.3
37369	243.15	0	0	26.362	-6215.3
37370	243	0	0	26.362	-6215.3
37371	242.93	0	0	26.362	-6215.3
37372	242.77	0	0	26.362	-6215.3
37373	242.87	0	0	26.362	-6215.3
37374	243.16	0	0	26.362	-6215.3
37375	242.82	0	0	26.362	-6215.3
37376	243.19	0	0	26.362	-6215.3
37377	242.67	0	0	26.362	-6215.3
37378	243.08	0	0	26.362	-6215.3
37379	243.2	0	0	26.362	-6215.3
37380	242.83	0	0	26.362	-6215.3
37381	243.27	0	0	26.362	-6215.3
37382	242.97	0	0	26.362	-6215.3
37383	243.29	0	0	26.362	-6215.3
37384	243.07	0	0	26.362	-6215.3
37385	243.06	0	0	26.362	-6215.3
37386	242.88	0	0	26.362	-6215.3
37387	242.89	0	0	26.362	-6215.3
37388	243.14	0	0	26.362	-6215.3
37389	242.98	0	0	26.362	-6215.3
37390	243.2	0	0	26.362	-6215.3
37391	242.72	0	0	26.362	-6215.3
37392	243.24	0	0	26.362	-6215.3
37393	242.91	0	0	26.362	-6215.3
37394	243.26	0	0	26.362	-6215.3
37395	242.98	0	0	26.362	-6215.3
37396	242.94	0	0	26.362	-6215.3
37397	243.06	0	0	26.362	-6215.3
37398	243.12	0	0	26.362	-6215.3
37399	243.19	0	0	26.362	-6215.3
37400	242.95	0	0	26.362	-6215.3
37401	243.08	0	0	26.362	-6215.3
37402	243.14	0	0	26.362	-6215.3
37403	242.92	0	0	26.362	-6215.3
37404	242.91	0	0	26.362	-6215.3
37405	243.05	0	0	26.362	-6215.3
37406	243.05	0	0	26.362	-6215.3
37407	243.11	0	0	26.362	-6215.3
37408	243.08	0	0	26.362	-6215.3
37409	243.12	0	0	26.362	-6215.3
37410	242.9	0	0	26.362	-6215.3

37411	242.92	0	0	26.362	-6215.3
37412	242.85	0	0	26.362	-6215.3
37413	242.95	0	0	26.362	-6215.3
37414	242.87	0	0	26.362	-6215.3
37415	242.96	0	0	26.362	-6215.3
37416	242.95	0	0	26.362	-6215.3
37417	242.87	0	0	26.362	-6215.3
37418	243	0	0	26.362	-6215.3
37419	242.94	0	0	26.362	-6215.3
37420	242.96	0	0	26.362	-6215.3
37421	242.8	0	0	26.362	-6215.3
37422	243.02	0	0	26.362	-6215.3
37423	242.77	0	0	26.362	-6215.3
37424	242.74	0	0	26.362	-6215.3
37425	242.77	0	0	26.362	-6215.3
37426	243.01	0	0	26.362	-6215.3
37427	242.95	0	0	26.362	-6215.3
37428	242.71	0	0	26.362	-6215.3
37429	242.89	0	0	26.362	-6215.3
37430	242.62	0	0	26.362	-6215.3
37431	242.88	0	0	26.362	-6215.3
37432	242.6	0	0	26.362	-6215.3
37433	242.71	0	0	26.362	-6215.3
37434	242.67	0	0	26.362	-6215.3
37435	242.61	0	0	26.362	-6215.3
37436	242.77	0	0	26.362	-6215.3
37437	242.68	0	0	26.362	-6215.3
37438	242.83	0	0	26.362	-6215.3
37439	242.79	0	0	26.362	-6215.3
37440	242.83	0	0	26.362	-6215.3
37441	242.82	0	0	26.362	-6215.3
37442	242.64	0	0	26.362	-6215.3
37443	242.9	0	0	26.362	-6215.3
37444	242.89	0	0	26.362	-6215.3
37445	242.84	0	0	26.362	-6215.3
37446	242.66	0	0	26.362	-6215.3
37447	242.84	0	0	26.362	-6215.3
37448	242.86	0	0	26.362	-6215.3
37449	242.79	0	0	26.362	-6215.3
37450	242.81	0	0	26.362	-6215.3
37451	242.54	0	0	26.362	-6215.3
37452	242.86	0	0	26.362	-6215.3
37453	242.93	0	0	26.362	-6215.3
37454	242.84	0	0	26.362	-6215.3
37455	242.85	0	0	26.362	-6215.3
37456	242.78	0	0	26.362	-6215.3
37457	243.02	0	0	26.362	-6215.3

37458	242.88	0	0	26.362	-6215.3
37459	242.83	0	0	26.362	-6215.3
37460	242.94	0	0	26.362	-6215.3
37461	243.03	0	0	26.362	-6215.3
37462	242.86	0	0	26.362	-6215.3
37463	243.01	0	0	26.362	-6215.3
37464	243.06	0	0	26.362	-6215.3
37465	242.97	0	0	26.362	-6215.3
37466	243.08	0	0	26.362	-6215.3
37467	243.09	0	0	26.362	-6215.3
37468	242.95	0	0	26.362	-6215.3
37469	243.18	0	0	26.362	-6215.3
37470	243.03	0	0	26.362	-6215.3
37471	243.14	0	0	26.362	-6215.3
37472	243.13	0	0	26.362	-6215.3
37473	243.03	0	0	26.362	-6215.3
37474	243.1	0	0	26.362	-6215.3
37475	243.12	0	0	26.362	-6215.3
37476	243.08	0	0	26.362	-6215.3
37477	243	0	0	26.362	-6215.3
37478	243.1	0	0	26.362	-6215.3
37479	243.11	0	0	26.362	-6215.3
37480	243.08	0	0	26.362	-6215.3
37481	243.1	0	0	26.362	-6215.3
37482	243.16	0	0	26.362	-6215.3
37483	243.15	0	0	26.362	-6215.3
37484	243.04	0	0	26.362	-6215.3
37485	243.12	0	0	26.362	-6215.3
37486	243.15	0	0	26.362	-6215.3
37487	243.16	0	0	26.362	-6215.3
37488	243.23	0	0	26.362	-6215.3
37489	243.25	0	0	26.362	-6215.3
37490	243.13	0	0	26.362	-6215.3
37491	243.19	0	0	26.362	-6215.3
37492	243.18	0	0	26.362	-6215.3
37493	243.14	0	0	26.362	-6215.3
37494	243.21	0	0	26.362	-6215.3
37495	243.22	0	0	26.362	-6215.3
37496	243.14	0	0	26.362	-6215.3
37497	243.16	0	0	26.362	-6215.3
37498	243.18	0	0	26.362	-6215.3
37499	243.14	0	0	26.362	-6215.3
37500	243.04	0	0	26.362	-6215.3
37501	243.09	0	0	26.362	-6215.3
37502	243.14	0	0	26.362	-6215.3
37503	243.17	0	0	26.362	-6215.3
37504	243.04	0	0	26.362	-6215.3

37505	243.13	0	0	26.362	-6215.3
37506	243.21	0	0	26.362	-6215.3
37507	243.15	0	0	26.362	-6215.3
37508	243.2	0	0	26.362	-6215.3
37509	243.18	0	0	26.362	-6215.3
37510	243.2	0	0	26.362	-6215.3
37511	243.16	0	0	26.362	-6215.3
37512	243.08	0	0	26.362	-6215.3
37513	243.06	0	0	26.362	-6215.3
37514	243.21	0	0	26.362	-6215.3
37515	243.15	0	0	26.362	-6215.3
37516	243.15	0	0	26.362	-6215.3
37517	243.18	0	0	26.362	-6215.3
37518	243.12	0	0	26.362	-6215.3
37519	243.03	0	0	26.362	-6215.3
37520	243.06	0	0	26.362	-6215.3
37521	243.08	0	0	26.362	-6215.3
37522	242.96	0	0	26.362	-6215.3
37523	243.17	0	0	26.362	-6215.3
37524	243.07	0	0	26.362	-6215.3
37525	243.1	0	0	26.362	-6215.3
37526	243.09	0	0	26.362	-6215.3
37527	243.15	0	0	26.362	-6215.3
37528	243	0	0	26.362	-6215.3
37529	243.05	0	0	26.362	-6215.3
37530	243.05	0	0	26.362	-6215.3
37531	242.97	0	0	26.362	-6215.3
37532	243.03	0	0	26.362	-6215.3
37533	242.99	0	0	26.362	-6215.3
37534	243	0	0	26.362	-6215.3
37535	243.02	0	0	26.362	-6215.3
37536	243.05	0	0	26.362	-6215.3
37537	243.02	0	0	26.362	-6215.3
37538	243.05	0	0	26.362	-6215.3
37539	243.01	0	0	26.362	-6215.3
37540	242.97	0	0	26.362	-6215.3
37541	243.02	0	0	26.362	-6215.3
37542	243.05	0	0	26.362	-6215.3
37543	243.08	0	0	26.362	-6215.3
37544	243.12	0	0	26.362	-6215.3
37545	243.15	0	0	26.362	-6215.3
37546	243.08	0	0	26.362	-6215.3
37547	243.01	0	0	26.362	-6215.3
37548	243.07	0	0	26.362	-6215.3
37549	243.13	0	0	26.362	-6215.3
37550	243.03	0	0	26.362	-6215.3
37551	243.05	0	0	26.362	-6215.3

37552	243.11	0	0	26.362	-6215.3
37553	242.91	0	0	26.362	-6215.3
37554	243.04	0	0	26.362	-6215.3
37555	243	0	0	26.362	-6215.3
37556	243.02	0	0	26.362	-6215.3
37557	242.95	0	0	26.362	-6215.3
37558	243.08	0	0	26.362	-6215.3
37559	243	0	0	26.362	-6215.3
37560	243.02	0	0	26.362	-6215.3
37561	243.09	0	0	26.362	-6215.3
37562	243.09	0	0	26.362	-6215.3
37563	243.02	0	0	26.362	-6215.3
37564	242.99	0	0	26.362	-6215.3
37565	243.1	0	0	26.362	-6215.3
37566	243.15	0	0	26.362	-6215.3
37567	243.06	0	0	26.362	-6215.3
37568	243.07	0	0	26.362	-6215.3
37569	243.15	0	0	26.362	-6215.3
37570	243.07	0	0	26.362	-6215.3
37571	243.11	0	0	26.362	-6215.3
37572	243.1	0	0	26.362	-6215.3
37573	243.02	0	0	26.362	-6215.3
37574	243.09	0	0	26.362	-6215.3
37575	242.97	0	0	26.362	-6215.3
37576	243.09	0	0	26.362	-6215.3
37577	243.12	0	0	26.362	-6215.3
37578	243.05	0	0	26.362	-6215.3
37579	243.04	0	0	26.362	-6215.3
37580	242.92	0	0	26.362	-6215.3
37581	242.93	0	0	26.362	-6215.3
37582	242.98	0	0	26.362	-6215.3
37583	242.95	0	0	26.362	-6215.3
37584	242.93	0	0	26.362	-6215.3
37585	242.89	0	0	26.362	-6215.3
37586	242.92	0	0	26.362	-6215.3
37587	242.87	0	0	26.362	-6215.3
37588	243.06	0	0	26.362	-6215.3
37589	242.99	0	0	26.362	-6215.3
37590	242.99	0	0	26.362	-6215.3
37591	243.1	0	0	26.362	-6215.3
37592	242.97	0	0	26.362	-6215.3
37593	242.86	0	0	26.362	-6215.3
37594	243.07	0	0	26.362	-6215.3
37595	243.01	0	0	26.362	-6215.3
37596	242.92	0	0	26.362	-6215.3
37597	243	0	0	26.362	-6215.3
37598	242.92	0	0	26.362	-6215.3

37599	242.97	0	0	26.362	-6215.3
37600	243.03	0	0	26.362	-6215.3
37601	243.06	0	0	26.362	-6215.3
37602	242.91	0	0	26.362	-6215.3
37603	243	0	0	26.362	-6215.3
37604	243.06	0	0	26.362	-6215.3
37605	242.89	0	0	26.362	-6215.3
37606	242.29	0	0	26.362	-6215.3
37607	242.4	0	0	26.362	-6215.3
37608	242.9	0	0	26.362	-6215.3
37609	243.01	0	0	26.362	-6215.3
37610	242.8	0	0	26.362	-6215.3
37611	242.96	0	0	26.362	-6215.3
37612	242.72	0	0	26.362	-6215.3
37613	243.03	0	0	26.362	-6215.3
37614	242.94	0	0	26.362	-6215.3
37615	242.88	0	0	26.362	-6215.3
37616	243.05	0	0	26.362	-6215.3
37617	242.95	0	0	26.362	-6215.3
37618	243	0	0	26.362	-6215.3
37619	242.92	0	0	26.362	-6215.3
37620	243.06	0	0	26.362	-6215.3
37621	242.8	0	0	26.362	-6215.3
37622	242.92	0	0	26.362	-6215.3
37623	242.67	0	0	26.362	-6215.3
37624	242.91	0	0	26.362	-6215.3
37625	242.98	0	0	26.362	-6215.3
37626	242.81	0	0	26.362	-6215.3
37627	242.98	0	0	26.362	-6215.3
37628	243.14	0	0	26.362	-6215.3
37629	242.97	0	0	26.362	-6215.3
37630	242.96	0	0	26.362	-6215.3
37631	242.96	0	0	26.362	-6215.3
37632	243.04	0	0	26.362	-6215.3
37633	242.97	0	0	26.362	-6215.3
37634	243	0	0	26.362	-6215.3
37635	242.96	0	0	26.362	-6215.3
37636	243.02	0	0	26.362	-6215.3
37637	243.07	0	0	26.362	-6215.3
37638	243.01	0	0	26.362	-6215.3
37639	243.09	0	0	26.362	-6215.3
37640	243.09	0	0	26.362	-6215.3
37641	243.16	0	0	26.362	-6215.3
37642	243.04	0	0	26.362	-6215.3
37643	243.09	0	0	26.362	-6215.3
37644	243.12	0	0	26.362	-6215.3
37645	243.17	0	0	26.362	-6215.3

37646	243.18	0	0	26.362	-6215.3
37647	242.95	0	0	26.362	-6215.3
37648	243.13	0	0	26.362	-6215.3
37649	243.13	0	0	26.362	-6215.3
37650	243.14	0	0	26.362	-6215.3
37651	243.13	0	0	26.362	-6215.3
37652	243.07	0	0	26.362	-6215.3
37653	243.12	0	0	26.362	-6215.3
37654	243.12	0	0	26.362	-6215.3
37655	243.21	0	0	26.362	-6215.3
37656	243.08	0	0	26.362	-6215.3
37657	243	0	0	26.362	-6215.3
37658	243.05	0	0	26.362	-6215.3
37659	243.09	0	0	26.362	-6215.3
37660	243.06	0	0	26.362	-6215.3
37661	243.07	0	0	26.362	-6215.3
37662	243.02	0	0	26.362	-6215.3
37663	243.09	0	0	26.362	-6215.3
37664	243.11	0	0	26.362	-6215.3
37665	243.17	0	0	26.362	-6215.3
37666	243.04	0	0	26.362	-6215.3
37667	243.02	0	0	26.362	-6215.3
37668	242.92	0	0	26.362	-6215.3
37669	242.97	0	0	26.362	-6215.3
37670	243.1	0	0	26.362	-6215.3
37671	243.16	0	0	26.362	-6215.3
37672	243.06	0	0	26.362	-6215.3
37673	243.15	0	0	26.362	-6215.3
37674	243.09	0	0	26.362	-6215.3
37675	243.12	0	0	26.362	-6215.3
37676	242.96	0	0	26.362	-6215.3
37677	243.06	0	0	26.362	-6215.3
37678	243.06	0	0	26.362	-6215.3
37679	243.01	0	0	26.362	-6215.3
37680	242.78	0	0	26.362	-6215.3
37681	243	0	0	26.362	-6215.3
37682	242.92	0	0	26.362	-6215.3
37683	243.03	0	0	26.362	-6215.3
37684	243.09	0	0	26.362	-6215.3
37685	243.18	0	0	26.362	-6215.3
37686	242.73	0	0	26.362	-6215.3
37687	243.04	0	0	26.362	-6215.3
37688	242.97	0	0	26.362	-6215.3
37689	242.98	0	0	26.362	-6215.3
37690	242.96	0	0	26.362	-6215.3
37691	242.9	0	0	26.362	-6215.3
37692	243	0	0	26.362	-6215.3

37693	242.97	0	0	26.362	-6215.3
37694	243.08	0	0	26.362	-6215.3
37695	243.05	0	0	26.362	-6215.3
37696	243.04	0	0	26.362	-6215.3
37697	242.93	0	0	26.362	-6215.3
37698	242.98	0	0	26.362	-6215.3
37699	242.72	0	0	26.362	-6215.3
37700	242.85	0	0	26.362	-6215.3
37701	243.02	0	0	26.362	-6215.3
37702	242.84	0	0	26.362	-6215.3
37703	242.69	0	0	26.362	-6215.3
37704	242.98	0	0	26.362	-6215.3
37705	242.83	0	0	26.362	-6215.3
37706	242.8	0	0	26.362	-6215.3
37707	243.09	0	0	26.362	-6215.3
37708	242.89	0	0	26.362	-6215.3
37709	243.07	0	0	26.362	-6215.3
37710	243.01	0	0	26.362	-6215.3
37711	243	0	0	26.362	-6215.3
37712	243.09	0	0	26.362	-6215.3
37713	243.05	0	0	26.362	-6215.3
37714	243.13	0	0	26.362	-6215.3
37715	242.99	0	0	26.362	-6215.3
37716	242.93	0	0	26.362	-6215.3
37717	243.04	0	0	26.362	-6215.3
37718	243.21	0	0	26.362	-6215.3
37719	242.88	0	0	26.362	-6215.3
37720	242.82	0	0	26.362	-6215.3
37721	243.13	0	0	26.362	-6215.3
37722	242.84	0	0	26.362	-6215.3
37723	243.1	0	0	26.362	-6215.3
37724	243.12	0	0	26.362	-6215.3
37725	243.09	0	0	26.362	-6215.3
37726	243.09	0	0	26.362	-6215.3
37727	242.84	0	0	26.362	-6215.3
37728	243.05	0	0	26.362	-6215.3
37729	243.11	0	0	26.362	-6215.3
37730	243.08	0	0	26.362	-6215.3
37731	243.09	0	0	26.362	-6215.3
37732	243.12	0	0	26.362	-6215.3
37733	243.13	0	0	26.362	-6215.3
37734	243.11	0	0	26.362	-6215.3
37735	243.15	0	0	26.362	-6215.3
37736	243.13	0	0	26.362	-6215.3
37737	243.29	0	0	26.362	-6215.3
37738	243.23	0	0	26.362	-6215.3
37739	243.26	0	0	26.362	-6215.3

37740	243.19	0	0	26.362	-6215.3
37741	243.24	0	0	26.362	-6215.3
37742	243.26	0	0	26.362	-6215.3
37743	243.25	0	0	26.362	-6215.3
37744	243.28	0	0	26.362	-6215.3
37745	243.1	0	0	26.362	-6215.3
37746	243.04	0	0	26.362	-6215.3
37747	243.23	0	0	26.362	-6215.3
37748	243.18	0	0	26.362	-6215.3
37749	243.11	0	0	26.362	-6215.3
37750	243.23	0	0	26.362	-6215.3
37751	243.22	0	0	26.362	-6215.3
37752	243.07	0	0	26.362	-6215.3
37753	243.18	0	0	26.362	-6215.3
37754	243.25	0	0	26.362	-6215.3
37755	243.29	0	0	26.362	-6215.3
37756	243.05	0	0	26.362	-6215.3
37757	243.22	0	0	26.362	-6215.3
37758	243.3	0	0	26.362	-6215.3
37759	243.34	0	0	26.362	-6215.3
37760	243.26	0	0	26.362	-6215.3
37761	243.4	0	0	26.362	-6215.3
37762	243.22	0	0	26.362	-6215.3
37763	243.29	0	0	26.362	-6215.3
37764	243.16	0	0	26.362	-6215.3
37765	243.26	0	0	26.362	-6215.3
37766	243.3	0	0	26.362	-6215.3
37767	243.31	0	0	26.362	-6215.3
37768	242.96	0	0	26.362	-6215.3
37769	243.28	0	0	26.362	-6215.3
37770	243.27	0	0	26.362	-6215.3
37771	242.82	0	0	26.362	-6215.3
37772	243.1	0	0	26.362	-6215.3
37773	243.37	0	0	26.362	-6215.3
37774	243.03	0	0	26.362	-6215.3
37775	243.07	0	0	26.362	-6215.3
37776	243	0	0	26.362	-6215.3
37777	243.12	0	0	26.362	-6215.3
37778	242.93	0	0	26.362	-6215.3
37779	243.28	0	0	26.362	-6215.3
37780	243.17	0	0	26.362	-6215.3
37781	243.09	0	0	26.362	-6215.3
37782	243.03	0	0	26.362	-6215.3
37783	243.05	0	0	26.362	-6215.3
37784	243.19	0	0	26.362	-6215.3
37785	243.14	0	0	26.362	-6215.3
37786	243.12	0	0	26.362	-6215.3

37787	243.14	0	0	26.362	-6215.3
37788	243.11	0	0	26.362	-6215.3
37789	243.04	0	0	26.362	-6215.3
37790	243.2	0	0	26.362	-6215.3
37791	243.11	0	0	26.362	-6215.3
37792	243.13	0	0	26.362	-6215.3
37793	243.24	0	0	26.362	-6215.3
37794	242.98	0	0	26.362	-6215.3
37795	243.04	0	0	26.362	-6215.3
37796	243.12	0	0	26.362	-6215.3
37797	242.76	0	0	26.362	-6215.3
37798	243.12	0	0	26.362	-6215.3
37799	243.11	0	0	26.362	-6215.3
37800	243.02	0	0	26.362	-6215.3
37801	243.06	0	0	26.362	-6215.3
37802	243.07	0	0	26.362	-6215.3
37803	243.24	0	0	26.362	-6215.3
37804	243.02	0	0	26.362	-6215.3
37805	243.05	0	0	26.362	-6215.3
37806	243.09	0	0	26.362	-6215.3
37807	242.97	0	0	26.362	-6215.3
37808	243.06	0	0	26.362	-6215.3
37809	243.21	0	0	26.362	-6215.3
37810	242.9	0	0	26.362	-6215.3
37811	243.04	0	0	26.362	-6215.3
37812	243.07	0	0	26.362	-6215.3
37813	243.12	0	0	26.362	-6215.3
37814	243.13	0	0	26.362	-6215.3
37815	243.18	0	0	26.362	-6215.3
37816	243.14	0	0	26.362	-6215.3
37817	243.16	0	0	26.362	-6215.3
37818	243.2	0	0	26.362	-6215.3
37819	243.22	0	0	26.362	-6215.3
37820	243.14	0	0	26.362	-6215.3
37821	243.28	0	0	26.362	-6215.3
37822	243.26	0	0	26.362	-6215.3
37823	243.19	0	0	26.362	-6215.3
37824	243.3	0	0	26.362	-6215.3
37825	243.34	0	0	26.362	-6215.3
37826	243.28	0	0	26.362	-6215.3
37827	243.32	0	0	26.362	-6215.3
37828	243.26	0	0	26.362	-6215.3
37829	243.34	0	0	26.362	-6215.3
37830	243.31	0	0	26.362	-6215.3
37831	243.29	0	0	26.362	-6215.3
37832	243.26	0	0	26.362	-6215.3
37833	243.2	0	0	26.362	-6215.3

37834	243.15	0	0	26.362	-6215.3
37835	243.15	0	0	26.362	-6215.3
37836	243.19	0	0	26.362	-6215.3
37837	243.2	0	0	26.362	-6215.3
37838	243.15	0	0	26.362	-6215.3
37839	243.35	0	0	26.362	-6215.3
37840	243.26	0	0	26.362	-6215.3
37841	243.31	0	0	26.362	-6215.3
37842	243.19	0	0	26.362	-6215.3
37843	243.32	0	0	26.362	-6215.3
37844	243.33	0	0	26.362	-6215.3
37845	243.07	0	0	26.362	-6215.3
37846	243.48	0	0	26.362	-6215.3
37847	243.26	0	0	26.362	-6215.3
37848	243.23	0	0	26.362	-6215.3
37849	243.19	0	0	26.362	-6215.3
37850	243.17	0	0	26.362	-6215.3
37851	243.26	0	0	26.362	-6215.3
37852	243.16	0	0	26.362	-6215.3
37853	243.32	0	0	26.362	-6215.3
37854	243.22	0	0	26.362	-6215.3
37855	243.18	0	0	26.362	-6215.3
37856	243.15	0	0	26.362	-6215.3
37857	243.19	0	0	26.362	-6215.3
37858	243.24	0	0	26.362	-6215.3
37859	243.27	0	0	26.362	-6215.3
37860	243.19	0	0	26.362	-6215.3
37861	243.24	0	0	26.362	-6215.3
37862	243.3	0	0	26.362	-6215.3
37863	243.45	0	0	26.362	-6215.3
37864	243.17	0	0	26.362	-6215.3
37865	243.27	0	0	26.362	-6215.3
37866	243.12	0	0	26.362	-6215.3
37867	243.1	0	0	26.362	-6215.3
37868	243.05	0	0	26.362	-6215.3
37869	243.07	0	0	26.362	-6215.3
37870	243.23	0	0	26.362	-6215.3
37871	242.69	0	0	26.362	-6215.3
37872	243.21	0	0	26.362	-6215.3
37873	243.16	0	0	26.362	-6215.3
37874	243.21	0	0	26.362	-6215.3
37875	243.23	0	0	26.362	-6215.3
37876	242.96	0	0	26.362	-6215.3
37877	243.25	0	0	26.362	-6215.3
37878	243.32	0	0	26.362	-6215.3
37879	243.22	0	0	26.362	-6215.3
37880	243.23	0	0	26.362	-6215.3

37881	243.36	0	0	26.362	-6215.3
37882	243.28	0	0	26.362	-6215.3
37883	243.35	0	0	26.362	-6215.3
37884	243.26	0	0	26.362	-6215.3
37885	243.23	0	0	26.362	-6215.3
37886	243.27	0	0	26.362	-6215.3
37887	243.16	0	0	26.362	-6215.3
37888	243.13	0	0	26.362	-6215.3
37889	243.23	0	0	26.362	-6215.3
37890	243.16	0	0	26.362	-6215.3
37891	243.11	0	0	26.362	-6215.3
37892	243.41	0	0	26.362	-6215.3
37893	242.81	0	0	26.362	-6215.3
37894	243.42	0	0	26.362	-6215.3
37895	242.8	0	0	26.362	-6215.3
37896	243.58	0	0	26.362	-6215.3
37897	243.47	0	0	26.362	-6215.3
37898	243.4	0	0	26.362	-6215.3
37899	243.23	0	0	26.362	-6215.3
37900	243.21	0	0	26.362	-6215.3
37901	243.05	0	0	26.362	-6215.3
37902	243.24	0	0	26.362	-6215.3
37903	243.21	0	0	26.362	-6215.3
37904	243.19	0	0	26.362	-6215.3
37905	243.22	0	0	26.362	-6215.3
37906	243.39	0	0	26.362	-6215.3
37907	243.09	0	0	26.362	-6215.3
37908	243.15	0	0	26.362	-6215.3
37909	243.54	0	0	26.362	-6215.3
37910	242.77	0	0	26.362	-6215.3
37911	243.35	0	0	26.362	-6215.3
37912	243.36	0	0	26.362	-6215.3
37913	243.23	0	0	26.362	-6215.3
37914	243.4	0	0	26.362	-6215.3
37915	243.39	0	0	26.362	-6215.3
37916	243.31	0	0	26.362	-6215.3
37917	243.48	0	0	26.362	-6215.3
37918	243.24	0	0	26.362	-6215.3
37919	243.42	0	0	26.362	-6215.3
37920	243.49	0	0	26.362	-6215.3
37921	243.3	0	0	26.362	-6215.3
37922	243.15	0	0	26.362	-6215.3
37923	243.27	0	0	26.362	-6215.3
37924	243.32	0	0	26.362	-6215.3
37925	243.37	0	0	26.362	-6215.3
37926	243.47	0	0	26.362	-6215.3
37927	243.34	0	0	26.362	-6215.3

37928	243.23	0	0	26.362	-6215.3
37929	243.36	0	0	26.362	-6215.3
37930	243.33	0	0	26.362	-6215.3
37931	243.29	0	0	26.362	-6215.3
37932	243.39	0	0	26.362	-6215.3
37933	243.27	0	0	26.362	-6215.3
37934	243.41	0	0	26.362	-6215.3
37935	243.32	0	0	26.362	-6215.3
37936	243.37	0	0	26.362	-6215.3
37937	243.28	0	0	26.362	-6215.3
37938	243.25	0	0	26.362	-6215.3
37939	243.23	0	0	26.362	-6215.3
37940	243.33	0	0	26.362	-6215.3
37941	243.27	0	0	26.362	-6215.3
37942	243.3	0	0	26.362	-6215.3
37943	243.38	0	0	26.362	-6215.3
37944	243.35	0	0	26.362	-6215.3
37945	243.27	0	0	26.362	-6215.3
37946	243.41	0	0	26.362	-6215.3
37947	243.37	0	0	26.362	-6215.3
37948	243.26	0	0	26.362	-6215.3
37949	243.48	0	0	26.362	-6215.3
37950	243.1	0	0	26.362	-6215.3
37951	243.38	0	0	26.362	-6215.3
37952	243.33	0	0	26.362	-6215.3
37953	243.41	0	0	26.362	-6215.3
37954	243.37	0	0	26.362	-6215.3
37955	243.35	0	0	26.362	-6215.3
37956	243.21	0	0	26.362	-6215.3
37957	243.22	0	0	26.362	-6215.3
37958	243.34	0	0	26.362	-6215.3
37959	243.31	0	0	26.362	-6215.3
37960	243.23	0	0	26.362	-6215.3
37961	243.36	0	0	26.362	-6215.3
37962	243.34	0	0	26.362	-6215.3
37963	243.32	0	0	26.362	-6215.3
37964	243.43	0	0	26.362	-6215.3
37965	243.3	0	0	26.362	-6215.3
37966	243.42	0	0	26.362	-6215.3
37967	243.38	0	0	26.362	-6215.3
37968	243.4	0	0	26.362	-6215.3
37969	243.32	0	0	26.362	-6215.3
37970	243.23	0	0	26.362	-6215.3
37971	243.21	0	0	26.362	-6215.3
37972	243.27	0	0	26.362	-6215.3
37973	243.4	0	0	26.362	-6215.3
37974	243.34	0	0	26.362	-6215.3

37975	243.22	0	0	26.362	-6215.3
37976	243.18	0	0	26.362	-6215.3
37977	243.26	0	0	26.362	-6215.3
37978	243.19	0	0	26.362	-6215.3
37979	243.22	0	0	26.362	-6215.3
37980	243.22	0	0	26.362	-6215.3
37981	243.24	0	0	26.362	-6215.3
37982	243.29	0	0	26.362	-6215.3
37983	243.26	0	0	26.362	-6215.3
37984	243.32	0	0	26.362	-6215.3
37985	243.3	0	0	26.362	-6215.3
37986	243.13	0	0	26.362	-6215.3
37987	243.2	0	0	26.362	-6215.3
37988	243.22	0	0	26.362	-6215.3
37989	243.3	0	0	26.362	-6215.3
37990	243.16	0	0	26.362	-6215.3
37991	243.13	0	0	26.362	-6215.3
37992	243.32	0	0	26.362	-6215.3
37993	243.3	0	0	26.362	-6215.3
37994	243.23	0	0	26.362	-6215.3
37995	243.24	0	0	26.362	-6215.3
37996	243.24	0	0	26.362	-6215.3
37997	243.32	0	0	26.362	-6215.3
37998	243.14	0	0	26.362	-6215.3
37999	243.22	0	0	26.362	-6215.3
38000	243.13	0	0	26.362	-6215.3
38001	243.29	0	0	26.362	-6215.3
38002	243.07	0	0	26.362	-6215.3
38003	243.37	0	0	26.362	-6215.3
38004	243.12	0	0	26.362	-6215.3
38005	243.25	0	0	26.362	-6215.3
38006	243.27	0	0	26.362	-6215.3
38007	243.06	0	0	26.362	-6215.3
38008	243.36	0	0	26.362	-6215.3
38009	242.97	0	0	26.362	-6215.3
38010	243.05	0	0	26.362	-6215.3
38011	243.46	0	0	26.362	-6215.3
38012	243.19	0	0	26.362	-6215.3
38013	243.37	0	0	26.362	-6215.3
38014	243.39	0	0	26.362	-6215.3
38015	243.09	0	0	26.362	-6215.3
38016	243.07	0	0	26.362	-6215.3
38017	243.22	0	0	26.362	-6215.3
38018	243.12	0	0	26.362	-6215.3
38019	242.45	0	0	26.362	-6215.3
38020	243.06	0	0	26.362	-6215.3
38021	243.03	0	0	26.362	-6215.3

38022	243.17	0	0	26.362	-6215.3
38023	243.2	0	0	26.362	-6215.3
38024	243.28	0	0	26.362	-6215.3
38025	243.25	0	0	26.362	-6215.3
38026	243.25	0	0	26.362	-6215.3
38027	243.08	0	0	26.362	-6215.3
38028	243.13	0	0	26.362	-6215.3
38029	243.17	0	0	26.362	-6215.3
38030	243.13	0	0	26.362	-6215.3
38031	243.15	0	0	26.362	-6215.3
38032	243.19	0	0	26.362	-6215.3
38033	243.3	0	0	26.362	-6215.3
38034	242.88	0	0	26.362	-6215.3
38035	243.23	0	0	26.362	-6215.3
38036	243.15	0	0	26.362	-6215.3
38037	243.28	0	0	26.362	-6215.3
38038	243.11	0	0	26.362	-6215.3
38039	243.3	0	0	26.362	-6215.3
38040	243.16	0	0	26.362	-6215.3
38041	243.18	0	0	26.362	-6215.3
38042	243.16	0	0	26.362	-6215.3
38043	243.29	0	0	26.362	-6215.3
38044	243.37	0	0	26.362	-6215.3
38045	243.24	0	0	26.362	-6215.3
38046	243.18	0	0	26.362	-6215.3
38047	243.2	0	0	26.362	-6215.3
38048	243.29	0	0	26.362	-6215.3
38049	243.23	0	0	26.362	-6215.3
38050	243.11	0	0	26.362	-6215.3
38051	242.93	0	0	26.362	-6215.3
38052	243.33	0	0	26.362	-6215.3
38053	243.37	0	0	26.362	-6215.3
38054	243.23	0	0	26.362	-6215.3
38055	243.14	0	0	26.362	-6215.3
38056	243.45	0	0	26.362	-6215.3
38057	243.22	0	0	26.362	-6215.3
38058	243.14	0	0	26.362	-6215.3
38059	243.12	0	0	26.362	-6215.3
38060	243.21	0	0	26.362	-6215.3
38061	243.27	0	0	26.362	-6215.3
38062	243.44	0	0	26.362	-6215.3
38063	243.39	0	0	26.362	-6215.3
38064	243.23	0	0	26.362	-6215.3
38065	243.45	0	0	26.362	-6215.3
38066	243.15	0	0	26.362	-6215.3
38067	243.2	0	0	26.362	-6215.3
38068	243.11	0	0	26.362	-6215.3

38069	243.29	0	0	26.362	-6215.3
38070	243.08	0	0	26.362	-6215.3
38071	243.05	0	0	26.362	-6215.3
38072	243.35	0	0	26.362	-6215.3
38073	242.83	0	0	26.362	-6215.3
38074	243.1	0	0	26.362	-6215.3
38075	243.35	0	0	26.362	-6215.3
38076	243.23	0	0	26.362	-6215.3
38077	243.3	0	0	26.362	-6215.3
38078	243.19	0	0	26.362	-6215.3
38079	243.27	0	0	26.362	-6215.3
38080	243.31	0	0	26.362	-6215.3
38081	243.24	0	0	26.362	-6215.3
38082	242.96	0	0	26.362	-6215.3
38083	243.13	0	0	26.362	-6215.3
38084	243.32	0	0	26.362	-6215.3
38085	243.29	0	0	26.362	-6215.3
38086	243.1	0	0	26.362	-6215.3
38087	243.1	0	0	26.362	-6215.3
38088	243.22	0	0	26.362	-6215.3
38089	243.2	0	0	26.362	-6215.3
38090	243.08	0	0	26.362	-6215.3
38091	243.12	0	0	26.362	-6215.3
38092	243.2	0	0	26.362	-6215.3
38093	242.97	0	0	26.362	-6215.3
38094	243.37	0	0	26.362	-6215.3
38095	243.36	0	0	26.362	-6215.3
38096	243.28	0	0	26.362	-6215.3
38097	243.06	0	0	26.362	-6215.3
38098	243.21	0	0	26.362	-6215.3
38099	243.22	0	0	26.362	-6215.3
38100	243.25	0	0	26.362	-6215.3
38101	243.21	0	0	26.362	-6215.3
38102	243.19	0	0	26.362	-6215.3
38103	243.37	0	0	26.362	-6215.3
38104	243.26	0	0	26.362	-6215.3
38105	243.15	0	0	26.362	-6215.3
38106	243.09	0	0	26.362	-6215.3
38107	243.37	0	0	26.362	-6215.3
38108	243.31	0	0	26.362	-6215.3
38109	243	0	0	26.362	-6215.3
38110	243.26	0	0	26.362	-6215.3
38111	243.46	0	0	26.362	-6215.3
38112	243.33	0	0	26.362	-6215.3
38113	243.22	0	0	26.362	-6215.3
38114	243.63	0	0	26.362	-6215.3
38115	243.5	0	0	26.362	-6215.3

38116	243.46	0	0	26.362	-6215.3
38117	243.63	0	0	26.362	-6215.3
38118	243.46	0	0	26.362	-6215.3
38119	243.47	0	0	26.362	-6215.3
38120	243.36	0	0	26.362	-6215.3
38121	243.27	0	0	26.362	-6215.3
38122	243.34	0	0	26.362	-6215.3
38123	243.37	0	0	26.362	-6215.3
38124	243.43	0	0	26.362	-6215.3
38125	243.39	0	0	26.362	-6215.3
38126	243.37	0	0	26.362	-6215.3
38127	243.34	0	0	26.362	-6215.3
38128	243.3	0	0	26.362	-6215.3
38129	243.38	0	0	26.362	-6215.3
38130	243.37	0	0	26.362	-6215.3
38131	243.57	0	0	26.362	-6215.3
38132	243.11	0	0	26.362	-6215.3
38133	243.45	0	0	26.362	-6215.3
38134	243.5	0	0	26.362	-6215.3
38135	243.5	0	0	26.362	-6215.3
38136	243.37	0	0	26.362	-6215.3
38137	243.32	0	0	26.362	-6215.3
38138	243.45	0	0	26.362	-6215.3
38139	243.55	0	0	26.362	-6215.3
38140	243.55	0	0	26.362	-6215.3
38141	243.4	0	0	26.362	-6215.3
38142	243.5	0	0	26.362	-6215.3
38143	243.54	0	0	26.362	-6215.3
38144	243.45	0	0	26.362	-6215.3
38145	243.51	0	0	26.362	-6215.3
38146	243.55	0	0	26.362	-6215.3
38147	243.41	0	0	26.362	-6215.3
38148	243.62	0	0	26.362	-6215.3
38149	243.57	0	0	26.362	-6215.3
38150	243.3	0	0	26.362	-6215.3
38151	243.38	0	0	26.362	-6215.3
38152	243.7	0	0	26.362	-6215.3
38153	243.65	0	0	26.362	-6215.3
38154	243.48	0	0	26.362	-6215.3
38155	243.45	0	0	26.362	-6215.3
38156	243.7	0	0	26.362	-6215.3
38157	243.68	0	0	26.362	-6215.3
38158	243.61	0	0	26.362	-6215.3
38159	243.42	0	0	26.362	-6215.3
38160	243.57	0	0	26.362	-6215.3
38161	243.43	0	0	26.362	-6215.3
38162	243.56	0	0	26.362	-6215.3

38163	243.62	0	0	26.362	-6215.3
38164	243.23	0	0	26.362	-6215.3
38165	243.52	0	0	26.362	-6215.3
38166	243.37	0	0	26.362	-6215.3
38167	243.6	0	0	26.362	-6215.3
38168	243.48	0	0	26.362	-6215.3
38169	243.27	0	0	26.362	-6215.3
38170	243.46	0	0	26.362	-6215.3
38171	243.6	0	0	26.362	-6215.3
38172	243.62	0	0	26.362	-6215.3
38173	243.45	0	0	26.362	-6215.3
38174	243.66	0	0	26.362	-6215.3
38175	243.63	0	0	26.362	-6215.3
38176	243.52	0	0	26.362	-6215.3
38177	243.46	0	0	26.362	-6215.3
38178	243.52	0	0	26.362	-6215.3
38179	243.59	0	0	26.362	-6215.3
38180	243.56	0	0	26.362	-6215.3
38181	243.5	0	0	26.362	-6215.3
38182	243.6	0	0	26.362	-6215.3
38183	243.55	0	0	26.362	-6215.3
38184	243.33	0	0	26.362	-6215.3
38185	243.55	0	0	26.362	-6215.3
38186	243.47	0	0	26.362	-6215.3
38187	243.59	0	0	26.362	-6215.3
38188	243.32	0	0	26.362	-6215.3
38189	243.54	0	0	26.362	-6215.3
38190	243.59	0	0	26.362	-6215.3
38191	243.34	0	0	26.362	-6215.3
38192	243.56	0	0	26.362	-6215.3
38193	243.49	0	0	26.362	-6215.3
38194	243.59	0	0	26.362	-6215.3
38195	243.47	0	0	26.362	-6215.3
38196	243.64	0	0	26.362	-6215.3
38197	243.3	0	0	26.362	-6215.3
38198	243.41	0	0	26.362	-6215.3
38199	243.47	0	0	26.362	-6215.3
38200	243.64	0	0	26.362	-6215.3
38201	243.59	0	0	26.362	-6215.3
38202	243.59	0	0	26.362	-6215.3
38203	243.53	0	0	26.362	-6215.3
38204	243.46	0	0	26.362	-6215.3
38205	243.37	0	0	26.362	-6215.3
38206	243.46	0	0	26.362	-6215.3
38207	243.21	0	0	26.362	-6215.3
38208	243.46	0	0	26.362	-6215.3
38209	243.44	0	0	26.362	-6215.3

38210	243.4	0	0	26.362	-6215.3
38211	243.34	0	0	26.362	-6215.3
38212	243.45	0	0	26.362	-6215.3
38213	243.5	0	0	26.362	-6215.3
38214	243.43	0	0	26.362	-6215.3
38215	243.45	0	0	26.362	-6215.3
38216	243.44	0	0	26.362	-6215.3
38217	243.39	0	0	26.362	-6215.3
38218	243.64	0	0	26.362	-6215.3
38219	243.46	0	0	26.362	-6215.3
38220	243.55	0	0	26.362	-6215.3
38221	243.42	0	0	26.362	-6215.3
38222	243.55	0	0	26.362	-6215.3
38223	243.5	0	0	26.362	-6215.3
38224	243.51	0	0	26.362	-6215.3
38225	243.45	0	0	26.362	-6215.3
38226	243.52	0	0	26.362	-6215.3
38227	243.45	0	0	26.362	-6215.3
38228	243.23	0	0	26.362	-6215.3
38229	243.44	0	0	26.362	-6215.3
38230	243.4	0	0	26.362	-6215.3
38231	243.49	0	0	26.362	-6215.3
38232	243.49	0	0	26.362	-6215.3
38233	243.5	0	0	26.362	-6215.3
38234	243.55	0	0	26.362	-6215.3
38235	243.42	0	0	26.362	-6215.3
38236	243.48	0	0	26.362	-6215.3
38237	243.48	0	0	26.362	-6215.3
38238	243.57	0	0	26.362	-6215.3
38239	243.37	0	0	26.362	-6215.3
38240	243.44	0	0	26.362	-6215.3
38241	243.47	0	0	26.362	-6215.3
38242	243.36	0	0	26.362	-6215.3
38243	243.45	0	0	26.362	-6215.3
38244	243.13	0	0	26.362	-6215.3
38245	243.56	0	0	26.362	-6215.3
38246	243.45	0	0	26.362	-6215.3
38247	243.49	0	0	26.362	-6215.3
38248	243.46	0	0	26.362	-6215.3
38249	243.49	0	0	26.362	-6215.3
38250	243.26	0	0	26.362	-6215.3
38251	243.37	0	0	26.362	-6215.3
38252	243.34	0	0	26.362	-6215.3
38253	243.46	0	0	26.362	-6215.3
38254	243.34	0	0	26.362	-6215.3
38255	243.31	0	0	26.362	-6215.3
38256	243.37	0	0	26.362	-6215.3

38257	243.25	0	0	26.362	-6215.3
38258	243.64	0	0	26.362	-6215.3
38259	243.57	0	0	26.362	-6215.3
38260	243.56	0	0	26.362	-6215.3
38261	243.39	0	0	26.362	-6215.3
38262	243.5	0	0	26.362	-6215.3
38263	243.57	0	0	26.362	-6215.3
38264	243.46	0	0	26.362	-6215.3
38265	243.5	0	0	26.362	-6215.3
38266	243.47	0	0	26.362	-6215.3
38267	243.21	0	0	26.362	-6215.3
38268	243.47	0	0	26.362	-6215.3
38269	243.43	0	0	26.362	-6215.3
38270	243.6	0	0	26.362	-6215.3
38271	243.66	0	0	26.362	-6215.3
38272	243.63	0	0	26.362	-6215.3
38273	243.63	0	0	26.362	-6215.3
38274	243.52	0	0	26.362	-6215.3
38275	243.57	0	0	26.362	-6215.3
38276	243.56	0	0	26.362	-6215.3
38277	243.6	0	0	26.362	-6215.3
38278	243.5	0	0	26.362	-6215.3
38279	243.5	0	0	26.362	-6215.3
38280	243.48	0	0	26.362	-6215.3
38281	243.69	0	0	26.362	-6215.3
38282	243.57	0	0	26.362	-6215.3
38283	243.54	0	0	26.362	-6215.3
38284	243.53	0	0	26.362	-6215.3
38285	243.49	0	0	26.362	-6215.3
38286	243.6	0	0	26.362	-6215.3
38287	243.67	0	0	26.362	-6215.3
38288	243.61	0	0	26.362	-6215.3
38289	243.78	0	0	26.362	-6215.3
38290	243.53	0	0	26.362	-6215.3
38291	243.52	0	0	26.362	-6215.3
38292	243.7	0	0	26.362	-6215.3
38293	243.66	0	0	26.362	-6215.3
38294	243.6	0	0	26.362	-6215.3
38295	243.77	0	0	26.362	-6215.3
38296	243.59	0	0	26.362	-6215.3
38297	243.66	0	0	26.362	-6215.3
38298	243.62	0	0	26.362	-6215.3
38299	243.6	0	0	26.362	-6215.3
38300	243.5	0	0	26.362	-6215.3
38301	243.9	0	0	26.362	-6215.3
38302	243.8	0	0	26.362	-6215.3
38303	243.75	0	0	26.362	-6215.3

38304	243.79	0	0	26.362	-6215.3
38305	243.46	0	0	26.362	-6215.3
38306	243.68	0	0	26.362	-6215.3
38307	243.77	0	0	26.362	-6215.3
38308	243.74	0	0	26.362	-6215.3
38309	243.46	0	0	26.362	-6215.3
38310	243.63	0	0	26.362	-6215.3
38311	243.7	0	0	26.362	-6215.3
38312	243.73	0	0	26.362	-6215.3
38313	243.78	0	0	26.362	-6215.3
38314	243.44	0	0	26.362	-6215.3
38315	243.48	0	0	26.362	-6215.3
38316	243.61	0	0	26.362	-6215.3
38317	243.66	0	0	26.362	-6215.3
38318	243.63	0	0	26.362	-6215.3
38319	243.64	0	0	26.362	-6215.3
38320	243.74	0	0	26.362	-6215.3
38321	243.47	0	0	26.362	-6215.3
38322	243.76	0	0	26.362	-6215.3
38323	243.71	0	0	26.362	-6215.3
38324	243.69	0	0	26.362	-6215.3
38325	243.44	0	0	26.362	-6215.3
38326	243.49	0	0	26.362	-6215.3
38327	243.48	0	0	26.362	-6215.3
38328	243.58	0	0	26.362	-6215.3
38329	243.59	0	0	26.362	-6215.3
38330	243.76	0	0	26.362	-6215.3
38331	243.6	0	0	26.362	-6215.3
38332	243.46	0	0	26.362	-6215.3
38333	243.62	0	0	26.362	-6215.3
38334	243.46	0	0	26.362	-6215.3
38335	243.4	0	0	26.362	-6215.3
38336	243.58	0	0	26.362	-6215.3
38337	243.62	0	0	26.362	-6215.3
38338	243.54	0	0	26.362	-6215.3
38339	243.54	0	0	26.362	-6215.3
38340	243.63	0	0	26.362	-6215.3
38341	243.4	0	0	26.362	-6215.3
38342	243.2	0	0	26.362	-6215.3
38343	243.48	0	0	26.362	-6215.3
38344	243.43	0	0	26.362	-6215.3
38345	243.54	0	0	26.362	-6215.3
38346	243.39	0	0	26.362	-6215.3
38347	243.53	0	0	26.362	-6215.3
38348	243.41	0	0	26.362	-6215.3
38349	243.35	0	0	26.362	-6215.3
38350	243.29	0	0	26.362	-6215.3

38351	243.38	0	0	26.362	-6215.3
38352	243.48	0	0	26.362	-6215.3
38353	243	0	0	26.362	-6215.3
38354	243.07	0	0	26.362	-6215.3
38355	243.24	0	0	26.362	-6215.3
38356	243.21	0	0	26.362	-6215.3
38357	243.27	0	0	26.362	-6215.3
38358	243.47	0	0	26.362	-6215.3
38359	243.29	0	0	26.362	-6215.3
38360	243.25	0	0	26.362	-6215.3
38361	243.47	0	0	26.362	-6215.3
38362	243.4	0	0	26.362	-6215.3
38363	243.38	0	0	26.362	-6215.3
38364	243.49	0	0	26.362	-6215.3
38365	243.62	0	0	26.362	-6215.3
38366	243.4	0	0	26.362	-6215.3
38367	243.48	0	0	26.362	-6215.3
38368	243.6	0	0	26.362	-6215.3
38369	243.63	0	0	26.362	-6215.3
38370	243.57	0	0	26.362	-6215.3
38371	243.52	0	0	26.362	-6215.3
38372	243.42	0	0	26.362	-6215.3
38373	243.54	0	0	26.362	-6215.3
38374	243.54	0	0	26.362	-6215.3
38375	243.33	0	0	26.362	-6215.3
38376	243.49	0	0	26.362	-6215.3
38377	243.29	0	0	26.362	-6215.3
38378	243.47	0	0	26.362	-6215.3
38379	243.49	0	0	26.362	-6215.3
38380	243.4	0	0	26.362	-6215.3
38381	243.39	0	0	26.362	-6215.3
38382	243.44	0	0	26.362	-6215.3
38383	243.52	0	0	26.362	-6215.3
38384	243.6	0	0	26.362	-6215.3
38385	243.53	0	0	26.362	-6215.3
38386	243.48	0	0	26.362	-6215.3
38387	243.77	0	0	26.362	-6215.3
38388	243.65	0	0	26.362	-6215.3
38389	243.56	0	0	26.362	-6215.3
38390	243.54	0	0	26.362	-6215.3
38391	243.3	0	0	26.362	-6215.3
38392	243.55	0	0	26.362	-6215.3
38393	243.46	0	0	26.362	-6215.3
38394	243.39	0	0	26.362	-6215.3
38395	243.45	0	0	26.362	-6215.3
38396	243.55	0	0	26.362	-6215.3
38397	243.65	0	0	26.362	-6215.3

38398	243.51	0	0	26.362	-6215.3
38399	243.73	0	0	26.362	-6215.3
38400	243.67	0	0	26.362	-6215.3
38401	243.5	0	0	26.362	-6215.3
38402	243.56	0	0	26.362	-6215.3
38403	243.7	0	0	26.362	-6215.3
38404	243.49	0	0	26.362	-6215.3
38405	243.51	0	0	26.362	-6215.3
38406	243.59	0	0	26.362	-6215.3
38407	243.47	0	0	26.362	-6215.3
38408	243.35	0	0	26.362	-6215.3
38409	243.33	0	0	26.362	-6215.3
38410	243.41	0	0	26.362	-6215.3
38411	243.45	0	0	26.362	-6215.3
38412	243.46	0	0	26.362	-6215.3
38413	243.41	0	0	26.362	-6215.3
38414	243.3	0	0	26.362	-6215.3
38415	243.32	0	0	26.362	-6215.3
38416	243.35	0	0	26.362	-6215.3
38417	243.35	0	0	26.362	-6215.3
38418	243.22	0	0	26.362	-6215.3
38419	243.28	0	0	26.362	-6215.3
38420	243.39	0	0	26.362	-6215.3
38421	243.32	0	0	26.362	-6215.3
38422	243.28	0	0	26.362	-6215.3
38423	243.52	0	0	26.362	-6215.3
38424	243.5	0	0	26.362	-6215.3
38425	243.34	0	0	26.362	-6215.3
38426	243.4	0	0	26.362	-6215.3
38427	243.54	0	0	26.362	-6215.3
38428	243.37	0	0	26.362	-6215.3
38429	243.36	0	0	26.362	-6215.3
38430	243.44	0	0	26.362	-6215.3
38431	242.76	0	0	26.362	-6215.3
38432	243.3	0	0	26.362	-6215.3
38433	243.22	0	0	26.362	-6215.3
38434	243.38	0	0	26.362	-6215.3
38435	243.27	0	0	26.362	-6215.3
38436	243.28	0	0	26.362	-6215.3
38437	243.29	0	0	26.362	-6215.3
38438	243.38	0	0	26.362	-6215.3
38439	243.42	0	0	26.362	-6215.3
38440	243.37	0	0	26.362	-6215.3
38441	243.44	0	0	26.362	-6215.3
38442	243.31	0	0	26.362	-6215.3
38443	243.46	0	0	26.362	-6215.3
38444	243.29	0	0	26.362	-6215.3

38445	243.39	0	0	26.362	-6215.3
38446	243.4	0	0	26.362	-6215.3
38447	243.46	0	0	26.362	-6215.3
38448	243.39	0	0	26.362	-6215.3
38449	243.46	0	0	26.362	-6215.3
38450	243.33	0	0	26.362	-6215.3
38451	243.34	0	0	26.362	-6215.3
38452	243.29	0	0	26.362	-6215.3
38453	243.34	0	0	26.362	-6215.3
38454	243.36	0	0	26.362	-6215.3
38455	243.27	0	0	26.362	-6215.3
38456	243.25	0	0	26.362	-6215.3
38457	243.37	0	0	26.362	-6215.3
38458	243.39	0	0	26.362	-6215.3
38459	243.47	0	0	26.362	-6215.3
38460	243.3	0	0	26.362	-6215.3
38461	243.31	0	0	26.362	-6215.3
38462	243.52	0	0	26.362	-6215.3
38463	243.33	0	0	26.362	-6215.3
38464	243.47	0	0	26.362	-6215.3
38465	243.37	0	0	26.362	-6215.3
38466	243.4	0	0	26.362	-6215.3
38467	243.52	0	0	26.362	-6215.3
38468	243.39	0	0	26.362	-6215.3
38469	243.47	0	0	26.362	-6215.3
38470	243.38	0	0	26.362	-6215.3
38471	243.39	0	0	26.362	-6215.3
38472	243.26	0	0	26.362	-6215.3
38473	243.53	0	0	26.362	-6215.3
38474	243.32	0	0	26.362	-6215.3
38475	243.52	0	0	26.362	-6215.3
38476	243.33	0	0	26.362	-6215.3
38477	243.46	0	0	26.362	-6215.3
38478	243.57	0	0	26.362	-6215.3
38479	243.54	0	0	26.362	-6215.3
38480	243.44	0	0	26.362	-6215.3
38481	243.31	0	0	26.362	-6215.3
38482	243.38	0	0	26.362	-6215.3
38483	243.43	0	0	26.362	-6215.3
38484	243.46	0	0	26.362	-6215.3
38485	243.34	0	0	26.362	-6215.3
38486	243.39	0	0	26.362	-6215.3
38487	243.38	0	0	26.362	-6215.3
38488	243.56	0	0	26.362	-6215.3
38489	243.64	0	0	26.362	-6215.3
38490	243.37	0	0	26.362	-6215.3
38491	243.45	0	0	26.362	-6215.3

38492	243.45	0	0	26.362	-6215.3
38493	243.37	0	0	26.362	-6215.3
38494	243.53	0	0	26.362	-6215.3
38495	243.48	0	0	26.362	-6215.3
38496	243.4	0	0	26.362	-6215.3
38497	243.52	0	0	26.362	-6215.3
38498	243.35	0	0	26.362	-6215.3
38499	243.58	0	0	26.362	-6215.3
38500	243.47	0	0	26.362	-6215.3
38501	243.53	0	0	26.362	-6215.3
38502	243.29	0	0	26.362	-6215.3
38503	243.48	0	0	26.362	-6215.3
38504	243.43	0	0	26.362	-6215.3
38505	243.62	0	0	26.362	-6215.3
38506	243.32	0	0	26.362	-6215.3
38507	243.51	0	0	26.362	-6215.3
38508	243.46	0	0	26.362	-6215.3
38509	243.52	0	0	26.362	-6215.3
38510	243.57	0	0	26.362	-6215.3
38511	243.55	0	0	26.362	-6215.3
38512	243.54	0	0	26.362	-6215.3
38513	243.56	0	0	26.362	-6215.3
38514	243.5	0	0	26.362	-6215.3
38515	243.55	0	0	26.362	-6215.3
38516	243.52	0	0	26.362	-6215.3
38517	243.67	0	0	26.362	-6215.3
38518	243.61	0	0	26.362	-6215.3
38519	242.24	0	0	26.362	-6215.3
38520	243.22	0	0	26.362	-6215.3
38521	243.21	0	0	26.362	-6215.3
38522	243.14	0	0	26.362	-6215.3
38523	243.3	0	0	26.362	-6215.3
38524	243.27	0	0	26.362	-6215.3
38525	243.19	0	0	26.362	-6215.3
38526	243.29	0	0	26.362	-6215.3
38527	243.16	0	0	26.362	-6215.3
38528	243.22	0	0	26.362	-6215.3
38529	243.22	0	0	26.362	-6215.3
38530	243.21	0	0	26.362	-6215.3
38531	243.29	0	0	26.362	-6215.3
38532	243.26	0	0	26.362	-6215.3
38533	243.19	0	0	26.362	-6215.3
38534	243.31	0	0	26.362	-6215.3
38535	243.19	0	0	26.362	-6215.3
38536	243.15	0	0	26.362	-6215.3
38537	243.06	0	0	26.362	-6215.3
38538	243.21	0	0	26.362	-6215.3

38539	243.25	0	0	26.362	-6215.3
38540	243.31	0	0	26.362	-6215.3
38541	243.26	0	0	26.362	-6215.3
38542	243.17	0	0	26.362	-6215.3
38543	243.12	0	0	26.362	-6215.3
38544	243.22	0	0	26.362	-6215.3
38545	243.18	0	0	26.362	-6215.3
38546	243.26	0	0	26.362	-6215.3
38547	243.23	0	0	26.362	-6215.3
38548	243.26	0	0	26.362	-6215.3
38549	243.26	0	0	26.362	-6215.3
38550	243.35	0	0	26.362	-6215.3
38551	243.22	0	0	26.362	-6215.3
38552	243.36	0	0	26.362	-6215.3
38553	243.21	0	0	26.362	-6215.3
38554	243.13	0	0	26.362	-6215.3
38555	243.24	0	0	26.362	-6215.3
38556	243.3	0	0	26.362	-6215.3
38557	243.12	0	0	26.362	-6215.3
38558	243.09	0	0	26.362	-6215.3
38559	243.23	0	0	26.362	-6215.3
38560	243.02	0	0	26.362	-6215.3
38561	243.06	0	0	26.362	-6215.3
38562	243.2	0	0	26.362	-6215.3
38563	243.07	0	0	26.362	-6215.3
38564	243.12	0	0	26.362	-6215.3
38565	243.08	0	0	26.362	-6215.3
38566	243.11	0	0	26.362	-6215.3
38567	243.11	0	0	26.362	-6215.3
38568	242.94	0	0	26.362	-6215.3
38569	242.98	0	0	26.362	-6215.3
38570	243.12	0	0	26.362	-6215.3
38571	243.15	0	0	26.362	-6215.3
38572	243.22	0	0	26.362	-6215.3
38573	243.25	0	0	26.362	-6215.3
38574	243.06	0	0	26.362	-6215.3
38575	243.11	0	0	26.362	-6215.3
38576	243.02	0	0	26.362	-6215.3
38577	243.13	0	0	26.362	-6215.3
38578	243.14	0	0	26.362	-6215.3
38579	243.05	0	0	26.362	-6215.3
38580	243.13	0	0	26.362	-6215.3
38581	243.09	0	0	26.362	-6215.3
38582	242.9	0	0	26.362	-6215.3
38583	243.06	0	0	26.362	-6215.3
38584	242.91	0	0	26.362	-6215.3
38585	242.95	0	0	26.362	-6215.3

38586	242.99	0	0	26.362	-6215.3
38587	242.9	0	0	26.362	-6215.3
38588	242.81	0	0	26.362	-6215.3
38589	243.21	0	0	26.362	-6215.3
38590	242.91	0	0	26.362	-6215.3
38591	243.06	0	0	26.362	-6215.3
38592	243.04	0	0	26.362	-6215.3
38593	242.91	0	0	26.362	-6215.3
38594	243.05	0	0	26.362	-6215.3
38595	242.87	0	0	26.362	-6215.3
38596	242.98	0	0	26.362	-6215.3
38597	242.9	0	0	26.362	-6215.3
38598	242.95	0	0	26.362	-6215.3
38599	242.84	0	0	26.362	-6215.3
38600	242.85	0	0	26.362	-6215.3
38601	243.01	0	0	26.362	-6215.3
38602	242.87	0	0	26.362	-6215.3
38603	243.02	0	0	26.362	-6215.3
38604	242.88	0	0	26.362	-6215.3
38605	242.91	0	0	26.362	-6215.3
38606	242.96	0	0	26.362	-6215.3
38607	243	0	0	26.362	-6215.3
38608	242.82	0	0	26.362	-6215.3
38609	242.98	0	0	26.362	-6215.3
38610	242.83	0	0	26.362	-6215.3
38611	242.79	0	0	26.362	-6215.3
38612	242.87	0	0	26.362	-6215.3
38613	242.97	0	0	26.362	-6215.3
38614	242.25	0	0	26.362	-6215.3
38615	242.74	0	0	26.362	-6215.3
38616	242.74	0	0	26.362	-6215.3
38617	242.71	0	0	26.362	-6215.3
38618	242.81	0	0	26.362	-6215.3
38619	242.75	0	0	26.362	-6215.3
38620	242.84	0	0	26.362	-6215.3
38621	242.78	0	0	26.362	-6215.3
38622	242.81	0	0	26.362	-6215.3
38623	242.8	0	0	26.362	-6215.3
38624	242.84	0	0	26.362	-6215.3
38625	242.71	0	0	26.362	-6215.3
38626	242.76	0	0	26.362	-6215.3
38627	242.78	0	0	26.362	-6215.3
38628	242.74	0	0	26.362	-6215.3
38629	242.75	0	0	26.362	-6215.3
38630	242.76	0	0	26.362	-6215.3
38631	242.71	0	0	26.362	-6215.3
38632	242.82	0	0	26.362	-6215.3

38633	242.73	0	0	26.362	-6215.3
38634	242.71	0	0	26.362	-6215.3
38635	242.7	0	0	26.362	-6215.3
38636	242.78	0	0	26.362	-6215.3
38637	242.9	0	0	26.362	-6215.3
38638	242.73	0	0	26.362	-6215.3
38639	242.71	0	0	26.362	-6215.3
38640	242.7	0	0	26.362	-6215.3
38641	242.71	0	0	26.362	-6215.3
38642	242.76	0	0	26.362	-6215.3
38643	242.79	0	0	26.362	-6215.3
38644	242.57	0	0	26.362	-6215.3
38645	242.63	0	0	26.362	-6215.3
38646	242.55	0	0	26.362	-6215.3
38647	242.64	0	0	26.362	-6215.3
38648	242.62	0	0	26.362	-6215.3
38649	242.59	0	0	26.362	-6215.3
38650	242.65	0	0	26.362	-6215.3
38651	242.7	0	0	26.362	-6215.3
38652	242.62	0	0	26.362	-6215.3
38653	242.64	0	0	26.362	-6215.3
38654	242.56	0	0	26.362	-6215.3
38655	242.63	0	0	26.362	-6215.3
38656	242.55	0	0	26.362	-6215.3
38657	242.52	0	0	26.362	-6215.3
38658	242.46	0	0	26.362	-6215.3
38659	242.6	0	0	26.362	-6215.3
38660	242.73	0	0	26.362	-6215.3
38661	242.76	0	0	26.362	-6215.3
38662	242.64	0	0	26.362	-6215.3
38663	242.75	0	0	26.362	-6215.3
38664	242.65	0	0	26.362	-6215.3
38665	242.73	0	0	26.362	-6215.3
38666	242.76	0	0	26.362	-6215.3
38667	242.69	0	0	26.362	-6215.3
38668	242.69	0	0	26.362	-6215.3
38669	242.64	0	0	26.362	-6215.3
38670	242.74	0	0	26.362	-6215.3
38671	242.77	0	0	26.362	-6215.3
38672	242.77	0	0	26.362	-6215.3
38673	242.74	0	0	26.362	-6215.3
38674	242.84	0	0	26.362	-6215.3
38675	242.74	0	0	26.362	-6215.3
38676	242.7	0	0	26.362	-6215.3
38677	242.73	0	0	26.362	-6215.3
38678	242.66	0	0	26.362	-6215.3
38679	242.57	0	0	26.362	-6215.3

38680	242.66	0	0	26.362	-6215.3
38681	242.7	0	0	26.362	-6215.3
38682	242.79	0	0	26.362	-6215.3
38683	242.67	0	0	26.362	-6215.3
38684	242.69	0	0	26.362	-6215.3
38685	242.72	0	0	26.362	-6215.3
38686	242.7	0	0	26.362	-6215.3
38687	242.64	0	0	26.362	-6215.3
38688	242.56	0	0	26.362	-6215.3
38689	242.73	0	0	26.362	-6215.3
38690	242.56	0	0	26.362	-6215.3
38691	242.6	0	0	26.362	-6215.3
38692	242.67	0	0	26.362	-6215.3
38693	242.69	0	0	26.362	-6215.3
38694	242.73	0	0	26.362	-6215.3
38695	242.71	0	0	26.362	-6215.3
38696	242.71	0	0	26.362	-6215.3
38697	242.74	0	0	26.362	-6215.3
38698	242.86	0	0	26.362	-6215.3
38699	242.73	0	0	26.362	-6215.3
38700	242.73	0	0	26.362	-6215.3
38701	242.84	0	0	26.362	-6215.3
38702	242.75	0	0	26.362	-6215.3
38703	242.68	0	0	26.362	-6215.3
38704	242.6	0	0	26.362	-6215.3
38705	242.75	0	0	26.362	-6215.3
38706	242.71	0	0	26.362	-6215.3
38707	242.69	0	0	26.362	-6215.3
38708	242.67	0	0	26.362	-6215.3
38709	242.92	0	0	26.362	-6215.3
38710	242.6	0	0	26.362	-6215.3
38711	242.77	0	0	26.362	-6215.3
38712	242.69	0	0	26.362	-6215.3
38713	242.68	0	0	26.362	-6215.3
38714	242.74	0	0	26.362	-6215.3
38715	242.69	0	0	26.362	-6215.3
38716	242.68	0	0	26.362	-6215.3
38717	242.62	0	0	26.362	-6215.3
38718	242.62	0	0	26.362	-6215.3
38719	242.6	0	0	26.362	-6215.3
38720	242.63	0	0	26.362	-6215.3
38721	242.6	0	0	26.362	-6215.3
38722	242.53	0	0	26.362	-6215.3
38723	242.66	0	0	26.362	-6215.3
38724	242.7	0	0	26.362	-6215.3
38725	242.52	0	0	26.362	-6215.3
38726	242.83	0	0	26.362	-6215.3

38727	242.82	0	0	26.362	-6215.3
38728	242.96	0	0	26.362	-6215.3
38729	242.87	0	0	26.362	-6215.3
38730	242.96	0	0	26.362	-6215.3
38731	242.87	0	0	26.362	-6215.3
38732	242.92	0	0	26.362	-6215.3
38733	242.99	0	0	26.362	-6215.3
38734	242.8	0	0	26.362	-6215.3
38735	242.91	0	0	26.362	-6215.3
38736	242.99	0	0	26.362	-6215.3
38737	242.94	0	0	26.362	-6215.3
38738	242.79	0	0	26.362	-6215.3
38739	243.08	0	0	26.362	-6215.3
38740	242.84	0	0	26.362	-6215.3
38741	243.15	0	0	26.362	-6215.3
38742	242.94	0	0	26.362	-6215.3
38743	242.79	0	0	26.362	-6215.3
38744	242.97	0	0	26.362	-6215.3
38745	242.95	0	0	26.362	-6215.3
38746	242.91	0	0	26.362	-6215.3
38747	242.97	0	0	26.362	-6215.3
38748	243	0	0	26.362	-6215.3
38749	243.17	0	0	26.362	-6215.3
38750	243.02	0	0	26.362	-6215.3
38751	243.11	0	0	26.362	-6215.3
38752	243.24	0	0	26.362	-6215.3
38753	243	0	0	26.362	-6215.3
38754	243.1	0	0	26.362	-6215.3
38755	243.3	0	0	26.362	-6215.3
38756	243.08	0	0	26.362	-6215.3
38757	243.24	0	0	26.362	-6215.3
38758	243.11	0	0	26.362	-6215.3
38759	243.25	0	0	26.362	-6215.3
38760	243.21	0	0	26.362	-6215.3
38761	243.15	0	0	26.362	-6215.3
38762	243.14	0	0	26.362	-6215.3
38763	242.88	0	0	26.362	-6215.3
38764	242.97	0	0	26.362	-6215.3
38765	243.02	0	0	26.362	-6215.3
38766	243.02	0	0	26.362	-6215.3
38767	243.2	0	0	26.362	-6215.3
38768	243.1	0	0	26.362	-6215.3
38769	243.12	0	0	26.362	-6215.3
38770	243	0	0	26.362	-6215.3
38771	243.26	0	0	26.362	-6215.3
38772	243.08	0	0	26.362	-6215.3
38773	243.1	0	0	26.362	-6215.3

38774	243.18	0	0	26.362	-6215.3
38775	243.06	0	0	26.362	-6215.3
38776	243.06	0	0	26.362	-6215.3
38777	243.17	0	0	26.362	-6215.3
38778	243.02	0	0	26.362	-6215.3
38779	243.09	0	0	26.362	-6215.3
38780	243.31	0	0	26.362	-6215.3
38781	243.22	0	0	26.362	-6215.3
38782	243.05	0	0	26.362	-6215.3
38783	243.2	0	0	26.362	-6215.3
38784	243.08	0	0	26.362	-6215.3
38785	243.26	0	0	26.362	-6215.3
38786	243.21	0	0	26.362	-6215.3
38787	243.19	0	0	26.362	-6215.3
38788	243.14	0	0	26.362	-6215.3
38789	243.2	0	0	26.362	-6215.3
38790	243.12	0	0	26.362	-6215.3
38791	243.08	0	0	26.362	-6215.3
38792	243.16	0	0	26.362	-6215.3
38793	243.13	0	0	26.362	-6215.3
38794	243.15	0	0	26.362	-6215.3
38795	243.1	0	0	26.362	-6215.3
38796	243.18	0	0	26.362	-6215.3
38797	243.23	0	0	26.362	-6215.3
38798	243.24	0	0	26.362	-6215.3
38799	242.93	0	0	26.362	-6215.3
38800	242.97	0	0	26.362	-6215.3
38801	243.04	0	0	26.362	-6215.3
38802	243.21	0	0	26.362	-6215.3
38803	243.18	0	0	26.362	-6215.3
38804	243.26	0	0	26.362	-6215.3
38805	243.23	0	0	26.362	-6215.3
38806	243.13	0	0	26.362	-6215.3
38807	243.18	0	0	26.362	-6215.3
38808	243.33	0	0	26.362	-6215.3
38809	243.36	0	0	26.362	-6215.3
38810	243.4	0	0	26.362	-6215.3
38811	243.34	0	0	26.362	-6215.3
38812	243.34	0	0	26.362	-6215.3
38813	243.29	0	0	26.362	-6215.3
38814	243.21	0	0	26.362	-6215.3
38815	243.2	0	0	26.362	-6215.3
38816	243.28	0	0	26.362	-6215.3
38817	243.17	0	0	26.362	-6215.3
38818	243.32	0	0	26.362	-6215.3
38819	243.19	0	0	26.362	-6215.3
38820	243.26	0	0	26.362	-6215.3

38821	243.19	0	0	26.362	-6215.3
38822	243.18	0	0	26.362	-6215.3
38823	243.2	0	0	26.362	-6215.3
38824	243.29	0	0	26.362	-6215.3
38825	243.21	0	0	26.362	-6215.3
38826	243.16	0	0	26.362	-6215.3
38827	243.3	0	0	26.362	-6215.3
38828	243.25	0	0	26.362	-6215.3
38829	243.26	0	0	26.362	-6215.3
38830	243.21	0	0	26.362	-6215.3
38831	243.36	0	0	26.362	-6215.3
38832	243.32	0	0	26.362	-6215.3
38833	243.28	0	0	26.362	-6215.3
38834	243.37	0	0	26.362	-6215.3
38835	243.27	0	0	26.362	-6215.3
38836	243.26	0	0	26.362	-6215.3
38837	243.25	0	0	26.362	-6215.3
38838	243.29	0	0	26.362	-6215.3
38839	243.26	0	0	26.362	-6215.3
38840	243.29	0	0	26.362	-6215.3
38841	243.33	0	0	26.362	-6215.3
38842	243.36	0	0	26.362	-6215.3
38843	243.31	0	0	26.362	-6215.3
38844	243.27	0	0	26.362	-6215.3
38845	243.28	0	0	26.362	-6215.3
38846	243.31	0	0	26.362	-6215.3
38847	243.32	0	0	26.362	-6215.3
38848	243.33	0	0	26.362	-6215.3
38849	243.35	0	0	26.362	-6215.3
38850	243.36	0	0	26.362	-6215.3
38851	242.65	0	0	26.362	-6215.3
38852	242.75	0	0	26.362	-6215.3
38853	243.21	0	0	26.362	-6215.3
38854	243.24	0	0	26.362	-6215.3
38855	243.22	0	0	26.362	-6215.3
38856	243.22	0	0	26.362	-6215.3
38857	243.18	0	0	26.362	-6215.3
38858	243.19	0	0	26.362	-6215.3
38859	243.3	0	0	26.362	-6215.3
38860	243.31	0	0	26.362	-6215.3
38861	243.32	0	0	26.362	-6215.3
38862	243.28	0	0	26.362	-6215.3
38863	243.28	0	0	26.362	-6215.3
38864	243.27	0	0	26.362	-6215.3
38865	243.32	0	0	26.362	-6215.3
38866	243.3	0	0	26.362	-6215.3
38867	243.37	0	0	26.362	-6215.3

38868	243.33	0	0	26.362	-6215.3
38869	243.33	0	0	26.362	-6215.3
38870	243.33	0	0	26.362	-6215.3
38871	243.38	0	0	26.362	-6215.3
38872	243.37	0	0	26.362	-6215.3
38873	243.42	0	0	26.362	-6215.3
38874	243.47	0	0	26.362	-6215.3
38875	243.47	0	0	26.362	-6215.3
38876	243.53	0	0	26.362	-6215.3
38877	243.42	0	0	26.362	-6215.3
38878	243.44	0	0	26.362	-6215.3
38879	243.47	0	0	26.362	-6215.3
38880	243.46	0	0	26.362	-6215.3
38881	243.51	0	0	26.362	-6215.3
38882	243.55	0	0	26.362	-6215.3
38883	243.55	0	0	26.362	-6215.3
38884	243.42	0	0	26.362	-6215.3
38885	243.57	0	0	26.362	-6215.3
38886	243.51	0	0	26.362	-6215.3
38887	243.5	0	0	26.362	-6215.3
38888	243.48	0	0	26.362	-6215.3
38889	243.48	0	0	26.362	-6215.3
38890	243.51	0	0	26.362	-6215.3
38891	243.51	0	0	26.362	-6215.3
38892	243.48	0	0	26.362	-6215.3
38893	243.49	0	0	26.362	-6215.3
38894	243.51	0	0	26.362	-6215.3
38895	243.55	0	0	26.362	-6215.3
38896	243.55	0	0	26.362	-6215.3
38897	243.59	0	0	26.362	-6215.3
38898	243.56	0	0	26.362	-6215.3
38899	243.55	0	0	26.362	-6215.3
38900	243.53	0	0	26.362	-6215.3
38901	243.59	0	0	26.362	-6215.3
38902	243.62	0	0	26.362	-6215.3
38903	243.57	0	0	26.362	-6215.3
38904	243.56	0	0	26.362	-6215.3
38905	243.6	0	0	26.362	-6215.3
38906	243.61	0	0	26.362	-6215.3
38907	243.53	0	0	26.362	-6215.3
38908	243.62	0	0	26.362	-6215.3
38909	243.57	0	0	26.362	-6215.3
38910	243.5	0	0	26.362	-6215.3
38911	243.61	0	0	26.362	-6215.3
38912	243.52	0	0	26.362	-6215.3
38913	243.43	0	0	26.362	-6215.3
38914	243.43	0	0	26.362	-6215.3

38915	243.38	0	0	26.362	-6215.3
38916	243.44	0	0	26.362	-6215.3
38917	243.45	0	0	26.362	-6215.3
38918	243.36	0	0	26.362	-6215.3
38919	243.4	0	0	26.362	-6215.3
38920	243.39	0	0	26.362	-6215.3
38921	243.43	0	0	26.362	-6215.3
38922	243.45	0	0	26.362	-6215.3
38923	243.46	0	0	26.362	-6215.3
38924	243.46	0	0	26.362	-6215.3
38925	243.49	0	0	26.362	-6215.3
38926	243.52	0	0	26.362	-6215.3
38927	243.48	0	0	26.362	-6215.3
38928	243.42	0	0	26.362	-6215.3
38929	243.46	0	0	26.362	-6215.3
38930	243.47	0	0	26.362	-6215.3
38931	243.39	0	0	26.362	-6215.3
38932	243.45	0	0	26.362	-6215.3
38933	243.44	0	0	26.362	-6215.3
38934	243.44	0	0	26.362	-6215.3
38935	243.44	0	0	26.362	-6215.3
38936	243.42	0	0	26.362	-6215.3
38937	243.34	0	0	26.362	-6215.3
38938	243.4	0	0	26.362	-6215.3
38939	243.36	0	0	26.362	-6215.3
38940	243.43	0	0	26.362	-6215.3
38941	243.41	0	0	26.362	-6215.3
38942	243.48	0	0	26.362	-6215.3
38943	243.38	0	0	26.362	-6215.3
38944	243.39	0	0	26.362	-6215.3
38945	243.35	0	0	26.362	-6215.3
38946	243.36	0	0	26.362	-6215.3
38947	243.39	0	0	26.362	-6215.3
38948	243.31	0	0	26.362	-6215.3
38949	243.34	0	0	26.362	-6215.3
38950	243.35	0	0	26.362	-6215.3
38951	243.31	0	0	26.362	-6215.3
38952	243.33	0	0	26.362	-6215.3
38953	243.46	0	0	26.362	-6215.3
38954	243.4	0	0	26.362	-6215.3
38955	243.43	0	0	26.362	-6215.3
38956	243.44	0	0	26.362	-6215.3
38957	243.47	0	0	26.362	-6215.3
38958	243.55	0	0	26.362	-6215.3
38959	243.59	0	0	26.362	-6215.3
38960	243.56	0	0	26.362	-6215.3
38961	243.57	0	0	26.362	-6215.3

38962	243.6	0	0	26.362	-6215.3
38963	243.55	0	0	26.362	-6215.3
38964	243.61	0	0	26.362	-6215.3
38965	243.63	0	0	26.362	-6215.3
38966	243.58	0	0	26.362	-6215.3
38967	243.53	0	0	26.362	-6215.3
38968	243.57	0	0	26.362	-6215.3
38969	243.53	0	0	26.362	-6215.3
38970	243.56	0	0	26.362	-6215.3
38971	243.55	0	0	26.362	-6215.3
38972	243.5	0	0	26.362	-6215.3
38973	243.49	0	0	26.362	-6215.3
38974	243.52	0	0	26.362	-6215.3
38975	243.49	0	0	26.362	-6215.3
38976	243.51	0	0	26.362	-6215.3
38977	243.52	0	0	26.362	-6215.3
38978	243.48	0	0	26.362	-6215.3
38979	243.3	0	0	26.362	-6215.3
38980	243.39	0	0	26.362	-6215.3
38981	243.29	0	0	26.362	-6215.3
38982	243.31	0	0	26.362	-6215.3
38983	243.22	0	0	26.362	-6215.3
38984	243.21	0	0	26.362	-6215.3
38985	243.28	0	0	26.362	-6215.3
38986	243.18	0	0	26.362	-6215.3
38987	243.24	0	0	26.362	-6215.3
38988	243.18	0	0	26.362	-6215.3
38989	243.18	0	0	26.362	-6215.3
38990	243.25	0	0	26.362	-6215.3
38991	243.16	0	0	26.362	-6215.3
38992	243.07	0	0	26.362	-6215.3
38993	243.23	0	0	26.362	-6215.3
38994	243.19	0	0	26.362	-6215.3
38995	243.16	0	0	26.362	-6215.3
38996	243.11	0	0	26.362	-6215.3
38997	243.09	0	0	26.362	-6215.3
38998	243.1	0	0	26.362	-6215.3
38999	243.18	0	0	26.362	-6215.3
39000	243.23	0	0	26.362	-6215.3
39001	243.18	0	0	26.362	-6215.3
39002	243.27	0	0	26.362	-6215.3
39003	243.04	0	0	26.362	-6215.3
39004	243.12	0	0	26.362	-6215.3
39005	243.11	0	0	26.362	-6215.3
39006	243.14	0	0	26.362	-6215.3
39007	243.26	0	0	26.362	-6215.3
39008	243.04	0	0	26.362	-6215.3

39009	243.18	0	0	26.362	-6215.3
39010	243.12	0	0	26.362	-6215.3
39011	243.03	0	0	26.362	-6215.3
39012	243.19	0	0	26.362	-6215.3
39013	243.15	0	0	26.362	-6215.3
39014	243.05	0	0	26.362	-6215.3
39015	243.19	0	0	26.362	-6215.3
39016	243.16	0	0	26.362	-6215.3
39017	242.99	0	0	26.362	-6215.3
39018	243.08	0	0	26.362	-6215.3
39019	243.18	0	0	26.362	-6215.3
39020	243.13	0	0	26.362	-6215.3
39021	243.12	0	0	26.362	-6215.3
39022	243.19	0	0	26.362	-6215.3
39023	243.25	0	0	26.362	-6215.3
39024	243.2	0	0	26.362	-6215.3
39025	243.17	0	0	26.362	-6215.3
39026	243.2	0	0	26.362	-6215.3
39027	243.18	0	0	26.362	-6215.3
39028	243.18	0	0	26.362	-6215.3
39029	243.2	0	0	26.362	-6215.3
39030	243.16	0	0	26.362	-6215.3
39031	243.24	0	0	26.362	-6215.3
39032	243.19	0	0	26.362	-6215.3
39033	243.26	0	0	26.362	-6215.3
39034	243.29	0	0	26.362	-6215.3
39035	243.29	0	0	26.362	-6215.3
39036	243.15	0	0	26.362	-6215.3
39037	243.16	0	0	26.362	-6215.3
39038	243.21	0	0	26.362	-6215.3
39039	243.22	0	0	26.362	-6215.3
39040	243.22	0	0	26.362	-6215.3
39041	243.28	0	0	26.362	-6215.3
39042	243.29	0	0	26.362	-6215.3
39043	243.3	0	0	26.362	-6215.3
39044	243.32	0	0	26.362	-6215.3
39045	243.26	0	0	26.362	-6215.3
39046	243.28	0	0	26.362	-6215.3
39047	243.31	0	0	26.362	-6215.3
39048	243.37	0	0	26.362	-6215.3
39049	243.32	0	0	26.362	-6215.3
39050	243.38	0	0	26.362	-6215.3
39051	243.36	0	0	26.362	-6215.3
39052	243.45	0	0	26.362	-6215.3
39053	243.47	0	0	26.362	-6215.3
39054	243.49	0	0	26.362	-6215.3
39055	243.51	0	0	26.362	-6215.3

39056	243.44	0	0	26.362	-6215.3
39057	243.5	0	0	26.362	-6215.3
39058	243.31	0	0	26.362	-6215.3
39059	243.47	0	0	26.362	-6215.3
39060	243.36	0	0	26.362	-6215.3
39061	243.43	0	0	26.362	-6215.3
39062	243.48	0	0	26.362	-6215.3
39063	243.46	0	0	26.362	-6215.3
39064	243.41	0	0	26.362	-6215.3
39065	243.5	0	0	26.362	-6215.3
39066	243.4	0	0	26.362	-6215.3
39067	243.39	0	0	26.362	-6215.3
39068	243.43	0	0	26.362	-6215.3
39069	243.41	0	0	26.362	-6215.3
39070	243.53	0	0	26.362	-6215.3
39071	243.48	0	0	26.362	-6215.3
39072	243.57	0	0	26.362	-6215.3
39073	243.56	0	0	26.362	-6215.3
39074	243.34	0	0	26.362	-6215.3
39075	243.48	0	0	26.362	-6215.3
39076	243.35	0	0	26.362	-6215.3
39077	243.32	0	0	26.362	-6215.3
39078	243.35	0	0	26.362	-6215.3
39079	243.48	0	0	26.362	-6215.3
39080	243.42	0	0	26.362	-6215.3
39081	243.44	0	0	26.362	-6215.3
39082	243.42	0	0	26.362	-6215.3
39083	243.35	0	0	26.362	-6215.3
39084	243.37	0	0	26.362	-6215.3
39085	243.4	0	0	26.362	-6215.3
39086	243.37	0	0	26.362	-6215.3
39087	243.37	0	0	26.362	-6215.3
39088	243.35	0	0	26.362	-6215.3
39089	243.42	0	0	26.362	-6215.3
39090	243.48	0	0	26.362	-6215.3
39091	243.34	0	0	26.362	-6215.3
39092	243.46	0	0	26.362	-6215.3
39093	243.5	0	0	26.362	-6215.3
39094	243.41	0	0	26.362	-6215.3
39095	243.47	0	0	26.362	-6215.3
39096	243.47	0	0	26.362	-6215.3
39097	243.52	0	0	26.362	-6215.3
39098	243.34	0	0	26.362	-6215.3
39099	243.42	0	0	26.362	-6215.3
39100	243.47	0	0	26.362	-6215.3
39101	243.34	0	0	26.362	-6215.3
39102	243.44	0	0	26.362	-6215.3

39103	243.38	0	0	26.362	-6215.3
39104	243.49	0	0	26.362	-6215.3
39105	243.31	0	0	26.362	-6215.3
39106	243.36	0	0	26.362	-6215.3
39107	243.4	0	0	26.362	-6215.3
39108	243.41	0	0	26.362	-6215.3
39109	243.47	0	0	26.362	-6215.3
39110	243.35	0	0	26.362	-6215.3
39111	243.26	0	0	26.362	-6215.3
39112	243.5	0	0	26.362	-6215.3
39113	243.38	0	0	26.362	-6215.3
39114	243.39	0	0	26.362	-6215.3
39115	243.32	0	0	26.362	-6215.3
39116	243.25	0	0	26.362	-6215.3
39117	243.31	0	0	26.362	-6215.3
39118	243.37	0	0	26.362	-6215.3
39119	243.29	0	0	26.362	-6215.3
39120	243.3	0	0	26.362	-6215.3
39121	243.38	0	0	26.362	-6215.3
39122	243.48	0	0	26.362	-6215.3
39123	243.35	0	0	26.362	-6215.3
39124	243.38	0	0	26.362	-6215.3
39125	243.36	0	0	26.362	-6215.3
39126	243.35	0	0	26.362	-6215.3
39127	243.3	0	0	26.362	-6215.3
39128	243.31	0	0	26.362	-6215.3
39129	243.23	0	0	26.362	-6215.3
39130	243.3	0	0	26.362	-6215.3
39131	243.39	0	0	26.362	-6215.3
39132	243.32	0	0	26.362	-6215.3
39133	243.35	0	0	26.362	-6215.3
39134	243.22	0	0	26.362	-6215.3
39135	243.13	0	0	26.362	-6215.3
39136	243.24	0	0	26.362	-6215.3
39137	243.33	0	0	26.362	-6215.3
39138	243.29	0	0	26.362	-6215.3
39139	243.29	0	0	26.362	-6215.3
39140	243.29	0	0	26.362	-6215.3
39141	243.26	0	0	26.362	-6215.3
39142	243.46	0	0	26.362	-6215.3
39143	243.29	0	0	26.362	-6215.3
39144	243.28	0	0	26.362	-6215.3
39145	243.28	0	0	26.362	-6215.3
39146	243.19	0	0	26.362	-6215.3
39147	243.2	0	0	26.362	-6215.3
39148	243.18	0	0	26.362	-6215.3
39149	243.31	0	0	26.362	-6215.3

39150	243.29	0	0	26.362	-6215.3
39151	243.39	0	0	26.362	-6215.3
39152	243.32	0	0	26.362	-6215.3
39153	243.29	0	0	26.362	-6215.3
39154	243.2	0	0	26.362	-6215.3
39155	243.35	0	0	26.362	-6215.3
39156	243.24	0	0	26.362	-6215.3
39157	243.29	0	0	26.362	-6215.3
39158	243.21	0	0	26.362	-6215.3
39159	243.3	0	0	26.362	-6215.3
39160	243.35	0	0	26.362	-6215.3
39161	243.36	0	0	26.362	-6215.3
39162	243.39	0	0	26.362	-6215.3
39163	243.4	0	0	26.362	-6215.3
39164	243.34	0	0	26.362	-6215.3
39165	243.38	0	0	26.362	-6215.3
39166	243.37	0	0	26.362	-6215.3
39167	243.43	0	0	26.362	-6215.3
39168	243.33	0	0	26.362	-6215.3
39169	243.28	0	0	26.362	-6215.3
39170	243.27	0	0	26.362	-6215.3
39171	243.24	0	0	26.362	-6215.3
39172	243.33	0	0	26.362	-6215.3
39173	243.4	0	0	26.362	-6215.3
39174	243.37	0	0	26.362	-6215.3
39175	243.33	0	0	26.362	-6215.3
39176	243.25	0	0	26.362	-6215.3
39177	243.21	0	0	26.362	-6215.3
39178	243.27	0	0	26.362	-6215.3
39179	243.26	0	0	26.362	-6215.3
39180	243.13	0	0	26.362	-6215.3
39181	243.32	0	0	26.362	-6215.3
39182	243.34	0	0	26.362	-6215.3
39183	243.06	0	0	26.362	-6215.3
39184	243.29	0	0	26.362	-6215.3
39185	243.07	0	0	26.362	-6215.3
39186	243.09	0	0	26.362	-6215.3
39187	243.2	0	0	26.362	-6215.3
39188	243.26	0	0	26.362	-6215.3
39189	243.24	0	0	26.362	-6215.3
39190	243.26	0	0	26.362	-6215.3
39191	243.23	0	0	26.362	-6215.3
39192	243.27	0	0	26.362	-6215.3
39193	243.16	0	0	26.362	-6215.3
39194	243.22	0	0	26.362	-6215.3
39195	243.24	0	0	26.362	-6215.3
39196	243.28	0	0	26.362	-6215.3

39197	243.13	0	0	26.362	-6215.3
39198	243.17	0	0	26.362	-6215.3
39199	243.24	0	0	26.362	-6215.3
39200	243.19	0	0	26.362	-6215.3
39201	243.2	0	0	26.362	-6215.3
39202	243.29	0	0	26.362	-6215.3
39203	243.07	0	0	26.362	-6215.3
39204	243.15	0	0	26.362	-6215.3
39205	243.23	0	0	26.362	-6215.3
39206	243.2	0	0	26.362	-6215.3
39207	243.21	0	0	26.362	-6215.3
39208	243.16	0	0	26.362	-6215.3
39209	243.23	0	0	26.362	-6215.3
39210	243.05	0	0	26.362	-6215.3
39211	243.17	0	0	26.362	-6215.3
39212	243.13	0	0	26.362	-6215.3
39213	243.15	0	0	26.362	-6215.3
39214	243.19	0	0	26.362	-6215.3
39215	243.28	0	0	26.362	-6215.3
39216	243.25	0	0	26.362	-6215.3
39217	243.05	0	0	26.362	-6215.3
39218	243.17	0	0	26.362	-6215.3
39219	243.14	0	0	26.362	-6215.3
39220	243.07	0	0	26.362	-6215.3
39221	243.2	0	0	26.362	-6215.3
39222	243.14	0	0	26.362	-6215.3
39223	243.2	0	0	26.362	-6215.3
39224	243.22	0	0	26.362	-6215.3
39225	243.17	0	0	26.362	-6215.3
39226	243.17	0	0	26.362	-6215.3
39227	243.15	0	0	26.362	-6215.3
39228	243.22	0	0	26.362	-6215.3
39229	243.12	0	0	26.362	-6215.3
39230	243	0	0	26.362	-6215.3
39231	243.14	0	0	26.362	-6215.3
39232	243.15	0	0	26.362	-6215.3
39233	243.14	0	0	26.362	-6215.3
39234	243.12	0	0	26.362	-6215.3
39235	243.09	0	0	26.362	-6215.3
39236	243.05	0	0	26.362	-6215.3
39237	243.13	0	0	26.362	-6215.3
39238	243.11	0	0	26.362	-6215.3
39239	243.2	0	0	26.362	-6215.3
39240	243.18	0	0	26.362	-6215.3
39241	243.19	0	0	26.362	-6215.3
39242	243.22	0	0	26.362	-6215.3
39243	243.2	0	0	26.362	-6215.3

39244	243.14	0	0	26.362	-6215.3
39245	243.11	0	0	26.362	-6215.3
39246	243.25	0	0	26.362	-6215.3
39247	243.02	0	0	26.362	-6215.3
39248	243.18	0	0	26.362	-6215.3
39249	243.15	0	0	26.362	-6215.3
39250	243.15	0	0	26.362	-6215.3
39251	243.15	0	0	26.362	-6215.3
39252	243.31	0	0	26.362	-6215.3
39253	243.31	0	0	26.362	-6215.3
39254	243.31	0	0	26.362	-6215.3
39255	243.31	0	0	26.362	-6215.3
39256	243.33	0	0	26.362	-6215.3
39257	243.4	0	0	26.362	-6215.3
39258	243.27	0	0	26.362	-6215.3
39259	243.36	0	0	26.362	-6215.3
39260	243.44	0	0	26.362	-6215.3
39261	243.28	0	0	26.362	-6215.3
39262	243.34	0	0	26.362	-6215.3
39263	243.39	0	0	26.362	-6215.3
39264	243.26	0	0	26.362	-6215.3
39265	243.26	0	0	26.362	-6215.3
39266	243.25	0	0	26.362	-6215.3
39267	243.34	0	0	26.362	-6215.3
39268	243.3	0	0	26.362	-6215.3
39269	243.31	0	0	26.362	-6215.3
39270	242.48	0	0	26.362	-6215.3
39271	242.75	0	0	26.362	-6215.3
39272	243.11	0	0	26.362	-6215.3
39273	243.06	0	0	26.362	-6215.3
39274	243.18	0	0	26.362	-6215.3
39275	243.08	0	0	26.362	-6215.3
39276	243.21	0	0	26.362	-6215.3
39277	243.16	0	0	26.362	-6215.3
39278	243.22	0	0	26.362	-6215.3
39279	243.28	0	0	26.362	-6215.3
39280	243.2	0	0	26.362	-6215.3
39281	243.06	0	0	26.362	-6215.3
39282	243.27	0	0	26.362	-6215.3
39283	243.15	0	0	26.362	-6215.3
39284	243.12	0	0	26.362	-6215.3
39285	243.21	0	0	26.362	-6215.3
39286	242.66	0	0	26.362	-6215.3
39287	242.77	0	0	26.362	-6215.3
39288	242.78	0	0	26.362	-6215.3
39289	243.08	0	0	26.362	-6215.3
39290	243.29	0	0	26.362	-6215.3

39291	243.17	0	0	26.362	-6215.3
39292	242.99	0	0	26.362	-6215.3
39293	243.2	0	0	26.362	-6215.3
39294	243.04	0	0	26.362	-6215.3
39295	243.09	0	0	26.362	-6215.3
39296	243.14	0	0	26.362	-6215.3
39297	243.06	0	0	26.362	-6215.3
39298	242.95	0	0	26.362	-6215.3
39299	242.91	0	0	26.362	-6215.3
39300	243.02	0	0	26.362	-6215.3
39301	242.93	0	0	26.362	-6215.3
39302	243.02	0	0	26.362	-6215.3
39303	243.04	0	0	26.362	-6215.3
39304	243.11	0	0	26.362	-6215.3
39305	243.04	0	0	26.362	-6215.3
39306	243.04	0	0	26.362	-6215.3
39307	243.02	0	0	26.362	-6215.3
39308	242.92	0	0	26.362	-6215.3
39309	243.1	0	0	26.362	-6215.3
39310	242.91	0	0	26.362	-6215.3
39311	243.15	0	0	26.362	-6215.3
39312	243.12	0	0	26.362	-6215.3
39313	243.03	0	0	26.362	-6215.3
39314	243.1	0	0	26.362	-6215.3
39315	243.26	0	0	26.362	-6215.3
39316	243.1	0	0	26.362	-6215.3
39317	243.14	0	0	26.362	-6215.3
39318	242.97	0	0	26.362	-6215.3
39319	243.24	0	0	26.362	-6215.3
39320	243.26	0	0	26.362	-6215.3
39321	243.01	0	0	26.362	-6215.3
39322	243.18	0	0	26.362	-6215.3
39323	243.33	0	0	26.362	-6215.3
39324	243.12	0	0	26.362	-6215.3
39325	243.1	0	0	26.362	-6215.3
39326	243.27	0	0	26.362	-6215.3
39327	243.18	0	0	26.362	-6215.3
39328	243.1	0	0	26.362	-6215.3
39329	243.15	0	0	26.362	-6215.3
39330	243.14	0	0	26.362	-6215.3
39331	243.17	0	0	26.362	-6215.3
39332	243.06	0	0	26.362	-6215.3
39333	243.27	0	0	26.362	-6215.3
39334	243.24	0	0	26.362	-6215.3
39335	243.08	0	0	26.362	-6215.3
39336	243.26	0	0	26.362	-6215.3
39337	243.09	0	0	26.362	-6215.3

39338	243.2	0	0	26.362	-6215.3
39339	243.22	0	0	26.362	-6215.3
39340	243.21	0	0	26.362	-6215.3
39341	243.28	0	0	26.362	-6215.3
39342	243.27	0	0	26.362	-6215.3
39343	243.25	0	0	26.362	-6215.3
39344	243.23	0	0	26.362	-6215.3
39345	243.28	0	0	26.362	-6215.3
39346	243.18	0	0	26.362	-6215.3
39347	243.24	0	0	26.362	-6215.3
39348	243.21	0	0	26.362	-6215.3
39349	243.24	0	0	26.362	-6215.3
39350	243.26	0	0	26.362	-6215.3
39351	243.21	0	0	26.362	-6215.3
39352	243.26	0	0	26.362	-6215.3
39353	243.2	0	0	26.362	-6215.3
39354	243.41	0	0	26.362	-6215.3
39355	243.32	0	0	26.362	-6215.3
39356	243.2	0	0	26.362	-6215.3
39357	243.26	0	0	26.362	-6215.3
39358	243.37	0	0	26.362	-6215.3
39359	243.24	0	0	26.362	-6215.3
39360	243.37	0	0	26.362	-6215.3
39361	243.32	0	0	26.362	-6215.3
39362	243.21	0	0	26.362	-6215.3
39363	243.26	0	0	26.362	-6215.3
39364	243.32	0	0	26.362	-6215.3
39365	243.25	0	0	26.362	-6215.3
39366	243.4	0	0	26.362	-6215.3
39367	243.31	0	0	26.362	-6215.3
39368	243.13	0	0	26.362	-6215.3
39369	243.34	0	0	26.362	-6215.3
39370	243.27	0	0	26.362	-6215.3
39371	243.3	0	0	26.362	-6215.3
39372	243.18	0	0	26.362	-6215.3
39373	243.24	0	0	26.362	-6215.3
39374	243.05	0	0	26.362	-6215.3
39375	243.08	0	0	26.362	-6215.3
39376	243.21	0	0	26.362	-6215.3
39377	243.05	0	0	26.362	-6215.3
39378	243.22	0	0	26.362	-6215.3
39379	243.01	0	0	26.362	-6215.3
39380	243.09	0	0	26.362	-6215.3
39381	243.11	0	0	26.362	-6215.3
39382	243.04	0	0	26.362	-6215.3
39383	243.16	0	0	26.362	-6215.3
39384	243.1	0	0	26.362	-6215.3

39385	243.02	0	0	26.362	-6215.3
39386	243.08	0	0	26.362	-6215.3
39387	243.15	0	0	26.362	-6215.3
39388	243.1	0	0	26.362	-6215.3
39389	242.97	0	0	26.362	-6215.3
39390	243.07	0	0	26.362	-6215.3
39391	243.04	0	0	26.362	-6215.3
39392	243.08	0	0	26.362	-6215.3
39393	243.09	0	0	26.362	-6215.3
39394	243.12	0	0	26.362	-6215.3
39395	243.03	0	0	26.362	-6215.3
39396	243.1	0	0	26.362	-6215.3
39397	242.99	0	0	26.362	-6215.3
39398	242.98	0	0	26.362	-6215.3
39399	242.99	0	0	26.362	-6215.3
39400	242.98	0	0	26.362	-6215.3
39401	243	0	0	26.362	-6215.3
39402	243.08	0	0	26.362	-6215.3
39403	243.07	0	0	26.362	-6215.3
39404	242.97	0	0	26.362	-6215.3
39405	243.02	0	0	26.362	-6215.3
39406	242.99	0	0	26.362	-6215.3
39407	242.96	0	0	26.362	-6215.3
39408	242.84	0	0	26.362	-6215.3
39409	242.91	0	0	26.362	-6215.3
39410	242.88	0	0	26.362	-6215.3
39411	242.9	0	0	26.362	-6215.3
39412	242.91	0	0	26.362	-6215.3
39413	242.93	0	0	26.362	-6215.3
39414	242.96	0	0	26.362	-6215.3
39415	242.96	0	0	26.362	-6215.3
39416	242.88	0	0	26.362	-6215.3
39417	242.92	0	0	26.362	-6215.3
39418	242.96	0	0	26.362	-6215.3
39419	242.94	0	0	26.362	-6215.3
39420	243.01	0	0	26.362	-6215.3
39421	242.88	0	0	26.362	-6215.3
39422	242.9	0	0	26.362	-6215.3
39423	242.94	0	0	26.362	-6215.3
39424	242.98	0	0	26.362	-6215.3
39425	242.91	0	0	26.362	-6215.3
39426	242.99	0	0	26.362	-6215.3
39427	243.01	0	0	26.362	-6215.3
39428	243.03	0	0	26.362	-6215.3
39429	243.07	0	0	26.362	-6215.3
39430	243	0	0	26.362	-6215.3
39431	242.85	0	0	26.362	-6215.3

39432	242.92	0	0	26.362	-6215.3
39433	242.97	0	0	26.362	-6215.3
39434	242.98	0	0	26.362	-6215.3
39435	242.96	0	0	26.362	-6215.3
39436	243.01	0	0	26.362	-6215.3
39437	242.85	0	0	26.362	-6215.3
39438	242.89	0	0	26.362	-6215.3
39439	242.86	0	0	26.362	-6215.3
39440	242.88	0	0	26.362	-6215.3
39441	242.83	0	0	26.362	-6215.3
39442	243.07	0	0	26.362	-6215.3
39443	243.03	0	0	26.362	-6215.3
39444	243.25	0	0	26.362	-6215.3
39445	243.13	0	0	26.362	-6215.3
39446	243.35	0	0	26.362	-6215.3
39447	243.34	0	0	26.362	-6215.3
39448	243.23	0	0	26.362	-6215.3
39449	243.16	0	0	26.362	-6215.3
39450	243.22	0	0	26.362	-6215.3
39451	243.42	0	0	26.362	-6215.3
39452	243.35	0	0	26.362	-6215.3
39453	243.19	0	0	26.362	-6215.3
39454	243.1	0	0	26.362	-6215.3
39455	243.22	0	0	26.362	-6215.3
39456	243.1	0	0	26.362	-6215.3
39457	243.32	0	0	26.362	-6215.3
39458	243.21	0	0	26.362	-6215.3
39459	243.27	0	0	26.362	-6215.3
39460	243.23	0	0	26.362	-6215.3
39461	243.23	0	0	26.362	-6215.3
39462	243.27	0	0	26.362	-6215.3
39463	243.27	0	0	26.362	-6215.3
39464	243.22	0	0	26.362	-6215.3
39465	243.15	0	0	26.362	-6215.3
39466	243.35	0	0	26.362	-6215.3
39467	243.31	0	0	26.362	-6215.3
39468	243.18	0	0	26.362	-6215.3
39469	243.35	0	0	26.362	-6215.3
39470	243.29	0	0	26.362	-6215.3
39471	243.34	0	0	26.362	-6215.3
39472	243.24	0	0	26.362	-6215.3
39473	243.16	0	0	26.362	-6215.3
39474	243.03	0	0	26.362	-6215.3
39475	243.16	0	0	26.362	-6215.3
39476	243.14	0	0	26.362	-6215.3
39477	243.11	0	0	26.362	-6215.3
39478	243.16	0	0	26.362	-6215.3

39479	243.23	0	0	26.362	-6215.3
39480	243.2	0	0	26.362	-6215.3
39481	243.22	0	0	26.362	-6215.3
39482	243.16	0	0	26.362	-6215.3
39483	243.1	0	0	26.362	-6215.3
39484	243.07	0	0	26.362	-6215.3
39485	243.19	0	0	26.362	-6215.3
39486	243.13	0	0	26.362	-6215.3
39487	243.19	0	0	26.362	-6215.3
39488	243.23	0	0	26.362	-6215.3
39489	243.06	0	0	26.362	-6215.3
39490	243.06	0	0	26.362	-6215.3
39491	243.11	0	0	26.362	-6215.3
39492	243.13	0	0	26.362	-6215.3
39493	242.99	0	0	26.362	-6215.3
39494	243.24	0	0	26.362	-6215.3
39495	243.06	0	0	26.362	-6215.3
39496	243.22	0	0	26.362	-6215.3
39497	243.2	0	0	26.362	-6215.3
39498	243.15	0	0	26.362	-6215.3
39499	243	0	0	26.362	-6215.3
39500	242.99	0	0	26.362	-6215.3
39501	243.01	0	0	26.362	-6215.3
39502	243.03	0	0	26.362	-6215.3
39503	242.91	0	0	26.362	-6215.3
39504	243.06	0	0	26.362	-6215.3
39505	243.05	0	0	26.362	-6215.3
39506	243.12	0	0	26.362	-6215.3
39507	243.18	0	0	26.362	-6215.3
39508	243.15	0	0	26.362	-6215.3
39509	243.1	0	0	26.362	-6215.3
39510	242.99	0	0	26.362	-6215.3
39511	243.16	0	0	26.362	-6215.3
39512	242.92	0	0	26.362	-6215.3
39513	242.92	0	0	26.362	-6215.3
39514	242.79	0	0	26.362	-6215.3
39515	242.88	0	0	26.362	-6215.3
39516	242.9	0	0	26.362	-6215.3
39517	242.94	0	0	26.362	-6215.3
39518	242.93	0	0	26.362	-6215.3
39519	242.91	0	0	26.362	-6215.3
39520	242.86	0	0	26.362	-6215.3
39521	242.86	0	0	26.362	-6215.3
39522	242.97	0	0	26.362	-6215.3
39523	243.04	0	0	26.362	-6215.3
39524	242.88	0	0	26.362	-6215.3
39525	242.8	0	0	26.362	-6215.3

39526	242.93	0	0	26.362	-6215.3
39527	242.97	0	0	26.362	-6215.3
39528	243.06	0	0	26.362	-6215.3
39529	242.86	0	0	26.362	-6215.3
39530	242.83	0	0	26.362	-6215.3
39531	243.02	0	0	26.362	-6215.3
39532	243.11	0	0	26.362	-6215.3
39533	242.92	0	0	26.362	-6215.3
39534	242.88	0	0	26.362	-6215.3
39535	242.93	0	0	26.362	-6215.3
39536	242.96	0	0	26.362	-6215.3
39537	242.95	0	0	26.362	-6215.3
39538	243	0	0	26.362	-6215.3
39539	242.9	0	0	26.362	-6215.3
39540	242.97	0	0	26.362	-6215.3
39541	243.06	0	0	26.362	-6215.3
39542	243.04	0	0	26.362	-6215.3
39543	243.03	0	0	26.362	-6215.3
39544	242.88	0	0	26.362	-6215.3
39545	243.03	0	0	26.362	-6215.3
39546	242.97	0	0	26.362	-6215.3
39547	243.06	0	0	26.362	-6215.3
39548	243.13	0	0	26.362	-6215.3
39549	243.31	0	0	26.362	-6215.3
39550	243.01	0	0	26.362	-6215.3
39551	243.03	0	0	26.362	-6215.3
39552	243.17	0	0	26.362	-6215.3
39553	243.07	0	0	26.362	-6215.3
39554	243.12	0	0	26.362	-6215.3
39555	243.17	0	0	26.362	-6215.3
39556	243.09	0	0	26.362	-6215.3
39557	243.09	0	0	26.362	-6215.3
39558	243.03	0	0	26.362	-6215.3
39559	243.14	0	0	26.362	-6215.3
39560	243.16	0	0	26.362	-6215.3
39561	243.09	0	0	26.362	-6215.3
39562	243.08	0	0	26.362	-6215.3
39563	243.13	0	0	26.362	-6215.3
39564	243.08	0	0	26.362	-6215.3
39565	243.07	0	0	26.362	-6215.3
39566	243.03	0	0	26.362	-6215.3
39567	243.04	0	0	26.362	-6215.3
39568	243.07	0	0	26.362	-6215.3
39569	243.07	0	0	26.362	-6215.3
39570	243.06	0	0	26.362	-6215.3
39571	243.12	0	0	26.362	-6215.3
39572	243.12	0	0	26.362	-6215.3

39573	243.1	0	0	26.362	-6215.3
39574	243.17	0	0	26.362	-6215.3
39575	243.13	0	0	26.362	-6215.3
39576	243.16	0	0	26.362	-6215.3
39577	243.19	0	0	26.362	-6215.3
39578	243.21	0	0	26.362	-6215.3
39579	243.24	0	0	26.362	-6215.3
39580	243.24	0	0	26.362	-6215.3
39581	243.24	0	0	26.362	-6215.3
39582	243.25	0	0	26.362	-6215.3
39583	243.23	0	0	26.362	-6215.3
39584	243.18	0	0	26.362	-6215.3
39585	243.2	0	0	26.362	-6215.3
39586	243.25	0	0	26.362	-6215.3
39587	243.15	0	0	26.362	-6215.3
39588	243.09	0	0	26.362	-6215.3
39589	243.21	0	0	26.362	-6215.3
39590	243.18	0	0	26.362	-6215.3
39591	243.19	0	0	26.362	-6215.3
39592	243.26	0	0	26.362	-6215.3
39593	243.25	0	0	26.362	-6215.3
39594	243.21	0	0	26.362	-6215.3
39595	243.22	0	0	26.362	-6215.3
39596	243.27	0	0	26.362	-6215.3
39597	243.25	0	0	26.362	-6215.3
39598	243.23	0	0	26.362	-6215.3
39599	243.23	0	0	26.362	-6215.3
39600	243.15	0	0	26.362	-6215.3
39601	243.22	0	0	26.362	-6215.3
39602	243.23	0	0	26.362	-6215.3
39603	243.2	0	0	26.362	-6215.3
39604	243.27	0	0	26.362	-6215.3
39605	243.21	0	0	26.362	-6215.3
39606	243.21	0	0	26.362	-6215.3
39607	243.15	0	0	26.362	-6215.3
39608	243.19	0	0	26.362	-6215.3
39609	243.22	0	0	26.362	-6215.3
39610	243.28	0	0	26.362	-6215.3
39611	243.27	0	0	26.362	-6215.3
39612	243.34	0	0	26.362	-6215.3
39613	243.27	0	0	26.362	-6215.3
39614	243.28	0	0	26.362	-6215.3
39615	243.32	0	0	26.362	-6215.3
39616	243.27	0	0	26.362	-6215.3
39617	243.25	0	0	26.362	-6215.3
39618	243.37	0	0	26.362	-6215.3
39619	243.36	0	0	26.362	-6215.3

39620	243.27	0	0	26.362	-6215.3
39621	243.28	0	0	26.362	-6215.3
39622	243.3	0	0	26.362	-6215.3
39623	243.33	0	0	26.362	-6215.3
39624	243.35	0	0	26.362	-6215.3
39625	243.27	0	0	26.362	-6215.3
39626	243.31	0	0	26.362	-6215.3
39627	243.27	0	0	26.362	-6215.3
39628	243.24	0	0	26.362	-6215.3
39629	243.25	0	0	26.362	-6215.3
39630	243.25	0	0	26.362	-6215.3
39631	243.31	0	0	26.362	-6215.3
39632	243.28	0	0	26.362	-6215.3
39633	243.33	0	0	26.362	-6215.3
39634	243.26	0	0	26.362	-6215.3
39635	243.25	0	0	26.362	-6215.3
39636	243.26	0	0	26.362	-6215.3
39637	243.21	0	0	26.362	-6215.3
39638	243.24	0	0	26.362	-6215.3
39639	243.18	0	0	26.362	-6215.3
39640	243.19	0	0	26.362	-6215.3
39641	243.15	0	0	26.362	-6215.3
39642	243.13	0	0	26.362	-6215.3
39643	243.16	0	0	26.362	-6215.3
39644	243.15	0	0	26.362	-6215.3
39645	243.12	0	0	26.362	-6215.3
39646	243.11	0	0	26.362	-6215.3
39647	243.1	0	0	26.362	-6215.3
39648	243.03	0	0	26.362	-6215.3
39649	243.01	0	0	26.362	-6215.3
39650	243.01	0	0	26.362	-6215.3
39651	243.08	0	0	26.362	-6215.3
39652	243.02	0	0	26.362	-6215.3
39653	242.97	0	0	26.362	-6215.3
39654	243.04	0	0	26.362	-6215.3
39655	243.12	0	0	26.362	-6215.3
39656	243.01	0	0	26.362	-6215.3
39657	243.07	0	0	26.362	-6215.3
39658	243.04	0	0	26.362	-6215.3
39659	243.06	0	0	26.362	-6215.3
39660	243.05	0	0	26.362	-6215.3
39661	243.02	0	0	26.362	-6215.3
39662	243.07	0	0	26.362	-6215.3
39663	243.01	0	0	26.362	-6215.3
39664	243.05	0	0	26.362	-6215.3
39665	243	0	0	26.362	-6215.3
39666	243	0	0	26.362	-6215.3

39667	243.03	0	0	26.362	-6215.3
39668	242.9	0	0	26.362	-6215.3
39669	242.95	0	0	26.362	-6215.3
39670	242.85	0	0	26.362	-6215.3
39671	242.91	0	0	26.362	-6215.3
39672	242.94	0	0	26.362	-6215.3
39673	242.97	0	0	26.362	-6215.3
39674	243.07	0	0	26.362	-6215.3
39675	243.08	0	0	26.362	-6215.3
39676	243.06	0	0	26.362	-6215.3
39677	242.98	0	0	26.362	-6215.3
39678	242.96	0	0	26.362	-6215.3
39679	242.98	0	0	26.362	-6215.3
39680	242.96	0	0	26.362	-6215.3
39681	242.96	0	0	26.362	-6215.3
39682	242.34	0	0	26.362	-6215.3
39683	242.9	0	0	26.362	-6215.3
39684	242.96	0	0	26.362	-6215.3
39685	242.87	0	0	26.362	-6215.3
39686	242.79	0	0	26.362	-6215.3
39687	242.95	0	0	26.362	-6215.3
39688	242.66	0	0	26.362	-6215.3
39689	243.03	0	0	26.362	-6215.3
39690	242.8	0	0	26.362	-6215.3
39691	242.96	0	0	26.362	-6215.3
39692	243.06	0	0	26.362	-6215.3
39693	243.13	0	0	26.362	-6215.3
39694	243.09	0	0	26.362	-6215.3
39695	242.98	0	0	26.362	-6215.3
39696	242.99	0	0	26.362	-6215.3
39697	243.09	0	0	26.362	-6215.3
39698	243.14	0	0	26.362	-6215.3
39699	243.04	0	0	26.362	-6215.3
39700	243.13	0	0	26.362	-6215.3
39701	243.11	0	0	26.362	-6215.3
39702	243.1	0	0	26.362	-6215.3
39703	243.07	0	0	26.362	-6215.3
39704	243.07	0	0	26.362	-6215.3
39705	243	0	0	26.362	-6215.3
39706	243.09	0	0	26.362	-6215.3
39707	243.08	0	0	26.362	-6215.3
39708	242.97	0	0	26.362	-6215.3
39709	242.98	0	0	26.362	-6215.3
39710	243.03	0	0	26.362	-6215.3
39711	243.04	0	0	26.362	-6215.3
39712	242.97	0	0	26.362	-6215.3
39713	243.02	0	0	26.362	-6215.3

39714	243.04	0	0	26.362	-6215.3
39715	243.11	0	0	26.362	-6215.3
39716	243.08	0	0	26.362	-6215.3
39717	243.12	0	0	26.362	-6215.3
39718	243.09	0	0	26.362	-6215.3
39719	243.04	0	0	26.362	-6215.3
39720	243.03	0	0	26.362	-6215.3
39721	243.16	0	0	26.362	-6215.3
39722	243.17	0	0	26.362	-6215.3
39723	243.07	0	0	26.362	-6215.3
39724	243.11	0	0	26.362	-6215.3
39725	243.13	0	0	26.362	-6215.3
39726	243.09	0	0	26.362	-6215.3
39727	243.08	0	0	26.362	-6215.3
39728	243.09	0	0	26.362	-6215.3
39729	243.11	0	0	26.362	-6215.3
39730	243.07	0	0	26.362	-6215.3
39731	242.97	0	0	26.362	-6215.3
39732	242.99	0	0	26.362	-6215.3
39733	243.03	0	0	26.362	-6215.3
39734	243.14	0	0	26.362	-6215.3
39735	243.1	0	0	26.362	-6215.3
39736	243.1	0	0	26.362	-6215.3
39737	243.05	0	0	26.362	-6215.3
39738	243.02	0	0	26.362	-6215.3
39739	243.1	0	0	26.362	-6215.3
39740	242.99	0	0	26.362	-6215.3
39741	243	0	0	26.362	-6215.3
39742	243.15	0	0	26.362	-6215.3
39743	243.05	0	0	26.362	-6215.3
39744	243.05	0	0	26.362	-6215.3
39745	243.01	0	0	26.362	-6215.3
39746	242.95	0	0	26.362	-6215.3
39747	243.03	0	0	26.362	-6215.3
39748	242.98	0	0	26.362	-6215.3
39749	243	0	0	26.362	-6215.3
39750	242.99	0	0	26.362	-6215.3
39751	242.88	0	0	26.362	-6215.3
39752	242.99	0	0	26.362	-6215.3
39753	242.97	0	0	26.362	-6215.3
39754	242.91	0	0	26.362	-6215.3
39755	242.9	0	0	26.362	-6215.3
39756	242.95	0	0	26.362	-6215.3
39757	243.03	0	0	26.362	-6215.3
39758	242.99	0	0	26.362	-6215.3
39759	243	0	0	26.362	-6215.3
39760	243.1	0	0	26.362	-6215.3

39761	243.01	0	0	26.362	-6215.3
39762	243.07	0	0	26.362	-6215.3
39763	243	0	0	26.362	-6215.3
39764	242.98	0	0	26.362	-6215.3
39765	242.95	0	0	26.362	-6215.3
39766	242.97	0	0	26.362	-6215.3
39767	242.98	0	0	26.362	-6215.3
39768	242.8	0	0	26.362	-6215.3
39769	242.88	0	0	26.362	-6215.3
39770	242.87	0	0	26.362	-6215.3
39771	242.92	0	0	26.362	-6215.3
39772	242.74	0	0	26.362	-6215.3
39773	242.84	0	0	26.362	-6215.3
39774	242.88	0	0	26.362	-6215.3
39775	242.9	0	0	26.362	-6215.3
39776	242.92	0	0	26.362	-6215.3
39777	242.92	0	0	26.362	-6215.3
39778	242.91	0	0	26.362	-6215.3
39779	242.94	0	0	26.362	-6215.3
39780	242.96	0	0	26.362	-6215.3
39781	243.02	0	0	26.362	-6215.3
39782	242.9	0	0	26.362	-6215.3
39783	242.96	0	0	26.362	-6215.3
39784	243.04	0	0	26.362	-6215.3
39785	242.95	0	0	26.362	-6215.3
39786	242.91	0	0	26.362	-6215.3
39787	243.08	0	0	26.362	-6215.3
39788	243.04	0	0	26.362	-6215.3
39789	243.02	0	0	26.362	-6215.3
39790	243.06	0	0	26.362	-6215.3
39791	243.12	0	0	26.362	-6215.3
39792	242.99	0	0	26.362	-6215.3
39793	242.99	0	0	26.362	-6215.3
39794	242.97	0	0	26.362	-6215.3
39795	242.99	0	0	26.362	-6215.3
39796	242.99	0	0	26.362	-6215.3
39797	242.92	0	0	26.362	-6215.3
39798	243.09	0	0	26.362	-6215.3
39799	243.06	0	0	26.362	-6215.3
39800	243.11	0	0	26.362	-6215.3
39801	243.17	0	0	26.362	-6215.3
39802	243.07	0	0	26.362	-6215.3
39803	243.07	0	0	26.362	-6215.3
39804	243.16	0	0	26.362	-6215.3
39805	243.11	0	0	26.362	-6215.3
39806	243.15	0	0	26.362	-6215.3
39807	243.11	0	0	26.362	-6215.3

39808	243.18	0	0	26.362	-6215.3
39809	243.12	0	0	26.362	-6215.3
39810	243.16	0	0	26.362	-6215.3
39811	243.1	0	0	26.362	-6215.3
39812	243.14	0	0	26.362	-6215.3
39813	243.22	0	0	26.362	-6215.3
39814	243.13	0	0	26.362	-6215.3
39815	243.11	0	0	26.362	-6215.3
39816	243.13	0	0	26.362	-6215.3
39817	243.06	0	0	26.362	-6215.3
39818	243.13	0	0	26.362	-6215.3
39819	243.12	0	0	26.362	-6215.3
39820	243.16	0	0	26.362	-6215.3
39821	243.15	0	0	26.362	-6215.3
39822	243.16	0	0	26.362	-6215.3
39823	243.19	0	0	26.362	-6215.3
39824	243.2	0	0	26.362	-6215.3
39825	243.29	0	0	26.362	-6215.3
39826	243.21	0	0	26.362	-6215.3
39827	243.33	0	0	26.362	-6215.3
39828	243.23	0	0	26.362	-6215.3
39829	243.25	0	0	26.362	-6215.3
39830	243.19	0	0	26.362	-6215.3
39831	243.26	0	0	26.362	-6215.3
39832	243.18	0	0	26.362	-6215.3
39833	243.2	0	0	26.362	-6215.3
39834	243.24	0	0	26.362	-6215.3
39835	243.18	0	0	26.362	-6215.3
39836	243.26	0	0	26.362	-6215.3
39837	243.25	0	0	26.362	-6215.3
39838	243.35	0	0	26.362	-6215.3
39839	243.26	0	0	26.362	-6215.3
39840	243.21	0	0	26.362	-6215.3
39841	243.2	0	0	26.362	-6215.3
39842	243.12	0	0	26.362	-6215.3
39843	243.17	0	0	26.362	-6215.3
39844	243.32	0	0	26.362	-6215.3
39845	243.17	0	0	26.362	-6215.3
39846	243.26	0	0	26.362	-6215.3
39847	243.27	0	0	26.362	-6215.3
39848	243.22	0	0	26.362	-6215.3
39849	243.15	0	0	26.362	-6215.3
39850	243.25	0	0	26.362	-6215.3
39851	243.21	0	0	26.362	-6215.3
39852	243.17	0	0	26.362	-6215.3
39853	243.31	0	0	26.362	-6215.3
39854	243.31	0	0	26.362	-6215.3

39855	243.23	0	0	26.362	-6215.3
39856	243.13	0	0	26.362	-6215.3
39857	243.13	0	0	26.362	-6215.3
39858	243.15	0	0	26.362	-6215.3
39859	243.17	0	0	26.362	-6215.3
39860	243.17	0	0	26.362	-6215.3
39861	243.2	0	0	26.362	-6215.3
39862	243.14	0	0	26.362	-6215.3
39863	243.24	0	0	26.362	-6215.3
39864	243.19	0	0	26.362	-6215.3
39865	243.18	0	0	26.362	-6215.3
39866	243.24	0	0	26.362	-6215.3
39867	243.18	0	0	26.362	-6215.3
39868	243.1	0	0	26.362	-6215.3
39869	243.19	0	0	26.362	-6215.3
39870	243.18	0	0	26.362	-6215.3
39871	243.17	0	0	26.362	-6215.3
39872	243.23	0	0	26.362	-6215.3
39873	243.13	0	0	26.362	-6215.3
39874	243.26	0	0	26.362	-6215.3
39875	243.25	0	0	26.362	-6215.3
39876	243.25	0	0	26.362	-6215.3
39877	243.17	0	0	26.362	-6215.3
39878	243.15	0	0	26.362	-6215.3
39879	243.24	0	0	26.362	-6215.3
39880	243.31	0	0	26.362	-6215.3
39881	243.29	0	0	26.362	-6215.3
39882	243.28	0	0	26.362	-6215.3
39883	243.36	0	0	26.362	-6215.3
39884	243.25	0	0	26.362	-6215.3
39885	243.2	0	0	26.362	-6215.3
39886	243.15	0	0	26.362	-6215.3
39887	243.25	0	0	26.362	-6215.3
39888	243.23	0	0	26.362	-6215.3
39889	243.24	0	0	26.362	-6215.3
39890	243.19	0	0	26.362	-6215.3
39891	243.2	0	0	26.362	-6215.3
39892	243.18	0	0	26.362	-6215.3
39893	243.22	0	0	26.362	-6215.3
39894	243.21	0	0	26.362	-6215.3
39895	243.13	0	0	26.362	-6215.3
39896	243.13	0	0	26.362	-6215.3
39897	243.07	0	0	26.362	-6215.3
39898	243.13	0	0	26.362	-6215.3
39899	243.14	0	0	26.362	-6215.3
39900	243.07	0	0	26.362	-6215.3
39901	243.03	0	0	26.362	-6215.3

39902	243.12	0	0	26.362	-6215.3
39903	243.14	0	0	26.362	-6215.3
39904	243.04	0	0	26.362	-6215.3
39905	243.07	0	0	26.362	-6215.3
39906	243.06	0	0	26.362	-6215.3
39907	243.06	0	0	26.362	-6215.3
39908	243.05	0	0	26.362	-6215.3
39909	243.05	0	0	26.362	-6215.3
39910	243.09	0	0	26.362	-6215.3
39911	243	0	0	26.362	-6215.3
39912	243.03	0	0	26.362	-6215.3
39913	243.05	0	0	26.362	-6215.3
39914	243.09	0	0	26.362	-6215.3
39915	243	0	0	26.362	-6215.3
39916	243.08	0	0	26.362	-6215.3
39917	242.9	0	0	26.362	-6215.3
39918	243.07	0	0	26.362	-6215.3
39919	242.98	0	0	26.362	-6215.3
39920	242.93	0	0	26.362	-6215.3
39921	242.91	0	0	26.362	-6215.3
39922	242.91	0	0	26.362	-6215.3
39923	242.91	0	0	26.362	-6215.3
39924	243	0	0	26.362	-6215.3
39925	242.95	0	0	26.362	-6215.3
39926	243.01	0	0	26.362	-6215.3
39927	242.97	0	0	26.362	-6215.3
39928	243.09	0	0	26.362	-6215.3
39929	242.91	0	0	26.362	-6215.3
39930	243.05	0	0	26.362	-6215.3
39931	242.98	0	0	26.362	-6215.3
39932	242.97	0	0	26.362	-6215.3
39933	242.95	0	0	26.362	-6215.3
39934	242.98	0	0	26.362	-6215.3
39935	242.91	0	0	26.362	-6215.3
39936	242.89	0	0	26.362	-6215.3
39937	242.89	0	0	26.362	-6215.3
39938	242.91	0	0	26.362	-6215.3
39939	242.93	0	0	26.362	-6215.3
39940	242.87	0	0	26.362	-6215.3
39941	242.92	0	0	26.362	-6215.3
39942	242.85	0	0	26.362	-6215.3
39943	242.85	0	0	26.362	-6215.3
39944	242.91	0	0	26.362	-6215.3
39945	242.86	0	0	26.362	-6215.3
39946	242.92	0	0	26.362	-6215.3
39947	242.88	0	0	26.362	-6215.3
39948	242.89	0	0	26.362	-6215.3

39949	242.85	0	0	26.362	-6215.3
39950	242.8	0	0	26.362	-6215.3
39951	242.85	0	0	26.362	-6215.3
39952	242.97	0	0	26.362	-6215.3
39953	242.9	0	0	26.362	-6215.3
39954	242.91	0	0	26.362	-6215.3
39955	242.96	0	0	26.362	-6215.3
39956	242.98	0	0	26.362	-6215.3
39957	243	0	0	26.362	-6215.3
39958	242.99	0	0	26.362	-6215.3
39959	242.99	0	0	26.362	-6215.3
39960	243.03	0	0	26.362	-6215.3
39961	243.12	0	0	26.362	-6215.3
39962	243.02	0	0	26.362	-6215.3
39963	243.02	0	0	26.362	-6215.3
39964	243.05	0	0	26.362	-6215.3
39965	243.09	0	0	26.362	-6215.3
39966	243.08	0	0	26.362	-6215.3
39967	243.08	0	0	26.362	-6215.3
39968	243.07	0	0	26.362	-6215.3
39969	243.06	0	0	26.362	-6215.3
39970	243.03	0	0	26.362	-6215.3
39971	243.11	0	0	26.362	-6215.3
39972	243.09	0	0	26.362	-6215.3
39973	243.15	0	0	26.362	-6215.3
39974	243.16	0	0	26.362	-6215.3
39975	243.12	0	0	26.362	-6215.3
39976	243.08	0	0	26.362	-6215.3
39977	243.1	0	0	26.362	-6215.3
39978	243.13	0	0	26.362	-6215.3
39979	243.08	0	0	26.362	-6215.3
39980	243.06	0	0	26.362	-6215.3
39981	243.1	0	0	26.362	-6215.3
39982	243.1	0	0	26.362	-6215.3
39983	243.09	0	0	26.362	-6215.3
39984	243.11	0	0	26.362	-6215.3
39985	243.06	0	0	26.362	-6215.3
39986	243.15	0	0	26.362	-6215.3
39987	243.07	0	0	26.362	-6215.3
39988	243.14	0	0	26.362	-6215.3
39989	243.07	0	0	26.362	-6215.3
39990	243.05	0	0	26.362	-6215.3
39991	243.14	0	0	26.362	-6215.3
39992	243.12	0	0	26.362	-6215.3
39993	243.12	0	0	26.362	-6215.3
39994	243.13	0	0	26.362	-6215.3
39995	243.04	0	0	26.362	-6215.3

39996	242.99	0	0	26.362	-6215.3
39997	243.09	0	0	26.362	-6215.3
39998	243.07	0	0	26.362	-6215.3
39999	243.12	0	0	26.362	-6215.3
40000	243.11	0	0	26.362	-6215.3
40001	243.12	0	0	26.362	-6215.3
40002	243.09	0	0	26.362	-6215.3
40003	243.11	0	0	26.362	-6215.3
40004	243.06	0	0	26.362	-6215.3
40005	243.12	0	0	26.362	-6215.3
40006	243.06	0	0	26.362	-6215.3
40007	243.17	0	0	26.362	-6215.3
40008	243.08	0	0	26.362	-6215.3
40009	243.1	0	0	26.362	-6215.3
40010	243.11	0	0	26.362	-6215.3
40011	243.13	0	0	26.362	-6215.3
40012	243.12	0	0	26.362	-6215.3
40013	243.14	0	0	26.362	-6215.3
40014	243.03	0	0	26.362	-6215.3
40015	243.09	0	0	26.362	-6215.3
40016	243.09	0	0	26.362	-6215.3
40017	243.05	0	0	26.362	-6215.3
40018	243.02	0	0	26.362	-6215.3
40019	243.04	0	0	26.362	-6215.3
40020	243.06	0	0	26.362	-6215.3
40021	243.09	0	0	26.362	-6215.3
40022	243.05	0	0	26.362	-6215.3
40023	243.1	0	0	26.362	-6215.3
40024	243.11	0	0	26.362	-6215.3
40025	243.09	0	0	26.362	-6215.3
40026	243.07	0	0	26.362	-6215.3
40027	243.06	0	0	26.362	-6215.3
40028	243.12	0	0	26.362	-6215.3
40029	243.12	0	0	26.362	-6215.3
40030	243.12	0	0	26.362	-6215.3
40031	243.21	0	0	26.362	-6215.3
40032	243.14	0	0	26.362	-6215.3
40033	243.11	0	0	26.362	-6215.3
40034	243.11	0	0	26.362	-6215.3
40035	243.16	0	0	26.362	-6215.3
40036	243.17	0	0	26.362	-6215.3
40037	243.13	0	0	26.362	-6215.3
40038	243.14	0	0	26.362	-6215.3
40039	243.12	0	0	26.362	-6215.3
40040	243.07	0	0	26.362	-6215.3
40041	243.08	0	0	26.362	-6215.3
40042	243.12	0	0	26.362	-6215.3

40043	243.09	0	0	26.362	-6215.3
40044	243.06	0	0	26.362	-6215.3
40045	243.08	0	0	26.362	-6215.3
40046	243.05	0	0	26.362	-6215.3
40047	243.04	0	0	26.362	-6215.3
40048	243.13	0	0	26.362	-6215.3
40049	243.09	0	0	26.362	-6215.3
40050	243.11	0	0	26.362	-6215.3
40051	243.15	0	0	26.362	-6215.3
40052	243.12	0	0	26.362	-6215.3
40053	243.19	0	0	26.362	-6215.3
40054	243.14	0	0	26.362	-6215.3
40055	243.12	0	0	26.362	-6215.3
40056	243.11	0	0	26.362	-6215.3
40057	243.23	0	0	26.362	-6215.3
40058	243.14	0	0	26.362	-6215.3
40059	243.13	0	0	26.362	-6215.3
40060	243.21	0	0	26.362	-6215.3
40061	243.12	0	0	26.362	-6215.3
40062	243.15	0	0	26.362	-6215.3
40063	243.06	0	0	26.362	-6215.3
40064	243.13	0	0	26.362	-6215.3
40065	243.1	0	0	26.362	-6215.3
40066	243.09	0	0	26.362	-6215.3
40067	243.12	0	0	26.362	-6215.3
40068	243.09	0	0	26.362	-6215.3
40069	243.09	0	0	26.362	-6215.3
40070	243.19	0	0	26.362	-6215.3
40071	243.22	0	0	26.362	-6215.3
40072	243.18	0	0	26.362	-6215.3
40073	243.22	0	0	26.362	-6215.3
40074	243.22	0	0	26.362	-6215.3
40075	243.11	0	0	26.362	-6215.3
40076	243.22	0	0	26.362	-6215.3
40077	243.17	0	0	26.362	-6215.3
40078	243.18	0	0	26.362	-6215.3
40079	243.11	0	0	26.362	-6215.3
40080	243.24	0	0	26.362	-6215.3
40081	243.26	0	0	26.362	-6215.3
40082	243.19	0	0	26.362	-6215.3
40083	243.14	0	0	26.362	-6215.3
40084	243.2	0	0	26.362	-6215.3
40085	243.15	0	0	26.362	-6215.3
40086	243.19	0	0	26.362	-6215.3
40087	243.26	0	0	26.362	-6215.3
40088	243.18	0	0	26.362	-6215.3
40089	243.18	0	0	26.362	-6215.3

40090	243.18	0	0	26.362	-6215.3
40091	243.2	0	0	26.362	-6215.3
40092	243.14	0	0	26.362	-6215.3
40093	243.07	0	0	26.362	-6215.3
40094	243.12	0	0	26.362	-6215.3
40095	243.11	0	0	26.362	-6215.3
40096	243.07	0	0	26.362	-6215.3
40097	243.07	0	0	26.362	-6215.3
40098	243.04	0	0	26.362	-6215.3
40099	242.99	0	0	26.362	-6215.3
40100	242.99	0	0	26.362	-6215.3
40101	243.11	0	0	26.362	-6215.3
40102	243.02	0	0	26.362	-6215.3
40103	243.09	0	0	26.362	-6215.3
40104	242.35	0	0	26.362	-6215.3
40105	242.92	0	0	26.362	-6215.3
40106	242.96	0	0	26.362	-6215.3
40107	242.96	0	0	26.362	-6215.3
40108	242.99	0	0	26.362	-6215.3
40109	243.04	0	0	26.362	-6215.3
40110	242.9	0	0	26.362	-6215.3
40111	242.97	0	0	26.362	-6215.3
40112	242.98	0	0	26.362	-6215.3
40113	243.06	0	0	26.362	-6215.3
40114	243	0	0	26.362	-6215.3
40115	242.95	0	0	26.362	-6215.3
40116	243.01	0	0	26.362	-6215.3
40117	242.93	0	0	26.362	-6215.3
40118	243.01	0	0	26.362	-6215.3
40119	243.08	0	0	26.362	-6215.3
40120	242.99	0	0	26.362	-6215.3
40121	243.09	0	0	26.362	-6215.3
40122	243.09	0	0	26.362	-6215.3
40123	243.1	0	0	26.362	-6215.3
40124	243.11	0	0	26.362	-6215.3
40125	243.07	0	0	26.362	-6215.3
40126	243.16	0	0	26.362	-6215.3
40127	242.98	0	0	26.362	-6215.3
40128	243.15	0	0	26.362	-6215.3
40129	243.03	0	0	26.362	-6215.3
40130	243.12	0	0	26.362	-6215.3
40131	243.12	0	0	26.362	-6215.3
40132	243.38	0	0	26.362	-6215.3
40133	243.39	0	0	26.362	-6215.3
40134	243.31	0	0	26.362	-6215.3
40135	243.32	0	0	26.362	-6215.3
40136	243.29	0	0	26.362	-6215.3

40137	243.4	0	0	26.362	-6215.3
40138	243.38	0	0	26.362	-6215.3
40139	243.39	0	0	26.362	-6215.3
40140	243.42	0	0	26.362	-6215.3
40141	243.38	0	0	26.362	-6215.3
40142	243.34	0	0	26.362	-6215.3
40143	243.38	0	0	26.362	-6215.3
40144	243.36	0	0	26.362	-6215.3
40145	243.4	0	0	26.362	-6215.3
40146	243.41	0	0	26.362	-6215.3
40147	243.47	0	0	26.362	-6215.3
40148	243.47	0	0	26.362	-6215.3
40149	243.49	0	0	26.362	-6215.3
40150	243.78	0	0	26.362	-6215.3
40151	243.77	0	0	26.362	-6215.3
40152	243.69	0	0	26.362	-6215.3
40153	243.75	0	0	26.362	-6215.3
40154	243.78	0	0	26.362	-6215.3
40155	243.77	0	0	26.362	-6215.3
40156	243.73	0	0	26.362	-6215.3
40157	243.74	0	0	26.362	-6215.3
40158	243.71	0	0	26.362	-6215.3
40159	243.75	0	0	26.362	-6215.3
40160	243.73	0	0	26.362	-6215.3
40161	243.68	0	0	26.362	-6215.3
40162	243.74	0	0	26.362	-6215.3
40163	243.74	0	0	26.362	-6215.3
40164	243.76	0	0	26.362	-6215.3
40165	243.82	0	0	26.362	-6215.3
40166	243.74	0	0	26.362	-6215.3
40167	243.81	0	0	26.362	-6215.3
40168	243.76	0	0	26.362	-6215.3
40169	243.76	0	0	26.362	-6215.3
40170	243.67	0	0	26.362	-6215.3
40171	243.75	0	0	26.362	-6215.3
40172	243.71	0	0	26.362	-6215.3
40173	243.75	0	0	26.362	-6215.3
40174	243.76	0	0	26.362	-6215.3
40175	243.71	0	0	26.362	-6215.3
40176	243.7	0	0	26.362	-6215.3
40177	243.76	0	0	26.362	-6215.3
40178	243.79	0	0	26.362	-6215.3
40179	243.75	0	0	26.362	-6215.3
40180	243.77	0	0	26.362	-6215.3
40181	243.79	0	0	26.362	-6215.3
40182	243.72	0	0	26.362	-6215.3
40183	243.77	0	0	26.362	-6215.3

40184	243.74	0	0	26.362	-6215.3
40185	243.77	0	0	26.362	-6215.3
40186	243.77	0	0	26.362	-6215.3
40187	243.88	0	0	26.362	-6215.3
40188	243.77	0	0	26.362	-6215.3
40189	243.8	0	0	26.362	-6215.3
40190	243.81	0	0	26.362	-6215.3
40191	243.83	0	0	26.362	-6215.3
40192	243.87	0	0	26.362	-6215.3
40193	243.8	0	0	26.362	-6215.3
40194	243.92	0	0	26.362	-6215.3
40195	243.94	0	0	26.362	-6215.3
40196	243.85	0	0	26.362	-6215.3
40197	243.89	0	0	26.362	-6215.3
40198	243.93	0	0	26.362	-6215.3
40199	243.9	0	0	26.362	-6215.3
40200	243.89	0	0	26.362	-6215.3
40201	243.93	0	0	26.362	-6215.3
40202	243.91	0	0	26.362	-6215.3
40203	243.88	0	0	26.362	-6215.3
40204	243.86	0	0	26.362	-6215.3
40205	243.91	0	0	26.362	-6215.3
40206	243.92	0	0	26.362	-6215.3
40207	243.91	0	0	26.362	-6215.3
40208	243.9	0	0	26.362	-6215.3
40209	243.87	0	0	26.362	-6215.3
40210	243.78	0	0	26.362	-6215.3
40211	243.79	0	0	26.362	-6215.3
40212	243.76	0	0	26.362	-6215.3
40213	243.81	0	0	26.362	-6215.3
40214	243.74	0	0	26.362	-6215.3
40215	243.82	0	0	26.362	-6215.3
40216	243.84	0	0	26.362	-6215.3
40217	243.8	0	0	26.362	-6215.3
40218	243.82	0	0	26.362	-6215.3
40219	243.88	0	0	26.362	-6215.3
40220	243.82	0	0	26.362	-6215.3
40221	243.81	0	0	26.362	-6215.3
40222	243.85	0	0	26.362	-6215.3
40223	243.84	0	0	26.362	-6215.3
40224	243.84	0	0	26.362	-6215.3
40225	243.87	0	0	26.362	-6215.3
40226	243.88	0	0	26.362	-6215.3
40227	243.78	0	0	26.362	-6215.3
40228	243.81	0	0	26.362	-6215.3
40229	243.78	0	0	26.362	-6215.3
40230	243.77	0	0	26.362	-6215.3

40231	243.82	0	0	26.362	-6215.3
40232	243.82	0	0	26.362	-6215.3
40233	243.78	0	0	26.362	-6215.3
40234	243.83	0	0	26.362	-6215.3
40235	243.73	0	0	26.362	-6215.3
40236	243.73	0	0	26.362	-6215.3
40237	243.71	0	0	26.362	-6215.3
40238	243.74	0	0	26.362	-6215.3
40239	243.74	0	0	26.362	-6215.3
40240	243.4	0	0	26.362	-6215.3
40241	243.39	0	0	26.362	-6215.3
40242	243.39	0	0	26.362	-6215.3
40243	243.43	0	0	26.362	-6215.3
40244	243.37	0	0	26.362	-6215.3
40245	243.38	0	0	26.362	-6215.3
40246	243.31	0	0	26.362	-6215.3
40247	243.34	0	0	26.362	-6215.3
40248	243.32	0	0	26.362	-6215.3
40249	243.31	0	0	26.362	-6215.3
40250	243.28	0	0	26.362	-6215.3
40251	243.27	0	0	26.362	-6215.3
40252	243.28	0	0	26.362	-6215.3
40253	243.29	0	0	26.362	-6215.3
40254	243.31	0	0	26.362	-6215.3
40255	243.35	0	0	26.362	-6215.3
40256	243.22	0	0	26.362	-6215.3
40257	243.15	0	0	26.362	-6215.3
40258	243.3	0	0	26.362	-6215.3
40259	243.27	0	0	26.362	-6215.3
40260	243.24	0	0	26.362	-6215.3
40261	243.2	0	0	26.362	-6215.3
40262	243.2	0	0	26.362	-6215.3
40263	243.24	0	0	26.362	-6215.3
40264	243.27	0	0	26.362	-6215.3
40265	243.22	0	0	26.362	-6215.3
40266	243.21	0	0	26.362	-6215.3
40267	243.18	0	0	26.362	-6215.3
40268	243.15	0	0	26.362	-6215.3
40269	243.19	0	0	26.362	-6215.3
40270	243.23	0	0	26.362	-6215.3
40271	243.19	0	0	26.362	-6215.3
40272	243.17	0	0	26.362	-6215.3
40273	243.07	0	0	26.362	-6215.3
40274	243	0	0	26.362	-6215.3
40275	242.96	0	0	26.362	-6215.3
40276	242.99	0	0	26.362	-6215.3
40277	243.11	0	0	26.362	-6215.3

40278	243.12	0	0	26.362	-6215.3
40279	243.15	0	0	26.362	-6215.3
40280	243.15	0	0	26.362	-6215.3
40281	243.15	0	0	26.362	-6215.3
40282	243.16	0	0	26.362	-6215.3
40283	243.13	0	0	26.362	-6215.3
40284	243.09	0	0	26.362	-6215.3
40285	243.12	0	0	26.362	-6215.3
40286	243.03	0	0	26.362	-6215.3
40287	243.05	0	0	26.362	-6215.3
40288	243	0	0	26.362	-6215.3
40289	242.92	0	0	26.362	-6215.3
40290	242.98	0	0	26.362	-6215.3
40291	243	0	0	26.362	-6215.3
40292	242.95	0	0	26.362	-6215.3
40293	242.93	0	0	26.362	-6215.3
40294	243.01	0	0	26.362	-6215.3
40295	242.93	0	0	26.362	-6215.3
40296	242.89	0	0	26.362	-6215.3
40297	242.96	0	0	26.362	-6215.3
40298	242.88	0	0	26.362	-6215.3
40299	242.99	0	0	26.362	-6215.3
40300	242.97	0	0	26.362	-6215.3
40301	242.93	0	0	26.362	-6215.3
40302	242.93	0	0	26.362	-6215.3
40303	242.97	0	0	26.362	-6215.3
40304	242.9	0	0	26.362	-6215.3
40305	242.96	0	0	26.362	-6215.3
40306	242.91	0	0	26.362	-6215.3
40307	242.79	0	0	26.362	-6215.3
40308	242.91	0	0	26.362	-6215.3
40309	242.93	0	0	26.362	-6215.3
40310	242.89	0	0	26.362	-6215.3
40311	242.89	0	0	26.362	-6215.3
40312	242.98	0	0	26.362	-6215.3
40313	243.02	0	0	26.362	-6215.3
40314	243.02	0	0	26.362	-6215.3
40315	242.96	0	0	26.362	-6215.3
40316	242.97	0	0	26.362	-6215.3
40317	242.97	0	0	26.362	-6215.3
40318	242.95	0	0	26.362	-6215.3
40319	242.97	0	0	26.362	-6215.3
40320	243.05	0	0	26.362	-6215.3
40321	242.98	0	0	26.362	-6215.3
40322	243.04	0	0	26.362	-6215.3
40323	242.96	0	0	26.362	-6215.3
40324	242.96	0	0	26.362	-6215.3

40325	242.96	0	0	26.362	-6215.3
40326	243.01	0	0	26.362	-6215.3
40327	243.01	0	0	26.362	-6215.3
40328	242.91	0	0	26.362	-6215.3
40329	242.93	0	0	26.362	-6215.3
40330	242.86	0	0	26.362	-6215.3
40331	242.89	0	0	26.362	-6215.3
40332	242.9	0	0	26.362	-6215.3
40333	242.81	0	0	26.362	-6215.3
40334	242.87	0	0	26.362	-6215.3
40335	242.87	0	0	26.362	-6215.3
40336	242.84	0	0	26.362	-6215.3
40337	242.84	0	0	26.362	-6215.3
40338	242.86	0	0	26.362	-6215.3
40339	242.83	0	0	26.362	-6215.3
40340	242.82	0	0	26.362	-6215.3
40341	242.83	0	0	26.362	-6215.3
40342	242.75	0	0	26.362	-6215.3
40343	242.9	0	0	26.362	-6215.3
40344	242.82	0	0	26.362	-6215.3
40345	242.84	0	0	26.362	-6215.3
40346	242.81	0	0	26.362	-6215.3
40347	242.8	0	0	26.362	-6215.3
40348	242.84	0	0	26.362	-6215.3
40349	242.78	0	0	26.362	-6215.3
40350	242.8	0	0	26.362	-6215.3
40351	242.82	0	0	26.362	-6215.3
40352	242.88	0	0	26.362	-6215.3
40353	242.77	0	0	26.362	-6215.3
40354	242.76	0	0	26.362	-6215.3
40355	242.76	0	0	26.362	-6215.3
40356	242.65	0	0	26.362	-6215.3
40357	242.76	0	0	26.362	-6215.3
40358	242.71	0	0	26.362	-6215.3
40359	242.67	0	0	26.362	-6215.3
40360	242.68	0	0	26.362	-6215.3
40361	242.72	0	0	26.362	-6215.3
40362	242.71	0	0	26.362	-6215.3
40363	242.69	0	0	26.362	-6215.3
40364	242.77	0	0	26.362	-6215.3
40365	242.76	0	0	26.362	-6215.3
40366	242.75	0	0	26.362	-6215.3
40367	242.71	0	0	26.362	-6215.3
40368	242.83	0	0	26.362	-6215.3
40369	242.77	0	0	26.362	-6215.3
40370	242.81	0	0	26.362	-6215.3
40371	242.88	0	0	26.362	-6215.3

40372	242.8	0	0	26.362	-6215.3
40373	242.8	0	0	26.362	-6215.3
40374	242.78	0	0	26.362	-6215.3
40375	242.68	0	0	26.362	-6215.3
40376	242.65	0	0	26.362	-6215.3
40377	242.72	0	0	26.362	-6215.3
40378	242.73	0	0	26.362	-6215.3
40379	242.53	0	0	26.362	-6215.3
40380	242.69	0	0	26.362	-6215.3
40381	242.61	0	0	26.362	-6215.3
40382	242.62	0	0	26.362	-6215.3
40383	242.69	0	0	26.362	-6215.3
40384	242.66	0	0	26.362	-6215.3
40385	242.74	0	0	26.362	-6215.3
40386	242.71	0	0	26.362	-6215.3
40387	242.75	0	0	26.362	-6215.3
40388	242.82	0	0	26.362	-6215.3
40389	242.78	0	0	26.362	-6215.3
40390	242.76	0	0	26.362	-6215.3
40391	242.86	0	0	26.362	-6215.3
40392	242.7	0	0	26.362	-6215.3
40393	242.85	0	0	26.362	-6215.3
40394	242.8	0	0	26.362	-6215.3
40395	242.78	0	0	26.362	-6215.3
40396	242.83	0	0	26.362	-6215.3
40397	242.84	0	0	26.362	-6215.3
40398	242.87	0	0	26.362	-6215.3
40399	242.9	0	0	26.362	-6215.3
40400	242.89	0	0	26.362	-6215.3
40401	242.86	0	0	26.362	-6215.3
40402	242.9	0	0	26.362	-6215.3
40403	242.98	0	0	26.362	-6215.3
40404	242.88	0	0	26.362	-6215.3
40405	243.01	0	0	26.362	-6215.3
40406	242.94	0	0	26.362	-6215.3
40407	242.95	0	0	26.362	-6215.3
40408	242.91	0	0	26.362	-6215.3
40409	242.93	0	0	26.362	-6215.3
40410	243.1	0	0	26.362	-6215.3
40411	243.04	0	0	26.362	-6215.3
40412	242.94	0	0	26.362	-6215.3
40413	242.9	0	0	26.362	-6215.3
40414	243	0	0	26.362	-6215.3
40415	242.93	0	0	26.362	-6215.3
40416	242.91	0	0	26.362	-6215.3
40417	242.84	0	0	26.362	-6215.3
40418	242.96	0	0	26.362	-6215.3

40419	242.97	0	0	26.362	-6215.3
40420	242.94	0	0	26.362	-6215.3
40421	242.92	0	0	26.362	-6215.3
40422	242.96	0	0	26.362	-6215.3
40423	242.82	0	0	26.362	-6215.3
40424	242.92	0	0	26.362	-6215.3
40425	242.94	0	0	26.362	-6215.3
40426	242.9	0	0	26.362	-6215.3
40427	243.01	0	0	26.362	-6215.3
40428	243.03	0	0	26.362	-6215.3
40429	243.04	0	0	26.362	-6215.3
40430	242.98	0	0	26.362	-6215.3
40431	243.05	0	0	26.362	-6215.3
40432	243.04	0	0	26.362	-6215.3
40433	243	0	0	26.362	-6215.3
40434	243.02	0	0	26.362	-6215.3
40435	242.93	0	0	26.362	-6215.3
40436	242.97	0	0	26.362	-6215.3
40437	242.99	0	0	26.362	-6215.3
40438	242.92	0	0	26.362	-6215.3
40439	243.12	0	0	26.362	-6215.3
40440	243	0	0	26.362	-6215.3
40441	243	0	0	26.362	-6215.3
40442	243.03	0	0	26.362	-6215.3
40443	242.95	0	0	26.362	-6215.3
40444	242.92	0	0	26.362	-6215.3
40445	242.99	0	0	26.362	-6215.3
40446	242.93	0	0	26.362	-6215.3
40447	243.04	0	0	26.362	-6215.3
40448	243.02	0	0	26.362	-6215.3
40449	242.95	0	0	26.362	-6215.3
40450	242.96	0	0	26.362	-6215.3
40451	242.9	0	0	26.362	-6215.3
40452	243	0	0	26.362	-6215.3
40453	242.96	0	0	26.362	-6215.3
40454	242.95	0	0	26.362	-6215.3
40455	242.97	0	0	26.362	-6215.3
40456	242.94	0	0	26.362	-6215.3
40457	242.96	0	0	26.362	-6215.3
40458	242.95	0	0	26.362	-6215.3
40459	243.02	0	0	26.362	-6215.3
40460	242.98	0	0	26.362	-6215.3
40461	243.01	0	0	26.362	-6215.3
40462	242.93	0	0	26.362	-6215.3
40463	242.94	0	0	26.362	-6215.3
40464	242.98	0	0	26.362	-6215.3
40465	243.03	0	0	26.362	-6215.3

40466	242.98	0	0	26.362	-6215.3
40467	243.02	0	0	26.362	-6215.3
40468	243.04	0	0	26.362	-6215.3
40469	242.97	0	0	26.362	-6215.3
40470	242.93	0	0	26.362	-6215.3
40471	243.04	0	0	26.362	-6215.3
40472	242.98	0	0	26.362	-6215.3
40473	243.07	0	0	26.362	-6215.3
40474	243.04	0	0	26.362	-6215.3
40475	242.97	0	0	26.362	-6215.3
40476	243.04	0	0	26.362	-6215.3
40477	243.07	0	0	26.362	-6215.3
40478	243.01	0	0	26.362	-6215.3
40479	243.11	0	0	26.362	-6215.3
40480	243.17	0	0	26.362	-6215.3
40481	243.07	0	0	26.362	-6215.3
40482	243.03	0	0	26.362	-6215.3
40483	243.09	0	0	26.362	-6215.3
40484	243.02	0	0	26.362	-6215.3
40485	243.02	0	0	26.362	-6215.3
40486	243	0	0	26.362	-6215.3
40487	242.99	0	0	26.362	-6215.3
40488	243.08	0	0	26.362	-6215.3
40489	243.05	0	0	26.362	-6215.3
40490	243.07	0	0	26.362	-6215.3
40491	243.04	0	0	26.362	-6215.3
40492	243.04	0	0	26.362	-6215.3
40493	243.05	0	0	26.362	-6215.3
40494	243.05	0	0	26.362	-6215.3
40495	242.97	0	0	26.362	-6215.3
40496	242.99	0	0	26.362	-6215.3
40497	243.17	0	0	26.362	-6215.3
40498	243.08	0	0	26.362	-6215.3
40499	243.07	0	0	26.362	-6215.3
40500	243.07	0	0	26.362	-6215.3
40501	243.08	0	0	26.362	-6215.3
40502	242.92	0	0	26.362	-6215.3
40503	242.93	0	0	26.362	-6215.3
40504	242.88	0	0	26.362	-6215.3
40505	242.93	0	0	26.362	-6215.3
40506	242.92	0	0	26.362	-6215.3
40507	242.83	0	0	26.362	-6215.3
40508	242.95	0	0	26.362	-6215.3
40509	242.92	0	0	26.362	-6215.3
40510	242.87	0	0	26.362	-6215.3
40511	242.92	0	0	26.362	-6215.3
40512	242.86	0	0	26.362	-6215.3

40513	242.9	0	0	26.362	-6215.3
40514	242.87	0	0	26.362	-6215.3
40515	242.83	0	0	26.362	-6215.3
40516	242.9	0	0	26.362	-6215.3
40517	242.94	0	0	26.362	-6215.3
40518	242.9	0	0	26.362	-6215.3
40519	242.87	0	0	26.362	-6215.3
40520	242.85	0	0	26.362	-6215.3
40521	242.13	0	0	26.362	-6215.3
40522	242.57	0	0	26.362	-6215.3
40523	242.76	0	0	26.362	-6215.3
40524	242.84	0	0	26.362	-6215.3
40525	242.8	0	0	26.362	-6215.3
40526	242.73	0	0	26.362	-6215.3
40527	242.8	0	0	26.362	-6215.3
40528	242.76	0	0	26.362	-6215.3
40529	242.77	0	0	26.362	-6215.3
40530	242.75	0	0	26.362	-6215.3
40531	242.77	0	0	26.362	-6215.3
40532	242.82	0	0	26.362	-6215.3
40533	242.84	0	0	26.362	-6215.3
40534	242.81	0	0	26.362	-6215.3
40535	242.73	0	0	26.362	-6215.3
40536	242.71	0	0	26.362	-6215.3
40537	242.65	0	0	26.362	-6215.3
40538	242.68	0	0	26.362	-6215.3
40539	242.69	0	0	26.362	-6215.3
40540	242.66	0	0	26.362	-6215.3
40541	242.7	0	0	26.362	-6215.3
40542	242.75	0	0	26.362	-6215.3
40543	242.65	0	0	26.362	-6215.3
40544	242.74	0	0	26.362	-6215.3
40545	242.73	0	0	26.362	-6215.3
40546	242.73	0	0	26.362	-6215.3
40547	242.78	0	0	26.362	-6215.3
40548	242.72	0	0	26.362	-6215.3
40549	242.71	0	0	26.362	-6215.3
40550	242.78	0	0	26.362	-6215.3
40551	242.95	0	0	26.362	-6215.3
40552	242.83	0	0	26.362	-6215.3
40553	242.79	0	0	26.362	-6215.3
40554	242.89	0	0	26.362	-6215.3
40555	242.86	0	0	26.362	-6215.3
40556	242.81	0	0	26.362	-6215.3
40557	242.92	0	0	26.362	-6215.3
40558	242.86	0	0	26.362	-6215.3
40559	242.85	0	0	26.362	-6215.3

40560	242.77	0	0	26.362	-6215.3
40561	242.71	0	0	26.362	-6215.3
40562	242.86	0	0	26.362	-6215.3
40563	242.86	0	0	26.362	-6215.3
40564	242.76	0	0	26.362	-6215.3
40565	242.86	0	0	26.362	-6215.3
40566	242.79	0	0	26.362	-6215.3
40567	243	0	0	26.362	-6215.3
40568	242.97	0	0	26.362	-6215.3
40569	242.79	0	0	26.362	-6215.3
40570	242.99	0	0	26.362	-6215.3
40571	243	0	0	26.362	-6215.3
40572	243.04	0	0	26.362	-6215.3
40573	243.03	0	0	26.362	-6215.3
40574	243.08	0	0	26.362	-6215.3
40575	243.12	0	0	26.362	-6215.3
40576	243.08	0	0	26.362	-6215.3
40577	243.18	0	0	26.362	-6215.3
40578	243.03	0	0	26.362	-6215.3
40579	243.16	0	0	26.362	-6215.3
40580	243.07	0	0	26.362	-6215.3
40581	243.19	0	0	26.362	-6215.3
40582	243.2	0	0	26.362	-6215.3
40583	243.17	0	0	26.362	-6215.3
40584	243.16	0	0	26.362	-6215.3
40585	243.03	0	0	26.362	-6215.3
40586	243.07	0	0	26.362	-6215.3
40587	243.16	0	0	26.362	-6215.3
40588	243.1	0	0	26.362	-6215.3
40589	243.13	0	0	26.362	-6215.3
40590	243.15	0	0	26.362	-6215.3
40591	243.09	0	0	26.362	-6215.3
40592	243.19	0	0	26.362	-6215.3
40593	243.2	0	0	26.362	-6215.3
40594	243.08	0	0	26.362	-6215.3
40595	243.2	0	0	26.362	-6215.3
40596	243.07	0	0	26.362	-6215.3
40597	243.15	0	0	26.362	-6215.3
40598	243.1	0	0	26.362	-6215.3
40599	243.11	0	0	26.362	-6215.3
40600	243.21	0	0	26.362	-6215.3
40601	242.93	0	0	26.362	-6215.3
40602	243.1	0	0	26.362	-6215.3
40603	242.98	0	0	26.362	-6215.3
40604	243.03	0	0	26.362	-6215.3
40605	243	0	0	26.362	-6215.3
40606	243.01	0	0	26.362	-6215.3

40607	242.97	0	0	26.362	-6215.3
40608	243.02	0	0	26.362	-6215.3
40609	242.94	0	0	26.362	-6215.3
40610	242.92	0	0	26.362	-6215.3
40611	242.95	0	0	26.362	-6215.3
40612	243	0	0	26.362	-6215.3
40613	243.01	0	0	26.362	-6215.3
40614	242.95	0	0	26.362	-6215.3
40615	242.92	0	0	26.362	-6215.3
40616	243.05	0	0	26.362	-6215.3
40617	242.97	0	0	26.362	-6215.3
40618	243	0	0	26.362	-6215.3
40619	242.97	0	0	26.362	-6215.3
40620	243.12	0	0	26.362	-6215.3
40621	243.14	0	0	26.362	-6215.3
40622	243.11	0	0	26.362	-6215.3
40623	243.1	0	0	26.362	-6215.3
40624	243.02	0	0	26.362	-6215.3
40625	243.02	0	0	26.362	-6215.3
40626	243	0	0	26.362	-6215.3
40627	242.93	0	0	26.362	-6215.3
40628	242.96	0	0	26.362	-6215.3
40629	242.94	0	0	26.362	-6215.3
40630	242.97	0	0	26.362	-6215.3
40631	243.07	0	0	26.362	-6215.3
40632	242.95	0	0	26.362	-6215.3
40633	243.04	0	0	26.362	-6215.3
40634	243.09	0	0	26.362	-6215.3
40635	243.03	0	0	26.362	-6215.3
40636	243.06	0	0	26.362	-6215.3
40637	243.09	0	0	26.362	-6215.3
40638	243.03	0	0	26.362	-6215.3
40639	242.99	0	0	26.362	-6215.3
40640	242.93	0	0	26.362	-6215.3
40641	242.95	0	0	26.362	-6215.3
40642	242.99	0	0	26.362	-6215.3
40643	243.04	0	0	26.362	-6215.3
40644	243.08	0	0	26.362	-6215.3
40645	243.07	0	0	26.362	-6215.3
40646	243.02	0	0	26.362	-6215.3
40647	242.96	0	0	26.362	-6215.3
40648	242.95	0	0	26.362	-6215.3
40649	242.93	0	0	26.362	-6215.3
40650	242.94	0	0	26.362	-6215.3
40651	242.9	0	0	26.362	-6215.3
40652	242.93	0	0	26.362	-6215.3
40653	242.9	0	0	26.362	-6215.3

40654	242.91	0	0	26.362	-6215.3
40655	242.94	0	0	26.362	-6215.3
40656	242.91	0	0	26.362	-6215.3
40657	242.94	0	0	26.362	-6215.3
40658	242.97	0	0	26.362	-6215.3
40659	242.96	0	0	26.362	-6215.3
40660	243	0	0	26.362	-6215.3
40661	242.98	0	0	26.362	-6215.3
40662	242.92	0	0	26.362	-6215.3
40663	242.94	0	0	26.362	-6215.3
40664	242.93	0	0	26.362	-6215.3
40665	242.97	0	0	26.362	-6215.3
40666	242.98	0	0	26.362	-6215.3
40667	243.05	0	0	26.362	-6215.3
40668	242.98	0	0	26.362	-6215.3
40669	242.92	0	0	26.362	-6215.3
40670	242.93	0	0	26.362	-6215.3
40671	242.95	0	0	26.362	-6215.3
40672	242.96	0	0	26.362	-6215.3
40673	243	0	0	26.362	-6215.3
40674	242.98	0	0	26.362	-6215.3
40675	243.02	0	0	26.362	-6215.3
40676	243.07	0	0	26.362	-6215.3
40677	243.1	0	0	26.362	-6215.3
40678	243.09	0	0	26.362	-6215.3
40679	243.04	0	0	26.362	-6215.3
40680	243.07	0	0	26.362	-6215.3
40681	243.14	0	0	26.362	-6215.3
40682	243.06	0	0	26.362	-6215.3
40683	243.07	0	0	26.362	-6215.3
40684	243.14	0	0	26.362	-6215.3
40685	243.1	0	0	26.362	-6215.3
40686	243.15	0	0	26.362	-6215.3
40687	243.08	0	0	26.362	-6215.3
40688	243.07	0	0	26.362	-6215.3
40689	243.08	0	0	26.362	-6215.3
40690	243.08	0	0	26.362	-6215.3
40691	243.14	0	0	26.362	-6215.3
40692	243.04	0	0	26.362	-6215.3
40693	243.03	0	0	26.362	-6215.3
40694	243.02	0	0	26.362	-6215.3
40695	243.04	0	0	26.362	-6215.3
40696	243.12	0	0	26.362	-6215.3
40697	243.08	0	0	26.362	-6215.3
40698	243.16	0	0	26.362	-6215.3
40699	243.11	0	0	26.362	-6215.3
40700	243.06	0	0	26.362	-6215.3

40701	243.12	0	0	26.362	-6215.3
40702	243.08	0	0	26.362	-6215.3
40703	243.05	0	0	26.362	-6215.3
40704	243.08	0	0	26.362	-6215.3
40705	243.06	0	0	26.362	-6215.3
40706	243.1	0	0	26.362	-6215.3
40707	243.1	0	0	26.362	-6215.3
40708	243.18	0	0	26.362	-6215.3
40709	243.12	0	0	26.362	-6215.3
40710	243.12	0	0	26.362	-6215.3
40711	243.21	0	0	26.362	-6215.3
40712	243.18	0	0	26.362	-6215.3
40713	243.15	0	0	26.362	-6215.3
40714	243.09	0	0	26.362	-6215.3
40715	243.09	0	0	26.362	-6215.3
40716	243.16	0	0	26.362	-6215.3
40717	243.14	0	0	26.362	-6215.3
40718	243.17	0	0	26.362	-6215.3
40719	243.12	0	0	26.362	-6215.3
40720	243.2	0	0	26.362	-6215.3
40721	243.14	0	0	26.362	-6215.3
40722	243.18	0	0	26.362	-6215.3
40723	243.1	0	0	26.362	-6215.3
40724	243.12	0	0	26.362	-6215.3
40725	243.23	0	0	26.362	-6215.3
40726	243.15	0	0	26.362	-6215.3
40727	243.1	0	0	26.362	-6215.3
40728	243.1	0	0	26.362	-6215.3
40729	243.01	0	0	26.362	-6215.3
40730	243.03	0	0	26.362	-6215.3
40731	243.04	0	0	26.362	-6215.3
40732	243.13	0	0	26.362	-6215.3
40733	243.11	0	0	26.362	-6215.3
40734	243.03	0	0	26.362	-6215.3
40735	242.98	0	0	26.362	-6215.3
40736	243.01	0	0	26.362	-6215.3
40737	243.05	0	0	26.362	-6215.3
40738	243.08	0	0	26.362	-6215.3
40739	243.03	0	0	26.362	-6215.3
40740	243.19	0	0	26.362	-6215.3
40741	243.16	0	0	26.362	-6215.3
40742	243.14	0	0	26.362	-6215.3
40743	243.15	0	0	26.362	-6215.3
40744	243.06	0	0	26.362	-6215.3
40745	243.11	0	0	26.362	-6215.3
40746	243.05	0	0	26.362	-6215.3
40747	243.03	0	0	26.362	-6215.3

40748	243.05	0	0	26.362	-6215.3
40749	243.03	0	0	26.362	-6215.3
40750	242.99	0	0	26.362	-6215.3
40751	242.98	0	0	26.362	-6215.3
40752	242.95	0	0	26.362	-6215.3
40753	242.96	0	0	26.362	-6215.3
40754	242.97	0	0	26.362	-6215.3
40755	242.99	0	0	26.362	-6215.3
40756	242.92	0	0	26.362	-6215.3
40757	243	0	0	26.362	-6215.3
40758	243.06	0	0	26.362	-6215.3
40759	242.95	0	0	26.362	-6215.3
40760	242.98	0	0	26.362	-6215.3
40761	243.09	0	0	26.362	-6215.3
40762	242.96	0	0	26.362	-6215.3
40763	243.05	0	0	26.362	-6215.3
40764	243.04	0	0	26.362	-6215.3
40765	242.96	0	0	26.362	-6215.3
40766	243.07	0	0	26.362	-6215.3
40767	243	0	0	26.362	-6215.3
40768	242.99	0	0	26.362	-6215.3
40769	243.05	0	0	26.362	-6215.3
40770	242.9	0	0	26.362	-6215.3
40771	242.85	0	0	26.362	-6215.3
40772	242.92	0	0	26.362	-6215.3
40773	243.01	0	0	26.362	-6215.3
40774	242.98	0	0	26.362	-6215.3
40775	242.92	0	0	26.362	-6215.3
40776	242.89	0	0	26.362	-6215.3
40777	243	0	0	26.362	-6215.3
40778	242.98	0	0	26.362	-6215.3
40779	243.07	0	0	26.362	-6215.3
40780	243.08	0	0	26.362	-6215.3
40781	243.04	0	0	26.362	-6215.3
40782	243	0	0	26.362	-6215.3
40783	242.95	0	0	26.362	-6215.3
40784	243.04	0	0	26.362	-6215.3
40785	243.09	0	0	26.362	-6215.3
40786	243.06	0	0	26.362	-6215.3
40787	242.95	0	0	26.362	-6215.3
40788	242.95	0	0	26.362	-6215.3
40789	242.9	0	0	26.362	-6215.3
40790	242.88	0	0	26.362	-6215.3
40791	242.9	0	0	26.362	-6215.3
40792	242.88	0	0	26.362	-6215.3
40793	242.99	0	0	26.362	-6215.3
40794	242.91	0	0	26.362	-6215.3

40795	242.97	0	0	26.362	-6215.3
40796	242.97	0	0	26.362	-6215.3
40797	242.99	0	0	26.362	-6215.3
40798	242.93	0	0	26.362	-6215.3
40799	242.96	0	0	26.362	-6215.3
40800	243	0	0	26.362	-6215.3
40801	242.99	0	0	26.362	-6215.3
40802	243.01	0	0	26.362	-6215.3
40803	243.02	0	0	26.362	-6215.3
40804	243.06	0	0	26.362	-6215.3
40805	243.03	0	0	26.362	-6215.3
40806	243.04	0	0	26.362	-6215.3
40807	243.02	0	0	26.362	-6215.3
40808	243.06	0	0	26.362	-6215.3
40809	243.06	0	0	26.362	-6215.3
40810	243.01	0	0	26.362	-6215.3
40811	243.01	0	0	26.362	-6215.3
40812	242.97	0	0	26.362	-6215.3
40813	242.96	0	0	26.362	-6215.3
40814	243.02	0	0	26.362	-6215.3
40815	243.01	0	0	26.362	-6215.3
40816	242.92	0	0	26.362	-6215.3
40817	243.05	0	0	26.362	-6215.3
40818	243	0	0	26.362	-6215.3
40819	243.02	0	0	26.362	-6215.3
40820	242.97	0	0	26.362	-6215.3
40821	242.94	0	0	26.362	-6215.3
40822	242.97	0	0	26.362	-6215.3
40823	243.02	0	0	26.362	-6215.3
40824	243.02	0	0	26.362	-6215.3
40825	243.05	0	0	26.362	-6215.3
40826	243.01	0	0	26.362	-6215.3
40827	242.98	0	0	26.362	-6215.3
40828	242.99	0	0	26.362	-6215.3
40829	242.96	0	0	26.362	-6215.3
40830	242.99	0	0	26.362	-6215.3
40831	242.91	0	0	26.362	-6215.3
40832	242.97	0	0	26.362	-6215.3
40833	243.01	0	0	26.362	-6215.3
40834	242.97	0	0	26.362	-6215.3
40835	243.01	0	0	26.362	-6215.3
40836	243	0	0	26.362	-6215.3
40837	242.97	0	0	26.362	-6215.3
40838	243.02	0	0	26.362	-6215.3
40839	243.02	0	0	26.362	-6215.3
40840	242.99	0	0	26.362	-6215.3
40841	242.97	0	0	26.362	-6215.3

40842	243.02	0	0	26.362	-6215.3
40843	242.97	0	0	26.362	-6215.3
40844	243.02	0	0	26.362	-6215.3
40845	242.96	0	0	26.362	-6215.3
40846	243.01	0	0	26.362	-6215.3
40847	242.99	0	0	26.362	-6215.3
40848	242.97	0	0	26.362	-6215.3
40849	242.89	0	0	26.362	-6215.3
40850	242.94	0	0	26.362	-6215.3
40851	243.01	0	0	26.362	-6215.3
40852	242.92	0	0	26.362	-6215.3
40853	242.97	0	0	26.362	-6215.3
40854	242.98	0	0	26.362	-6215.3
40855	243.04	0	0	26.362	-6215.3
40856	242.95	0	0	26.362	-6215.3
40857	242.98	0	0	26.362	-6215.3
40858	243.01	0	0	26.362	-6215.3
40859	243.05	0	0	26.362	-6215.3
40860	243.14	0	0	26.362	-6215.3
40861	243.12	0	0	26.362	-6215.3
40862	243	0	0	26.362	-6215.3
40863	243	0	0	26.362	-6215.3
40864	243.08	0	0	26.362	-6215.3
40865	243.03	0	0	26.362	-6215.3
40866	243.12	0	0	26.362	-6215.3
40867	243.03	0	0	26.362	-6215.3
40868	243.09	0	0	26.362	-6215.3
40869	243.09	0	0	26.362	-6215.3
40870	243.1	0	0	26.362	-6215.3
40871	243.05	0	0	26.362	-6215.3
40872	243.05	0	0	26.362	-6215.3
40873	243.14	0	0	26.362	-6215.3
40874	243.04	0	0	26.362	-6215.3
40875	242.82	0	0	26.362	-6215.3
40876	242.97	0	0	26.362	-6215.3
40877	243.07	0	0	26.362	-6215.3
40878	242.95	0	0	26.362	-6215.3
40879	242.96	0	0	26.362	-6215.3
40880	243.02	0	0	26.362	-6215.3
40881	243.02	0	0	26.362	-6215.3
40882	242.98	0	0	26.362	-6215.3
40883	242.99	0	0	26.362	-6215.3
40884	242.93	0	0	26.362	-6215.3
40885	243.05	0	0	26.362	-6215.3
40886	243.03	0	0	26.362	-6215.3
40887	242.93	0	0	26.362	-6215.3
40888	243.01	0	0	26.362	-6215.3

40889	243.06	0	0	26.362	-6215.3
40890	242.94	0	0	26.362	-6215.3
40891	242.98	0	0	26.362	-6215.3
40892	243.05	0	0	26.362	-6215.3
40893	243	0	0	26.362	-6215.3
40894	242.99	0	0	26.362	-6215.3
40895	243.05	0	0	26.362	-6215.3
40896	243.03	0	0	26.362	-6215.3
40897	242.98	0	0	26.362	-6215.3
40898	242.8	0	0	26.362	-6215.3
40899	242.98	0	0	26.362	-6215.3
40900	242.96	0	0	26.362	-6215.3
40901	242.81	0	0	26.362	-6215.3
40902	242.72	0	0	26.362	-6215.3
40903	242.85	0	0	26.362	-6215.3
40904	242.86	0	0	26.362	-6215.3
40905	243.06	0	0	26.362	-6215.3
40906	242.84	0	0	26.362	-6215.3
40907	242.88	0	0	26.362	-6215.3
40908	242.81	0	0	26.362	-6215.3
40909	242.89	0	0	26.362	-6215.3
40910	242.8	0	0	26.362	-6215.3
40911	242.89	0	0	26.362	-6215.3
40912	242.97	0	0	26.362	-6215.3
40913	242.87	0	0	26.362	-6215.3
40914	242.87	0	0	26.362	-6215.3
40915	242.84	0	0	26.362	-6215.3
40916	242.91	0	0	26.362	-6215.3
40917	242.84	0	0	26.362	-6215.3
40918	242.8	0	0	26.362	-6215.3
40919	241.51	0	0	26.362	-6215.3
40920	242.48	0	0	26.362	-6215.3
40921	242.55	0	0	26.362	-6215.3
40922	242.44	0	0	26.362	-6215.3
40923	242.49	0	0	26.362	-6215.3
40924	242.43	0	0	26.362	-6215.3
40925	242.58	0	0	26.362	-6215.3
40926	242.64	0	0	26.362	-6215.3
40927	242.57	0	0	26.362	-6215.3
40928	242.54	0	0	26.362	-6215.3
40929	242.51	0	0	26.362	-6215.3
40930	242.59	0	0	26.362	-6215.3
40931	242.59	0	0	26.362	-6215.3
40932	242.51	0	0	26.362	-6215.3
40933	242.62	0	0	26.362	-6215.3
40934	242.55	0	0	26.362	-6215.3
40935	242.46	0	0	26.362	-6215.3

40936	242.49	0	0	26.362	-6215.3
40937	241.95	0	0	26.362	-6215.3
40938	242.46	0	0	26.362	-6215.3
40939	242.54	0	0	26.362	-6215.3
40940	242.55	0	0	26.362	-6215.3
40941	242.53	0	0	26.362	-6215.3
40942	242.64	0	0	26.362	-6215.3
40943	242.55	0	0	26.362	-6215.3
40944	242.55	0	0	26.362	-6215.3
40945	242.63	0	0	26.362	-6215.3
40946	242.56	0	0	26.362	-6215.3
40947	242.56	0	0	26.362	-6215.3
40948	242.54	0	0	26.362	-6215.3
40949	242.62	0	0	26.362	-6215.3
40950	242.59	0	0	26.362	-6215.3
40951	242.63	0	0	26.362	-6215.3
40952	242.57	0	0	26.362	-6215.3
40953	242.54	0	0	26.362	-6215.3
40954	241.71	0	0	26.362	-6215.3
40955	242.5	0	0	26.362	-6215.3
40956	242.49	0	0	26.362	-6215.3
40957	242.46	0	0	26.362	-6215.3
40958	242.5	0	0	26.362	-6215.3
40959	242.47	0	0	26.362	-6215.3
40960	242.49	0	0	26.362	-6215.3
40961	242.52	0	0	26.362	-6215.3
40962	242.42	0	0	26.362	-6215.3
40963	242.36	0	0	26.362	-6215.3
40964	242.44	0	0	26.362	-6215.3
40965	242.49	0	0	26.362	-6215.3
40966	242.48	0	0	26.362	-6215.3
40967	242.57	0	0	26.362	-6215.3
40968	242.57	0	0	26.362	-6215.3
40969	242.64	0	0	26.362	-6215.3
40970	242.54	0	0	26.362	-6215.3
40971	242.67	0	0	26.362	-6215.3
40972	242.51	0	0	26.362	-6215.3
40973	242.58	0	0	26.362	-6215.3
40974	242.53	0	0	26.362	-6215.3
40975	242.56	0	0	26.362	-6215.3
40976	242.59	0	0	26.362	-6215.3
40977	242.65	0	0	26.362	-6215.3
40978	242.61	0	0	26.362	-6215.3
40979	242.61	0	0	26.362	-6215.3
40980	242.69	0	0	26.362	-6215.3
40981	242.75	0	0	26.362	-6215.3
40982	242.66	0	0	26.362	-6215.3

40983	242.68	0	0	26.362	-6215.3
40984	242.58	0	0	26.362	-6215.3
40985	242.55	0	0	26.362	-6215.3
40986	242.58	0	0	26.362	-6215.3
40987	242.5	0	0	26.362	-6215.3
40988	242.53	0	0	26.362	-6215.3
40989	242.6	0	0	26.362	-6215.3
40990	242.57	0	0	26.362	-6215.3
40991	242.56	0	0	26.362	-6215.3
40992	242.61	0	0	26.362	-6215.3
40993	242.62	0	0	26.362	-6215.3
40994	242.54	0	0	26.362	-6215.3
40995	242.62	0	0	26.362	-6215.3
40996	242.71	0	0	26.362	-6215.3
40997	242.66	0	0	26.362	-6215.3
40998	242.68	0	0	26.362	-6215.3
40999	242.66	0	0	26.362	-6215.3
41000	242.67	0	0	26.362	-6215.3
41001	242.75	0	0	26.362	-6215.3
41002	242.72	0	0	26.362	-6215.3
41003	242.65	0	0	26.362	-6215.3
41004	242.65	0	0	26.362	-6215.3
41005	242.64	0	0	26.362	-6215.3
41006	242.58	0	0	26.362	-6215.3
41007	242.66	0	0	26.362	-6215.3
41008	242.67	0	0	26.362	-6215.3
41009	242.68	0	0	26.362	-6215.3
41010	242.64	0	0	26.362	-6215.3
41011	242.66	0	0	26.362	-6215.3
41012	242.58	0	0	26.362	-6215.3
41013	242.71	0	0	26.362	-6215.3
41014	242.75	0	0	26.362	-6215.3
41015	242.61	0	0	26.362	-6215.3
41016	242.66	0	0	26.362	-6215.3
41017	242.63	0	0	26.362	-6215.3
41018	242.75	0	0	26.362	-6215.3
41019	242.72	0	0	26.362	-6215.3
41020	242.67	0	0	26.362	-6215.3
41021	242.62	0	0	26.362	-6215.3
41022	242.65	0	0	26.362	-6215.3
41023	242.7	0	0	26.362	-6215.3
41024	242.68	0	0	26.362	-6215.3
41025	242.65	0	0	26.362	-6215.3
41026	242.57	0	0	26.362	-6215.3
41027	242.67	0	0	26.362	-6215.3
41028	242.72	0	0	26.362	-6215.3
41029	242.7	0	0	26.362	-6215.3

41030	242.76	0	0	26.362	-6215.3
41031	242.87	0	0	26.362	-6215.3
41032	242.76	0	0	26.362	-6215.3
41033	242.77	0	0	26.362	-6215.3
41034	242.85	0	0	26.362	-6215.3
41035	242.8	0	0	26.362	-6215.3
41036	242.84	0	0	26.362	-6215.3
41037	242.85	0	0	26.362	-6215.3
41038	242.92	0	0	26.362	-6215.3
41039	243.07	0	0	26.362	-6215.3
41040	242.99	0	0	26.362	-6215.3
41041	243.01	0	0	26.362	-6215.3
41042	243	0	0	26.362	-6215.3
41043	242.91	0	0	26.362	-6215.3
41044	242.91	0	0	26.362	-6215.3
41045	243.06	0	0	26.362	-6215.3
41046	242.98	0	0	26.362	-6215.3
41047	242.85	0	0	26.362	-6215.3
41048	242.89	0	0	26.362	-6215.3
41049	242.9	0	0	26.362	-6215.3
41050	242.92	0	0	26.362	-6215.3
41051	242.93	0	0	26.362	-6215.3
41052	242.91	0	0	26.362	-6215.3
41053	243.02	0	0	26.362	-6215.3
41054	243.03	0	0	26.362	-6215.3
41055	242.94	0	0	26.362	-6215.3
41056	243.04	0	0	26.362	-6215.3
41057	242.97	0	0	26.362	-6215.3
41058	243.03	0	0	26.362	-6215.3
41059	243.01	0	0	26.362	-6215.3
41060	242.94	0	0	26.362	-6215.3
41061	242.76	0	0	26.362	-6215.3
41062	242.81	0	0	26.362	-6215.3
41063	242.78	0	0	26.362	-6215.3
41064	242.81	0	0	26.362	-6215.3
41065	242.76	0	0	26.362	-6215.3
41066	242.74	0	0	26.362	-6215.3
41067	242.66	0	0	26.362	-6215.3
41068	242.81	0	0	26.362	-6215.3
41069	242.86	0	0	26.362	-6215.3
41070	242.69	0	0	26.362	-6215.3
41071	242.86	0	0	26.362	-6215.3
41072	242.76	0	0	26.362	-6215.3
41073	242.67	0	0	26.362	-6215.3
41074	242.69	0	0	26.362	-6215.3
41075	242.77	0	0	26.362	-6215.3
41076	242.89	0	0	26.362	-6215.3

41077	242.78	0	0	26.362	-6215.3
41078	242.81	0	0	26.362	-6215.3
41079	242.67	0	0	26.362	-6215.3
41080	242.69	0	0	26.362	-6215.3
41081	242.74	0	0	26.362	-6215.3
41082	242.71	0	0	26.362	-6215.3
41083	242.71	0	0	26.362	-6215.3
41084	242.66	0	0	26.362	-6215.3
41085	242.73	0	0	26.362	-6215.3
41086	242.62	0	0	26.362	-6215.3
41087	242.68	0	0	26.362	-6215.3
41088	242.64	0	0	26.362	-6215.3
41089	242.69	0	0	26.362	-6215.3
41090	242.64	0	0	26.362	-6215.3
41091	242.68	0	0	26.362	-6215.3
41092	242.7	0	0	26.362	-6215.3
41093	242.77	0	0	26.362	-6215.3
41094	242.82	0	0	26.362	-6215.3
41095	242.68	0	0	26.362	-6215.3
41096	242.76	0	0	26.362	-6215.3
41097	242.69	0	0	26.362	-6215.3
41098	242.72	0	0	26.362	-6215.3
41099	242.74	0	0	26.362	-6215.3
41100	242.51	0	0	26.362	-6215.3
41101	242.77	0	0	26.362	-6215.3
41102	242.76	0	0	26.362	-6215.3
41103	242.8	0	0	26.362	-6215.3
41104	242.74	0	0	26.362	-6215.3
41105	242.81	0	0	26.362	-6215.3
41106	242.82	0	0	26.362	-6215.3
41107	242.84	0	0	26.362	-6215.3
41108	242.78	0	0	26.362	-6215.3
41109	242.81	0	0	26.362	-6215.3
41110	242.79	0	0	26.362	-6215.3
41111	242.8	0	0	26.362	-6215.3
41112	242.66	0	0	26.362	-6215.3
41113	242.73	0	0	26.362	-6215.3
41114	242.8	0	0	26.362	-6215.3
41115	242.75	0	0	26.362	-6215.3
41116	242.81	0	0	26.362	-6215.3
41117	242.77	0	0	26.362	-6215.3
41118	242.84	0	0	26.362	-6215.3
41119	242.8	0	0	26.362	-6215.3
41120	242.74	0	0	26.362	-6215.3
41121	242.77	0	0	26.362	-6215.3
41122	242.73	0	0	26.362	-6215.3
41123	242.77	0	0	26.362	-6215.3

41124	242.72	0	0	26.362	-6215.3
41125	242.64	0	0	26.362	-6215.3
41126	242.69	0	0	26.362	-6215.3
41127	242.71	0	0	26.362	-6215.3
41128	242.68	0	0	26.362	-6215.3
41129	242.6	0	0	26.362	-6215.3
41130	242.65	0	0	26.362	-6215.3
41131	242.67	0	0	26.362	-6215.3
41132	242.63	0	0	26.362	-6215.3
41133	242.6	0	0	26.362	-6215.3
41134	242.75	0	0	26.362	-6215.3
41135	242.65	0	0	26.362	-6215.3
41136	242.76	0	0	26.362	-6215.3
41137	242.77	0	0	26.362	-6215.3
41138	242.76	0	0	26.362	-6215.3
41139	242.77	0	0	26.362	-6215.3
41140	242.76	0	0	26.362	-6215.3
41141	242.86	0	0	26.362	-6215.3
41142	242.87	0	0	26.362	-6215.3
41143	242.85	0	0	26.362	-6215.3
41144	242.89	0	0	26.362	-6215.3
41145	242.86	0	0	26.362	-6215.3
41146	242.83	0	0	26.362	-6215.3
41147	242.86	0	0	26.362	-6215.3
41148	242.84	0	0	26.362	-6215.3
41149	242.83	0	0	26.362	-6215.3
41150	242.85	0	0	26.362	-6215.3
41151	242.78	0	0	26.362	-6215.3
41152	242.74	0	0	26.362	-6215.3
41153	242.8	0	0	26.362	-6215.3
41154	242.77	0	0	26.362	-6215.3
41155	242.84	0	0	26.362	-6215.3
41156	242.8	0	0	26.362	-6215.3
41157	242.89	0	0	26.362	-6215.3
41158	242.82	0	0	26.362	-6215.3
41159	242.81	0	0	26.362	-6215.3
41160	242.83	0	0	26.362	-6215.3
41161	242.82	0	0	26.362	-6215.3
41162	242.82	0	0	26.362	-6215.3
41163	242.87	0	0	26.362	-6215.3
41164	242.94	0	0	26.362	-6215.3
41165	242.84	0	0	26.362	-6215.3
41166	242.94	0	0	26.362	-6215.3
41167	242.89	0	0	26.362	-6215.3
41168	242.94	0	0	26.362	-6215.3
41169	243.01	0	0	26.362	-6215.3
41170	242.96	0	0	26.362	-6215.3

41171	243	0	0	26.362	-6215.3
41172	242.84	0	0	26.362	-6215.3
41173	242.91	0	0	26.362	-6215.3
41174	242.91	0	0	26.362	-6215.3
41175	242.91	0	0	26.362	-6215.3
41176	243.01	0	0	26.362	-6215.3
41177	242.95	0	0	26.362	-6215.3
41178	242.93	0	0	26.362	-6215.3
41179	242.99	0	0	26.362	-6215.3
41180	242.92	0	0	26.362	-6215.3
41181	243.01	0	0	26.362	-6215.3
41182	242.93	0	0	26.362	-6215.3
41183	242.95	0	0	26.362	-6215.3
41184	242.91	0	0	26.362	-6215.3
41185	243.07	0	0	26.362	-6215.3
41186	243.05	0	0	26.362	-6215.3
41187	242.94	0	0	26.362	-6215.3
41188	242.85	0	0	26.362	-6215.3
41189	242.92	0	0	26.362	-6215.3
41190	242.96	0	0	26.362	-6215.3
41191	242.84	0	0	26.362	-6215.3
41192	242.88	0	0	26.362	-6215.3
41193	242.89	0	0	26.362	-6215.3
41194	242.81	0	0	26.362	-6215.3
41195	242.85	0	0	26.362	-6215.3
41196	242.83	0	0	26.362	-6215.3
41197	242.84	0	0	26.362	-6215.3
41198	242.79	0	0	26.362	-6215.3
41199	242.87	0	0	26.362	-6215.3
41200	242.9	0	0	26.362	-6215.3
41201	242.79	0	0	26.362	-6215.3
41202	242.95	0	0	26.362	-6215.3
41203	242.96	0	0	26.362	-6215.3
41204	242.99	0	0	26.362	-6215.3
41205	242.9	0	0	26.362	-6215.3
41206	243	0	0	26.362	-6215.3
41207	242.93	0	0	26.362	-6215.3
41208	242.92	0	0	26.362	-6215.3
41209	242.85	0	0	26.362	-6215.3
41210	242.93	0	0	26.362	-6215.3
41211	242.87	0	0	26.362	-6215.3
41212	242.83	0	0	26.362	-6215.3
41213	242.84	0	0	26.362	-6215.3
41214	242.81	0	0	26.362	-6215.3
41215	242.95	0	0	26.362	-6215.3
41216	242.87	0	0	26.362	-6215.3
41217	242.98	0	0	26.362	-6215.3

41218	243.01	0	0	26.362	-6215.3
41219	242.96	0	0	26.362	-6215.3
41220	242.91	0	0	26.362	-6215.3
41221	242.94	0	0	26.362	-6215.3
41222	243	0	0	26.362	-6215.3
41223	242.89	0	0	26.362	-6215.3
41224	242.95	0	0	26.362	-6215.3
41225	242.88	0	0	26.362	-6215.3
41226	242.57	0	0	26.362	-6215.3
41227	242.59	0	0	26.362	-6215.3
41228	242.61	0	0	26.362	-6215.3
41229	242.7	0	0	26.362	-6215.3
41230	242.67	0	0	26.362	-6215.3
41231	242.71	0	0	26.362	-6215.3
41232	242.62	0	0	26.362	-6215.3
41233	242.59	0	0	26.362	-6215.3
41234	242.58	0	0	26.362	-6215.3
41235	242.61	0	0	26.362	-6215.3
41236	242.58	0	0	26.362	-6215.3
41237	242.55	0	0	26.362	-6215.3
41238	242.63	0	0	26.362	-6215.3
41239	242.61	0	0	26.362	-6215.3
41240	242.62	0	0	26.362	-6215.3
41241	242.57	0	0	26.362	-6215.3
41242	242.6	0	0	26.362	-6215.3
41243	242.59	0	0	26.362	-6215.3
41244	242.69	0	0	26.362	-6215.3
41245	242.62	0	0	26.362	-6215.3
41246	242.74	0	0	26.362	-6215.3
41247	242.68	0	0	26.362	-6215.3
41248	242.62	0	0	26.362	-6215.3
41249	242.66	0	0	26.362	-6215.3
41250	242.66	0	0	26.362	-6215.3
41251	242.7	0	0	26.362	-6215.3
41252	242.73	0	0	26.362	-6215.3
41253	242.69	0	0	26.362	-6215.3
41254	242.73	0	0	26.362	-6215.3
41255	242.65	0	0	26.362	-6215.3
41256	242.64	0	0	26.362	-6215.3
41257	242.59	0	0	26.362	-6215.3
41258	242.55	0	0	26.362	-6215.3
41259	242.61	0	0	26.362	-6215.3
41260	242.68	0	0	26.362	-6215.3
41261	242.58	0	0	26.362	-6215.3
41262	242.57	0	0	26.362	-6215.3
41263	242.52	0	0	26.362	-6215.3
41264	242.55	0	0	26.362	-6215.3

41265	242.71	0	0	26.362	-6215.3
41266	242.63	0	0	26.362	-6215.3
41267	242.69	0	0	26.362	-6215.3
41268	242.66	0	0	26.362	-6215.3
41269	242.6	0	0	26.362	-6215.3
41270	242.6	0	0	26.362	-6215.3
41271	242.66	0	0	26.362	-6215.3
41272	242.7	0	0	26.362	-6215.3
41273	242.65	0	0	26.362	-6215.3
41274	242.73	0	0	26.362	-6215.3
41275	242.7	0	0	26.362	-6215.3
41276	242.65	0	0	26.362	-6215.3
41277	242.61	0	0	26.362	-6215.3
41278	242.63	0	0	26.362	-6215.3
41279	242.64	0	0	26.362	-6215.3
41280	242.71	0	0	26.362	-6215.3
41281	242.64	0	0	26.362	-6215.3
41282	242.67	0	0	26.362	-6215.3
41283	242.67	0	0	26.362	-6215.3
41284	242.68	0	0	26.362	-6215.3
41285	242.66	0	0	26.362	-6215.3
41286	242.65	0	0	26.362	-6215.3
41287	242.63	0	0	26.362	-6215.3
41288	242.7	0	0	26.362	-6215.3
41289	242.64	0	0	26.362	-6215.3
41290	242.65	0	0	26.362	-6215.3
41291	242.72	0	0	26.362	-6215.3
41292	242.77	0	0	26.362	-6215.3
41293	242.78	0	0	26.362	-6215.3
41294	242.84	0	0	26.362	-6215.3
41295	242.74	0	0	26.362	-6215.3
41296	242.82	0	0	26.362	-6215.3
41297	242.83	0	0	26.362	-6215.3
41298	242.81	0	0	26.362	-6215.3
41299	242.81	0	0	26.362	-6215.3
41300	242.86	0	0	26.362	-6215.3
41301	243.01	0	0	26.362	-6215.3
41302	242.88	0	0	26.362	-6215.3
41303	242.8	0	0	26.362	-6215.3
41304	242.81	0	0	26.362	-6215.3
41305	242.8	0	0	26.362	-6215.3
41306	242.86	0	0	26.362	-6215.3
41307	242.84	0	0	26.362	-6215.3
41308	242.87	0	0	26.362	-6215.3
41309	242.8	0	0	26.362	-6215.3
41310	242.75	0	0	26.362	-6215.3
41311	242.9	0	0	26.362	-6215.3

41312	242.94	0	0	26.362	-6215.3
41313	242.93	0	0	26.362	-6215.3
41314	242.78	0	0	26.362	-6215.3
41315	242.81	0	0	26.362	-6215.3
41316	242.86	0	0	26.362	-6215.3
41317	242.79	0	0	26.362	-6215.3
41318	242.88	0	0	26.362	-6215.3
41319	242.84	0	0	26.362	-6215.3
41320	242.87	0	0	26.362	-6215.3
41321	242.88	0	0	26.362	-6215.3
41322	242.89	0	0	26.362	-6215.3
41323	243	0	0	26.362	-6215.3
41324	242.99	0	0	26.362	-6215.3
41325	242.86	0	0	26.362	-6215.3
41326	242.99	0	0	26.362	-6215.3
41327	242.96	0	0	26.362	-6215.3
41328	242.97	0	0	26.362	-6215.3
41329	242.82	0	0	26.362	-6215.3
41330	242.96	0	0	26.362	-6215.3
41331	242.88	0	0	26.362	-6215.3
41332	243.04	0	0	26.362	-6215.3
41333	242.87	0	0	26.362	-6215.3
41334	242.87	0	0	26.362	-6215.3
41335	242.92	0	0	26.362	-6215.3
41336	242.86	0	0	26.362	-6215.3
41337	242.88	0	0	26.362	-6215.3
41338	242.9	0	0	26.362	-6215.3
41339	242.86	0	0	26.362	-6215.3
41340	242.84	0	0	26.362	-6215.3
41341	242.91	0	0	26.362	-6215.3
41342	243.28	0	0	26.362	-6215.3
41343	243.22	0	0	26.362	-6215.3
41344	243.21	0	0	26.362	-6215.3
41345	243.28	0	0	26.362	-6215.3
41346	243.29	0	0	26.362	-6215.3
41347	243.24	0	0	26.362	-6215.3
41348	243.26	0	0	26.362	-6215.3
41349	243.33	0	0	26.362	-6215.3
41350	243.34	0	0	26.362	-6215.3
41351	243.27	0	0	26.362	-6215.3
41352	243.23	0	0	26.362	-6215.3
41353	243.27	0	0	26.362	-6215.3
41354	243.15	0	0	26.362	-6215.3
41355	243.28	0	0	26.362	-6215.3
41356	242.47	0	0	26.362	-6215.3
41357	243.14	0	0	26.362	-6215.3
41358	243.23	0	0	26.362	-6215.3

41359	243.05	0	0	26.362	-6215.3
41360	243.07	0	0	26.362	-6215.3
41361	243.05	0	0	26.362	-6215.3
41362	243.04	0	0	26.362	-6215.3
41363	243.07	0	0	26.362	-6215.3
41364	243.15	0	0	26.362	-6215.3
41365	243.11	0	0	26.362	-6215.3
41366	243.1	0	0	26.362	-6215.3
41367	243.11	0	0	26.362	-6215.3
41368	243.13	0	0	26.362	-6215.3
41369	243.03	0	0	26.362	-6215.3
41370	243.08	0	0	26.362	-6215.3
41371	243.06	0	0	26.362	-6215.3
41372	243.14	0	0	26.362	-6215.3
41373	243.15	0	0	26.362	-6215.3
41374	243.05	0	0	26.362	-6215.3
41375	243.12	0	0	26.362	-6215.3
41376	243	0	0	26.362	-6215.3
41377	243.06	0	0	26.362	-6215.3
41378	243.12	0	0	26.362	-6215.3
41379	243.08	0	0	26.362	-6215.3
41380	243.03	0	0	26.362	-6215.3
41381	243.04	0	0	26.362	-6215.3
41382	243.16	0	0	26.362	-6215.3
41383	243.01	0	0	26.362	-6215.3
41384	243.2	0	0	26.362	-6215.3
41385	243.16	0	0	26.362	-6215.3
41386	243.05	0	0	26.362	-6215.3
41387	243.11	0	0	26.362	-6215.3
41388	243.04	0	0	26.362	-6215.3
41389	243.02	0	0	26.362	-6215.3
41390	243.07	0	0	26.362	-6215.3
41391	243.02	0	0	26.362	-6215.3
41392	242.97	0	0	26.362	-6215.3
41393	243.11	0	0	26.362	-6215.3
41394	243.2	0	0	26.362	-6215.3
41395	243.08	0	0	26.362	-6215.3
41396	242.96	0	0	26.362	-6215.3
41397	243.1	0	0	26.362	-6215.3
41398	243.05	0	0	26.362	-6215.3
41399	243.14	0	0	26.362	-6215.3
41400	243.14	0	0	26.362	-6215.3
41401	243.14	0	0	26.362	-6215.3
41402	243.14	0	0	26.362	-6215.3
41403	243.19	0	0	26.362	-6215.3
41404	243.14	0	0	26.362	-6215.3
41405	243.17	0	0	26.362	-6215.3

41406	243.22	0	0	26.362	-6215.3
41407	243.23	0	0	26.362	-6215.3
41408	243.16	0	0	26.362	-6215.3
41409	243.13	0	0	26.362	-6215.3
41410	243.21	0	0	26.362	-6215.3
41411	243.27	0	0	26.362	-6215.3
41412	243.28	0	0	26.362	-6215.3
41413	243.31	0	0	26.362	-6215.3
41414	243.29	0	0	26.362	-6215.3
41415	243.12	0	0	26.362	-6215.3
41416	243.18	0	0	26.362	-6215.3
41417	243.29	0	0	26.362	-6215.3
41418	243.2	0	0	26.362	-6215.3
41419	243.16	0	0	26.362	-6215.3
41420	243.1	0	0	26.362	-6215.3
41421	243.08	0	0	26.362	-6215.3
41422	243.13	0	0	26.362	-6215.3
41423	243.18	0	0	26.362	-6215.3
41424	243.15	0	0	26.362	-6215.3
41425	243.23	0	0	26.362	-6215.3
41426	243.11	0	0	26.362	-6215.3
41427	243.27	0	0	26.362	-6215.3
41428	243.32	0	0	26.362	-6215.3
41429	243.33	0	0	26.362	-6215.3
41430	243.38	0	0	26.362	-6215.3
41431	243.28	0	0	26.362	-6215.3
41432	243.22	0	0	26.362	-6215.3
41433	243.35	0	0	26.362	-6215.3
41434	243.52	0	0	26.362	-6215.3
41435	243.68	0	0	26.362	-6215.3
41436	243.6	0	0	26.362	-6215.3
41437	243.6	0	0	26.362	-6215.3
41438	243.64	0	0	26.362	-6215.3
41439	243.62	0	0	26.362	-6215.3
41440	243.57	0	0	26.362	-6215.3
41441	243.59	0	0	26.362	-6215.3
41442	243.6	0	0	26.362	-6215.3
41443	243.6	0	0	26.362	-6215.3
41444	243.59	0	0	26.362	-6215.3
41445	243.48	0	0	26.362	-6215.3
41446	243.56	0	0	26.362	-6215.3
41447	243.59	0	0	26.362	-6215.3
41448	243.6	0	0	26.362	-6215.3
41449	243.53	0	0	26.362	-6215.3
41450	243.56	0	0	26.362	-6215.3
41451	243.6	0	0	26.362	-6215.3
41452	243.56	0	0	26.362	-6215.3

41453	243.57	0	0	26.362	-6215.3
41454	243.6	0	0	26.362	-6215.3
41455	243.64	0	0	26.362	-6215.3
41456	243.6	0	0	26.362	-6215.3
41457	243.63	0	0	26.362	-6215.3
41458	243.62	0	0	26.362	-6215.3
41459	243.64	0	0	26.362	-6215.3
41460	243.66	0	0	26.362	-6215.3
41461	243.65	0	0	26.362	-6215.3
41462	243.66	0	0	26.362	-6215.3
41463	243.66	0	0	26.362	-6215.3
41464	243.6	0	0	26.362	-6215.3
41465	243.6	0	0	26.362	-6215.3
41466	243.62	0	0	26.362	-6215.3
41467	243.62	0	0	26.362	-6215.3
41468	243.53	0	0	26.362	-6215.3
41469	243.63	0	0	26.362	-6215.3
41470	243.64	0	0	26.362	-6215.3
41471	243.56	0	0	26.362	-6215.3
41472	243.55	0	0	26.362	-6215.3
41473	243.51	0	0	26.362	-6215.3
41474	243.58	0	0	26.362	-6215.3
41475	243.54	0	0	26.362	-6215.3
41476	243.55	0	0	26.362	-6215.3
41477	243.54	0	0	26.362	-6215.3
41478	243.57	0	0	26.362	-6215.3
41479	243.56	0	0	26.362	-6215.3
41480	243.53	0	0	26.362	-6215.3
41481	243.55	0	0	26.362	-6215.3
41482	243.54	0	0	26.362	-6215.3
41483	243.5	0	0	26.362	-6215.3
41484	243.55	0	0	26.362	-6215.3
41485	243.53	0	0	26.362	-6215.3
41486	243.44	0	0	26.362	-6215.3
41487	243.5	0	0	26.362	-6215.3
41488	243.51	0	0	26.362	-6215.3
41489	243.53	0	0	26.362	-6215.3
41490	243.52	0	0	26.362	-6215.3
41491	243.53	0	0	26.362	-6215.3
41492	243.55	0	0	26.362	-6215.3
41493	243.53	0	0	26.362	-6215.3
41494	243.53	0	0	26.362	-6215.3
41495	243.5	0	0	26.362	-6215.3
41496	243.51	0	0	26.362	-6215.3
41497	243.5	0	0	26.362	-6215.3
41498	243.53	0	0	26.362	-6215.3
41499	243.5	0	0	26.362	-6215.3

41500	243.48	0	0	26.362	-6215.3
41501	243.48	0	0	26.362	-6215.3
41502	243.47	0	0	26.362	-6215.3
41503	243.48	0	0	26.362	-6215.3
41504	243.52	0	0	26.362	-6215.3
41505	243.46	0	0	26.362	-6215.3
41506	243.43	0	0	26.362	-6215.3
41507	243.45	0	0	26.362	-6215.3
41508	243.44	0	0	26.362	-6215.3
41509	243.46	0	0	26.362	-6215.3
41510	243.45	0	0	26.362	-6215.3
41511	243.4	0	0	26.362	-6215.3
41512	243.46	0	0	26.362	-6215.3
41513	243.51	0	0	26.362	-6215.3
41514	243.43	0	0	26.362	-6215.3
41515	243.47	0	0	26.362	-6215.3
41516	243.46	0	0	26.362	-6215.3
41517	243.43	0	0	26.362	-6215.3
41518	243.39	0	0	26.362	-6215.3
41519	243.41	0	0	26.362	-6215.3
41520	243.38	0	0	26.362	-6215.3
41521	243.38	0	0	26.362	-6215.3
41522	243.31	0	0	26.362	-6215.3
41523	243.4	0	0	26.362	-6215.3
41524	243.4	0	0	26.362	-6215.3
41525	243.32	0	0	26.362	-6215.3
41526	243.28	0	0	26.362	-6215.3
41527	243.33	0	0	26.362	-6215.3
41528	243.34	0	0	26.362	-6215.3
41529	243.31	0	0	26.362	-6215.3
41530	243.31	0	0	26.362	-6215.3
41531	243.34	0	0	26.362	-6215.3
41532	243.34	0	0	26.362	-6215.3
41533	243.33	0	0	26.362	-6215.3
41534	243.37	0	0	26.362	-6215.3
41535	243.37	0	0	26.362	-6215.3
41536	243.34	0	0	26.362	-6215.3
41537	243.36	0	0	26.362	-6215.3
41538	243.4	0	0	26.362	-6215.3
41539	243.38	0	0	26.362	-6215.3
41540	243.42	0	0	26.362	-6215.3
41541	243.36	0	0	26.362	-6215.3
41542	243.39	0	0	26.362	-6215.3
41543	243.42	0	0	26.362	-6215.3
41544	243.39	0	0	26.362	-6215.3
41545	243.44	0	0	26.362	-6215.3
41546	243.39	0	0	26.362	-6215.3

41547	243.39	0	0	26.362	-6215.3
41548	243.38	0	0	26.362	-6215.3
41549	243.36	0	0	26.362	-6215.3
41550	243.38	0	0	26.362	-6215.3
41551	243.41	0	0	26.362	-6215.3
41552	243.42	0	0	26.362	-6215.3
41553	243.4	0	0	26.362	-6215.3
41554	243.41	0	0	26.362	-6215.3
41555	243.41	0	0	26.362	-6215.3
41556	243.42	0	0	26.362	-6215.3
41557	243.39	0	0	26.362	-6215.3
41558	243.49	0	0	26.362	-6215.3
41559	243.49	0	0	26.362	-6215.3
41560	243.56	0	0	26.362	-6215.3
41561	243.53	0	0	26.362	-6215.3
41562	243.51	0	0	26.362	-6215.3
41563	243.55	0	0	26.362	-6215.3
41564	243.57	0	0	26.362	-6215.3
41565	243.57	0	0	26.362	-6215.3
41566	243.59	0	0	26.362	-6215.3
41567	243.49	0	0	26.362	-6215.3
41568	243.54	0	0	26.362	-6215.3
41569	243.6	0	0	26.362	-6215.3
41570	243.58	0	0	26.362	-6215.3
41571	243.63	0	0	26.362	-6215.3
41572	243.63	0	0	26.362	-6215.3
41573	243.61	0	0	26.362	-6215.3
41574	243.64	0	0	26.362	-6215.3
41575	243.63	0	0	26.362	-6215.3
41576	243.64	0	0	26.362	-6215.3
41577	243.65	0	0	26.362	-6215.3
41578	243.66	0	0	26.362	-6215.3
41579	243.66	0	0	26.362	-6215.3
41580	243.62	0	0	26.362	-6215.3
41581	243.65	0	0	26.362	-6215.3
41582	243.63	0	0	26.362	-6215.3
41583	243.62	0	0	26.362	-6215.3
41584	243.71	0	0	26.362	-6215.3
41585	243.63	0	0	26.362	-6215.3
41586	243.67	0	0	26.362	-6215.3
41587	243.69	0	0	26.362	-6215.3
41588	243.66	0	0	26.362	-6215.3
41589	243.69	0	0	26.362	-6215.3
41590	243.71	0	0	26.362	-6215.3
41591	243.67	0	0	26.362	-6215.3
41592	243.74	0	0	26.362	-6215.3
41593	243.81	0	0	26.362	-6215.3

41594	243.82	0	0	26.362	-6215.3
41595	243.78	0	0	26.362	-6215.3
41596	243.76	0	0	26.362	-6215.3
41597	243.76	0	0	26.362	-6215.3
41598	243.76	0	0	26.362	-6215.3
41599	243.78	0	0	26.362	-6215.3
41600	243.74	0	0	26.362	-6215.3
41601	243.78	0	0	26.362	-6215.3
41602	243.72	0	0	26.362	-6215.3
41603	243.71	0	0	26.362	-6215.3
41604	243.72	0	0	26.362	-6215.3
41605	243.72	0	0	26.362	-6215.3
41606	243.67	0	0	26.362	-6215.3
41607	243.7	0	0	26.362	-6215.3
41608	243.7	0	0	26.362	-6215.3
41609	243.64	0	0	26.362	-6215.3
41610	243.67	0	0	26.362	-6215.3
41611	243.68	0	0	26.362	-6215.3
41612	243.28	0	0	26.362	-6215.3
41613	243.61	0	0	26.362	-6215.3
41614	243.61	0	0	26.362	-6215.3
41615	243.63	0	0	26.362	-6215.3
41616	243.64	0	0	26.362	-6215.3
41617	243.68	0	0	26.362	-6215.3
41618	243.66	0	0	26.362	-6215.3
41619	243.68	0	0	26.362	-6215.3
41620	243.64	0	0	26.362	-6215.3
41621	243.59	0	0	26.362	-6215.3
41622	243.58	0	0	26.362	-6215.3
41623	243.6	0	0	26.362	-6215.3
41624	243.58	0	0	26.362	-6215.3
41625	243.61	0	0	26.362	-6215.3
41626	243.61	0	0	26.362	-6215.3
41627	243.63	0	0	26.362	-6215.3
41628	243.63	0	0	26.362	-6215.3
41629	243.53	0	0	26.362	-6215.3
41630	243.53	0	0	26.362	-6215.3
41631	243.56	0	0	26.362	-6215.3
41632	243.57	0	0	26.362	-6215.3
41633	243.58	0	0	26.362	-6215.3
41634	243.62	0	0	26.362	-6215.3
41635	243.61	0	0	26.362	-6215.3
41636	243.66	0	0	26.362	-6215.3
41637	243.63	0	0	26.362	-6215.3
41638	243.63	0	0	26.362	-6215.3
41639	243.62	0	0	26.362	-6215.3
41640	243.68	0	0	26.362	-6215.3

41641	243.73	0	0	26.362	-6215.3
41642	243.71	0	0	26.362	-6215.3
41643	243.72	0	0	26.362	-6215.3
41644	243.62	0	0	26.362	-6215.3
41645	243.61	0	0	26.362	-6215.3
41646	243.65	0	0	26.362	-6215.3
41647	243.65	0	0	26.362	-6215.3
41648	243.61	0	0	26.362	-6215.3
41649	243.72	0	0	26.362	-6215.3
41650	243.74	0	0	26.362	-6215.3
41651	243.73	0	0	26.362	-6215.3
41652	243.67	0	0	26.362	-6215.3
41653	243.6	0	0	26.362	-6215.3
41654	243.64	0	0	26.362	-6215.3
41655	243.59	0	0	26.362	-6215.3
41656	243.65	0	0	26.362	-6215.3
41657	243.66	0	0	26.362	-6215.3
41658	243.71	0	0	26.362	-6215.3
41659	243.7	0	0	26.362	-6215.3
41660	243.7	0	0	26.362	-6215.3
41661	243.64	0	0	26.362	-6215.3
41662	243.68	0	0	26.362	-6215.3
41663	243.7	0	0	26.362	-6215.3
41664	243.78	0	0	26.362	-6215.3
41665	243.7	0	0	26.362	-6215.3
41666	243.75	0	0	26.362	-6215.3
41667	243.7	0	0	26.362	-6215.3
41668	243.69	0	0	26.362	-6215.3
41669	243.65	0	0	26.362	-6215.3
41670	243.67	0	0	26.362	-6215.3
41671	243.71	0	0	26.362	-6215.3
41672	243.68	0	0	26.362	-6215.3
41673	243.66	0	0	26.362	-6215.3
41674	243.6	0	0	26.362	-6215.3
41675	243.69	0	0	26.362	-6215.3
41676	243.71	0	0	26.362	-6215.3
41677	243.69	0	0	26.362	-6215.3
41678	243.74	0	0	26.362	-6215.3
41679	243.66	0	0	26.362	-6215.3
41680	243.61	0	0	26.362	-6215.3
41681	243.62	0	0	26.362	-6215.3
41682	243.59	0	0	26.362	-6215.3
41683	243.58	0	0	26.362	-6215.3
41684	243.51	0	0	26.362	-6215.3
41685	243.58	0	0	26.362	-6215.3
41686	243.59	0	0	26.362	-6215.3
41687	243.59	0	0	26.362	-6215.3

41688	243.47	0	0	26.362	-6215.3
41689	243.51	0	0	26.362	-6215.3
41690	243.55	0	0	26.362	-6215.3
41691	243.46	0	0	26.362	-6215.3
41692	243.53	0	0	26.362	-6215.3
41693	243.46	0	0	26.362	-6215.3
41694	243.63	0	0	26.362	-6215.3
41695	243.5	0	0	26.362	-6215.3
41696	243.5	0	0	26.362	-6215.3
41697	243.5	0	0	26.362	-6215.3
41698	243.46	0	0	26.362	-6215.3
41699	243.53	0	0	26.362	-6215.3
41700	243.49	0	0	26.362	-6215.3
41701	243.53	0	0	26.362	-6215.3
41702	243.51	0	0	26.362	-6215.3
41703	243.52	0	0	26.362	-6215.3
41704	243.53	0	0	26.362	-6215.3
41705	243.54	0	0	26.362	-6215.3
41706	243.48	0	0	26.362	-6215.3
41707	243.52	0	0	26.362	-6215.3
41708	243.49	0	0	26.362	-6215.3
41709	243.54	0	0	26.362	-6215.3
41710	243.46	0	0	26.362	-6215.3
41711	243.52	0	0	26.362	-6215.3
41712	243.51	0	0	26.362	-6215.3
41713	243.44	0	0	26.362	-6215.3
41714	243.52	0	0	26.362	-6215.3
41715	243.49	0	0	26.362	-6215.3
41716	243.5	0	0	26.362	-6215.3
41717	243.58	0	0	26.362	-6215.3
41718	243.57	0	0	26.362	-6215.3
41719	243.54	0	0	26.362	-6215.3
41720	243.55	0	0	26.362	-6215.3
41721	243.54	0	0	26.362	-6215.3
41722	243.53	0	0	26.362	-6215.3
41723	243.64	0	0	26.362	-6215.3
41724	243.6	0	0	26.362	-6215.3
41725	243.48	0	0	26.362	-6215.3
41726	243.51	0	0	26.362	-6215.3
41727	243.55	0	0	26.362	-6215.3
41728	243.61	0	0	26.362	-6215.3
41729	243.63	0	0	26.362	-6215.3
41730	243.63	0	0	26.362	-6215.3
41731	243.62	0	0	26.362	-6215.3
41732	243.61	0	0	26.362	-6215.3
41733	243.62	0	0	26.362	-6215.3
41734	243.64	0	0	26.362	-6215.3

41735	243.66	0	0	26.362	-6215.3
41736	243.61	0	0	26.362	-6215.3
41737	243.57	0	0	26.362	-6215.3
41738	243.6	0	0	26.362	-6215.3
41739	243.62	0	0	26.362	-6215.3
41740	243.64	0	0	26.362	-6215.3
41741	243.6	0	0	26.362	-6215.3
41742	243.51	0	0	26.362	-6215.3
41743	243.57	0	0	26.362	-6215.3
41744	243.53	0	0	26.362	-6215.3
41745	243.6	0	0	26.362	-6215.3
41746	243.57	0	0	26.362	-6215.3
41747	243.54	0	0	26.362	-6215.3
41748	243.55	0	0	26.362	-6215.3
41749	243.58	0	0	26.362	-6215.3
41750	243.49	0	0	26.362	-6215.3
41751	243.49	0	0	26.362	-6215.3
41752	243.57	0	0	26.362	-6215.3
41753	243.53	0	0	26.362	-6215.3
41754	243.59	0	0	26.362	-6215.3
41755	243.6	0	0	26.362	-6215.3
41756	243.51	0	0	26.362	-6215.3
41757	243.6	0	0	26.362	-6215.3
41758	243.52	0	0	26.362	-6215.3
41759	243.51	0	0	26.362	-6215.3
41760	243.57	0	0	26.362	-6215.3
41761	243.57	0	0	26.362	-6215.3
41762	243.54	0	0	26.362	-6215.3
41763	243.53	0	0	26.362	-6215.3
41764	243.57	0	0	26.362	-6215.3
41765	243.52	0	0	26.362	-6215.3
41766	243.49	0	0	26.362	-6215.3
41767	243.54	0	0	26.362	-6215.3
41768	243.51	0	0	26.362	-6215.3
41769	243.47	0	0	26.362	-6215.3
41770	243.49	0	0	26.362	-6215.3
41771	243.54	0	0	26.362	-6215.3
41772	243.51	0	0	26.362	-6215.3
41773	242.77	0	0	26.362	-6215.3
41774	243.13	0	0	26.362	-6215.3
41775	243.41	0	0	26.362	-6215.3
41776	243.47	0	0	26.362	-6215.3
41777	243.43	0	0	26.362	-6215.3
41778	243.45	0	0	26.362	-6215.3
41779	243.45	0	0	26.362	-6215.3
41780	243.38	0	0	26.362	-6215.3
41781	243.45	0	0	26.362	-6215.3

41782	243.44	0	0	26.362	-6215.3
41783	243.43	0	0	26.362	-6215.3
41784	243.42	0	0	26.362	-6215.3
41785	243.41	0	0	26.362	-6215.3
41786	243.41	0	0	26.362	-6215.3
41787	243.42	0	0	26.362	-6215.3
41788	243.43	0	0	26.362	-6215.3
41789	243.38	0	0	26.362	-6215.3
41790	243.4	0	0	26.362	-6215.3
41791	243.42	0	0	26.362	-6215.3
41792	243.46	0	0	26.362	-6215.3
41793	243.46	0	0	26.362	-6215.3
41794	243.48	0	0	26.362	-6215.3
41795	243.36	0	0	26.362	-6215.3
41796	243.43	0	0	26.362	-6215.3
41797	243.42	0	0	26.362	-6215.3
41798	243.41	0	0	26.362	-6215.3
41799	243.43	0	0	26.362	-6215.3
41800	243.39	0	0	26.362	-6215.3
41801	243.38	0	0	26.362	-6215.3
41802	242.84	0	0	26.362	-6215.3
41803	242.88	0	0	26.362	-6215.3
41804	242.8	0	0	26.362	-6215.3
41805	242.87	0	0	26.362	-6215.3
41806	242.87	0	0	26.362	-6215.3
41807	242.88	0	0	26.362	-6215.3
41808	242.88	0	0	26.362	-6215.3
41809	242.83	0	0	26.362	-6215.3
41810	242.83	0	0	26.362	-6215.3
41811	242.87	0	0	26.362	-6215.3
41812	242.89	0	0	26.362	-6215.3
41813	242.88	0	0	26.362	-6215.3
41814	242.88	0	0	26.362	-6215.3
41815	242.95	0	0	26.362	-6215.3
41816	242.96	0	0	26.362	-6215.3
41817	242.93	0	0	26.362	-6215.3
41818	243.05	0	0	26.362	-6215.3
41819	243.01	0	0	26.362	-6215.3
41820	243.01	0	0	26.362	-6215.3
41821	243.03	0	0	26.362	-6215.3
41822	243.07	0	0	26.362	-6215.3
41823	243.09	0	0	26.362	-6215.3
41824	243.12	0	0	26.362	-6215.3
41825	243.14	0	0	26.362	-6215.3
41826	243.09	0	0	26.362	-6215.3
41827	243.1	0	0	26.362	-6215.3
41828	243.1	0	0	26.362	-6215.3

41829	243.15	0	0	26.362	-6215.3
41830	243.1	0	0	26.362	-6215.3
41831	243.13	0	0	26.362	-6215.3
41832	243.13	0	0	26.362	-6215.3
41833	243.07	0	0	26.362	-6215.3
41834	243.07	0	0	26.362	-6215.3
41835	243.05	0	0	26.362	-6215.3
41836	243.07	0	0	26.362	-6215.3
41837	243.04	0	0	26.362	-6215.3
41838	243.04	0	0	26.362	-6215.3
41839	243.07	0	0	26.362	-6215.3
41840	243.06	0	0	26.362	-6215.3
41841	243.06	0	0	26.362	-6215.3
41842	243.01	0	0	26.362	-6215.3
41843	243.04	0	0	26.362	-6215.3
41844	243.11	0	0	26.362	-6215.3
41845	243.13	0	0	26.362	-6215.3
41846	243.17	0	0	26.362	-6215.3
41847	243.12	0	0	26.362	-6215.3
41848	243.16	0	0	26.362	-6215.3
41849	243.18	0	0	26.362	-6215.3
41850	243.17	0	0	26.362	-6215.3
41851	243.11	0	0	26.362	-6215.3
41852	243.12	0	0	26.362	-6215.3
41853	243.14	0	0	26.362	-6215.3
41854	243.05	0	0	26.362	-6215.3
41855	243.05	0	0	26.362	-6215.3
41856	243.06	0	0	26.362	-6215.3
41857	243.02	0	0	26.362	-6215.3
41858	242.92	0	0	26.362	-6215.3
41859	243.01	0	0	26.362	-6215.3
41860	242.94	0	0	26.362	-6215.3
41861	242.95	0	0	26.362	-6215.3
41862	243	0	0	26.362	-6215.3
41863	243	0	0	26.362	-6215.3
41864	243.05	0	0	26.362	-6215.3
41865	243.03	0	0	26.362	-6215.3
41866	242.99	0	0	26.362	-6215.3
41867	242.96	0	0	26.362	-6215.3
41868	243.02	0	0	26.362	-6215.3
41869	243.01	0	0	26.362	-6215.3
41870	243	0	0	26.362	-6215.3
41871	242.98	0	0	26.362	-6215.3
41872	242.99	0	0	26.362	-6215.3
41873	242.97	0	0	26.362	-6215.3
41874	242.95	0	0	26.362	-6215.3
41875	242.91	0	0	26.362	-6215.3

41876	243	0	0	26.362	-6215.3
41877	242.92	0	0	26.362	-6215.3
41878	243	0	0	26.362	-6215.3
41879	242.96	0	0	26.362	-6215.3
41880	242.94	0	0	26.362	-6215.3
41881	242.97	0	0	26.362	-6215.3
41882	243	0	0	26.362	-6215.3
41883	242.97	0	0	26.362	-6215.3
41884	243.03	0	0	26.362	-6215.3
41885	243.02	0	0	26.362	-6215.3
41886	243	0	0	26.362	-6215.3
41887	242.99	0	0	26.362	-6215.3
41888	243	0	0	26.362	-6215.3
41889	243.06	0	0	26.362	-6215.3
41890	242.99	0	0	26.362	-6215.3
41891	243.03	0	0	26.362	-6215.3
41892	243.01	0	0	26.362	-6215.3
41893	243	0	0	26.362	-6215.3
41894	243	0	0	26.362	-6215.3
41895	242.96	0	0	26.362	-6215.3
41896	243.01	0	0	26.362	-6215.3
41897	243.07	0	0	26.362	-6215.3
41898	243.04	0	0	26.362	-6215.3
41899	243.02	0	0	26.362	-6215.3
41900	243.05	0	0	26.362	-6215.3
41901	243.12	0	0	26.362	-6215.3
41902	243.09	0	0	26.362	-6215.3
41903	243.07	0	0	26.362	-6215.3
41904	243.08	0	0	26.362	-6215.3
41905	243.03	0	0	26.362	-6215.3
41906	243.1	0	0	26.362	-6215.3
41907	243.12	0	0	26.362	-6215.3
41908	243.14	0	0	26.362	-6215.3
41909	243.1	0	0	26.362	-6215.3
41910	243.13	0	0	26.362	-6215.3
41911	243.1	0	0	26.362	-6215.3
41912	243.16	0	0	26.362	-6215.3
41913	243.11	0	0	26.362	-6215.3
41914	243.15	0	0	26.362	-6215.3
41915	243.18	0	0	26.362	-6215.3
41916	243.18	0	0	26.362	-6215.3
41917	243.13	0	0	26.362	-6215.3
41918	243.2	0	0	26.362	-6215.3
41919	243.18	0	0	26.362	-6215.3
41920	243.17	0	0	26.362	-6215.3
41921	243.15	0	0	26.362	-6215.3
41922	243.17	0	0	26.362	-6215.3

41923	243.14	0	0	26.362	-6215.3
41924	243.16	0	0	26.362	-6215.3
41925	243.16	0	0	26.362	-6215.3
41926	243.15	0	0	26.362	-6215.3
41927	243.21	0	0	26.362	-6215.3
41928	243.22	0	0	26.362	-6215.3
41929	243.2	0	0	26.362	-6215.3
41930	243.24	0	0	26.362	-6215.3
41931	243.2	0	0	26.362	-6215.3
41932	243.22	0	0	26.362	-6215.3
41933	243.22	0	0	26.362	-6215.3
41934	243.18	0	0	26.362	-6215.3
41935	243.22	0	0	26.362	-6215.3
41936	243.26	0	0	26.362	-6215.3
41937	243.21	0	0	26.362	-6215.3
41938	243.19	0	0	26.362	-6215.3
41939	243.2	0	0	26.362	-6215.3
41940	243.16	0	0	26.362	-6215.3
41941	243.17	0	0	26.362	-6215.3
41942	243.15	0	0	26.362	-6215.3
41943	243.14	0	0	26.362	-6215.3
41944	243.16	0	0	26.362	-6215.3
41945	243.2	0	0	26.362	-6215.3
41946	243.12	0	0	26.362	-6215.3
41947	243.18	0	0	26.362	-6215.3
41948	243.18	0	0	26.362	-6215.3
41949	243.21	0	0	26.362	-6215.3
41950	243.21	0	0	26.362	-6215.3
41951	243.16	0	0	26.362	-6215.3
41952	243.24	0	0	26.362	-6215.3
41953	243.23	0	0	26.362	-6215.3
41954	243.27	0	0	26.362	-6215.3
41955	243.23	0	0	26.362	-6215.3
41956	243.22	0	0	26.362	-6215.3
41957	243.18	0	0	26.362	-6215.3
41958	243.16	0	0	26.362	-6215.3
41959	243.21	0	0	26.362	-6215.3
41960	243.22	0	0	26.362	-6215.3
41961	243.18	0	0	26.362	-6215.3
41962	243.17	0	0	26.362	-6215.3
41963	243.18	0	0	26.362	-6215.3
41964	243.15	0	0	26.362	-6215.3
41965	243.14	0	0	26.362	-6215.3
41966	243.17	0	0	26.362	-6215.3
41967	243.14	0	0	26.362	-6215.3
41968	243.13	0	0	26.362	-6215.3
41969	243.21	0	0	26.362	-6215.3

41970	243.19	0	0	26.362	-6215.3
41971	243.26	0	0	26.362	-6215.3
41972	243.2	0	0	26.362	-6215.3
41973	243.27	0	0	26.362	-6215.3
41974	243.21	0	0	26.362	-6215.3
41975	243.24	0	0	26.362	-6215.3
41976	243.25	0	0	26.362	-6215.3
41977	243.27	0	0	26.362	-6215.3
41978	243.3	0	0	26.362	-6215.3
41979	243.24	0	0	26.362	-6215.3
41980	243.28	0	0	26.362	-6215.3
41981	243.25	0	0	26.362	-6215.3
41982	243.28	0	0	26.362	-6215.3
41983	243.26	0	0	26.362	-6215.3
41984	243.28	0	0	26.362	-6215.3
41985	243.28	0	0	26.362	-6215.3
41986	243.27	0	0	26.362	-6215.3
41987	243.22	0	0	26.362	-6215.3
41988	243.22	0	0	26.362	-6215.3
41989	243.21	0	0	26.362	-6215.3
41990	243.23	0	0	26.362	-6215.3
41991	243.3	0	0	26.362	-6215.3
41992	243.28	0	0	26.362	-6215.3
41993	243.25	0	0	26.362	-6215.3
41994	243.28	0	0	26.362	-6215.3
41995	243.34	0	0	26.362	-6215.3
41996	243.31	0	0	26.362	-6215.3
41997	243.31	0	0	26.362	-6215.3
41998	243.37	0	0	26.362	-6215.3
41999	243.35	0	0	26.362	-6215.3
42000	243.37	0	0	26.362	-6215.3
42001	243.41	0	0	26.362	-6215.3
42002	243.44	0	0	26.362	-6215.3
42003	243.41	0	0	26.362	-6215.3
42004	243.44	0	0	26.362	-6215.3
42005	243.4	0	0	26.362	-6215.3
42006	243.35	0	0	26.362	-6215.3
42007	243.37	0	0	26.362	-6215.3
42008	243.36	0	0	26.362	-6215.3
42009	243.29	0	0	26.362	-6215.3
42010	243.35	0	0	26.362	-6215.3
42011	243.36	0	0	26.362	-6215.3
42012	243.37	0	0	26.362	-6215.3
42013	243.36	0	0	26.362	-6215.3
42014	243.35	0	0	26.362	-6215.3
42015	243.36	0	0	26.362	-6215.3
42016	243.4	0	0	26.362	-6215.3

42017	243.36	0	0	26.362	-6215.3
42018	243.36	0	0	26.362	-6215.3
42019	243.36	0	0	26.362	-6215.3
42020	243.37	0	0	26.362	-6215.3
42021	243.38	0	0	26.362	-6215.3
42022	243.38	0	0	26.362	-6215.3
42023	243.41	0	0	26.362	-6215.3
42024	243.41	0	0	26.362	-6215.3
42025	243.4	0	0	26.362	-6215.3
42026	243.29	0	0	26.362	-6215.3
42027	243.27	0	0	26.362	-6215.3
42028	243.31	0	0	26.362	-6215.3
42029	243.27	0	0	26.362	-6215.3
42030	243.23	0	0	26.362	-6215.3
42031	243.25	0	0	26.362	-6215.3
42032	243.26	0	0	26.362	-6215.3
42033	243.24	0	0	26.362	-6215.3
42034	243.21	0	0	26.362	-6215.3
42035	243.21	0	0	26.362	-6215.3
42036	243.22	0	0	26.362	-6215.3
42037	243.22	0	0	26.362	-6215.3
42038	243.24	0	0	26.362	-6215.3
42039	243.23	0	0	26.362	-6215.3
42040	243.21	0	0	26.362	-6215.3
42041	243.19	0	0	26.362	-6215.3
42042	243.21	0	0	26.362	-6215.3
42043	243.22	0	0	26.362	-6215.3
42044	243.19	0	0	26.362	-6215.3
42045	243.19	0	0	26.362	-6215.3
42046	243.26	0	0	26.362	-6215.3
42047	243.19	0	0	26.362	-6215.3
42048	243.2	0	0	26.362	-6215.3
42049	243.17	0	0	26.362	-6215.3
42050	243.12	0	0	26.362	-6215.3
42051	243.13	0	0	26.362	-6215.3
42052	243.16	0	0	26.362	-6215.3
42053	243.02	0	0	26.362	-6215.3
42054	243.12	0	0	26.362	-6215.3
42055	243.09	0	0	26.362	-6215.3
42056	243.11	0	0	26.362	-6215.3
42057	243.09	0	0	26.362	-6215.3
42058	243.11	0	0	26.362	-6215.3
42059	243.12	0	0	26.362	-6215.3
42060	243.07	0	0	26.362	-6215.3
42061	243.05	0	0	26.362	-6215.3
42062	243.08	0	0	26.362	-6215.3
42063	243.06	0	0	26.362	-6215.3

42064	243.09	0	0	26.362	-6215.3
42065	243.13	0	0	26.362	-6215.3
42066	243.01	0	0	26.362	-6215.3
42067	243.01	0	0	26.362	-6215.3
42068	243.05	0	0	26.362	-6215.3
42069	243.08	0	0	26.362	-6215.3
42070	242.86	0	0	26.362	-6215.3
42071	242.74	0	0	26.362	-6215.3
42072	242.87	0	0	26.362	-6215.3
42073	242.84	0	0	26.362	-6215.3
42074	242.97	0	0	26.362	-6215.3
42075	242.91	0	0	26.362	-6215.3
42076	243.06	0	0	26.362	-6215.3
42077	242.93	0	0	26.362	-6215.3
42078	243.15	0	0	26.362	-6215.3
42079	243.16	0	0	26.362	-6215.3
42080	242.86	0	0	26.362	-6215.3
42081	243.25	0	0	26.362	-6215.3
42082	243.1	0	0	26.362	-6215.3
42083	242.82	0	0	26.362	-6215.3
42084	242.89	0	0	26.362	-6215.3
42085	242.99	0	0	26.362	-6215.3
42086	242.94	0	0	26.362	-6215.3
42087	243.07	0	0	26.362	-6215.3
42088	243.15	0	0	26.362	-6215.3
42089	243.08	0	0	26.362	-6215.3
42090	243.01	0	0	26.362	-6215.3
42091	243.05	0	0	26.362	-6215.3
42092	243.04	0	0	26.362	-6215.3
42093	242.99	0	0	26.362	-6215.3
42094	243.17	0	0	26.362	-6215.3
42095	242.97	0	0	26.362	-6215.3
42096	243.02	0	0	26.362	-6215.3
42097	243.08	0	0	26.362	-6215.3
42098	243.1	0	0	26.362	-6215.3
42099	243.12	0	0	26.362	-6215.3
42100	243.12	0	0	26.362	-6215.3
42101	242.98	0	0	26.362	-6215.3
42102	243.18	0	0	26.362	-6215.3
42103	243.12	0	0	26.362	-6215.3
42104	242.97	0	0	26.362	-6215.3
42105	243.17	0	0	26.362	-6215.3
42106	243.11	0	0	26.362	-6215.3
42107	243.15	0	0	26.362	-6215.3
42108	243.17	0	0	26.362	-6215.3
42109	243.18	0	0	26.362	-6215.3
42110	243.12	0	0	26.362	-6215.3

42111	243.15	0	0	26.362	-6215.3
42112	243.14	0	0	26.362	-6215.3
42113	243.1	0	0	26.362	-6215.3
42114	243.13	0	0	26.362	-6215.3
42115	243.13	0	0	26.362	-6215.3
42116	243.18	0	0	26.362	-6215.3
42117	242.98	0	0	26.362	-6215.3
42118	243.25	0	0	26.362	-6215.3
42119	243.1	0	0	26.362	-6215.3
42120	243.15	0	0	26.362	-6215.3
42121	243.18	0	0	26.362	-6215.3
42122	243.09	0	0	26.362	-6215.3
42123	243.1	0	0	26.362	-6215.3
42124	243.17	0	0	26.362	-6215.3
42125	243.15	0	0	26.362	-6215.3
42126	243.16	0	0	26.362	-6215.3
42127	243.1	0	0	26.362	-6215.3
42128	243.14	0	0	26.362	-6215.3
42129	243.02	0	0	26.362	-6215.3
42130	243.12	0	0	26.362	-6215.3
42131	243.19	0	0	26.362	-6215.3
42132	243.04	0	0	26.362	-6215.3
42133	243.18	0	0	26.362	-6215.3
42134	243.08	0	0	26.362	-6215.3
42135	243.24	0	0	26.362	-6215.3
42136	243.11	0	0	26.362	-6215.3
42137	243.08	0	0	26.362	-6215.3
42138	243.36	0	0	26.362	-6215.3
42139	243.03	0	0	26.362	-6215.3
42140	243.15	0	0	26.362	-6215.3
42141	243.07	0	0	26.362	-6215.3
42142	243.23	0	0	26.362	-6215.3
42143	243.11	0	0	26.362	-6215.3
42144	243.17	0	0	26.362	-6215.3
42145	243.16	0	0	26.362	-6215.3
42146	243.26	0	0	26.362	-6215.3
42147	243.15	0	0	26.362	-6215.3
42148	243.1	0	0	26.362	-6215.3
42149	243.04	0	0	26.362	-6215.3
42150	243.15	0	0	26.362	-6215.3
42151	242.99	0	0	26.362	-6215.3
42152	242.89	0	0	26.362	-6215.3
42153	243.03	0	0	26.362	-6215.3
42154	243.02	0	0	26.362	-6215.3
42155	243.12	0	0	26.362	-6215.3
42156	243.05	0	0	26.362	-6215.3
42157	243.15	0	0	26.362	-6215.3

42158	243.14	0	0	26.362	-6215.3
42159	242.69	0	0	26.362	-6215.3
42160	243.11	0	0	26.362	-6215.3
42161	243.15	0	0	26.362	-6215.3
42162	243.19	0	0	26.362	-6215.3
42163	243.23	0	0	26.362	-6215.3
42164	243.06	0	0	26.362	-6215.3
42165	243.21	0	0	26.362	-6215.3
42166	243.13	0	0	26.362	-6215.3
42167	243	0	0	26.362	-6215.3
42168	243.05	0	0	26.362	-6215.3
42169	243.02	0	0	26.362	-6215.3
42170	243.1	0	0	26.362	-6215.3
42171	243.06	0	0	26.362	-6215.3
42172	243	0	0	26.362	-6215.3
42173	243.11	0	0	26.362	-6215.3
42174	243.07	0	0	26.362	-6215.3
42175	243.12	0	0	26.362	-6215.3
42176	243.14	0	0	26.362	-6215.3
42177	243.19	0	0	26.362	-6215.3
42178	243.02	0	0	26.362	-6215.3
42179	242.86	0	0	26.362	-6215.3
42180	243.12	0	0	26.362	-6215.3
42181	243.07	0	0	26.362	-6215.3
42182	243	0	0	26.362	-6215.3
42183	242.41	0	0	26.362	-6215.3
42184	242.83	0	0	26.362	-6215.3
42185	242.98	0	0	26.362	-6215.3
42186	242.99	0	0	26.362	-6215.3
42187	243.02	0	0	26.362	-6215.3
42188	243.04	0	0	26.362	-6215.3
42189	243.04	0	0	26.362	-6215.3
42190	243.02	0	0	26.362	-6215.3
42191	243.02	0	0	26.362	-6215.3
42192	242.74	0	0	26.362	-6215.3
42193	242.92	0	0	26.362	-6215.3
42194	242.98	0	0	26.362	-6215.3
42195	242.87	0	0	26.362	-6215.3
42196	242.93	0	0	26.362	-6215.3
42197	242.92	0	0	26.362	-6215.3
42198	242.92	0	0	26.362	-6215.3
42199	243.09	0	0	26.362	-6215.3
42200	242.93	0	0	26.362	-6215.3
42201	242.89	0	0	26.362	-6215.3
42202	242.77	0	0	26.362	-6215.3
42203	243.1	0	0	26.362	-6215.3
42204	243.01	0	0	26.362	-6215.3

42205	242.94	0	0	26.362	-6215.3
42206	243.1	0	0	26.362	-6215.3
42207	243.2	0	0	26.362	-6215.3
42208	243.16	0	0	26.362	-6215.3
42209	243.07	0	0	26.362	-6215.3
42210	243.1	0	0	26.362	-6215.3
42211	243.07	0	0	26.362	-6215.3
42212	243.07	0	0	26.362	-6215.3
42213	242.89	0	0	26.362	-6215.3
42214	243.02	0	0	26.362	-6215.3
42215	242.98	0	0	26.362	-6215.3
42216	242.98	0	0	26.362	-6215.3
42217	243	0	0	26.362	-6215.3
42218	242.95	0	0	26.362	-6215.3
42219	242.99	0	0	26.362	-6215.3
42220	243.04	0	0	26.362	-6215.3
42221	242.95	0	0	26.362	-6215.3
42222	242.98	0	0	26.362	-6215.3
42223	242.98	0	0	26.362	-6215.3
42224	242.91	0	0	26.362	-6215.3
42225	242.92	0	0	26.362	-6215.3
42226	242.96	0	0	26.362	-6215.3
42227	243	0	0	26.362	-6215.3
42228	242.83	0	0	26.362	-6215.3
42229	242.94	0	0	26.362	-6215.3
42230	242.92	0	0	26.362	-6215.3
42231	242.91	0	0	26.362	-6215.3
42232	242.86	0	0	26.362	-6215.3
42233	243.01	0	0	26.362	-6215.3
42234	243.07	0	0	26.362	-6215.3
42235	243	0	0	26.362	-6215.3
42236	242.89	0	0	26.362	-6215.3
42237	242.82	0	0	26.362	-6215.3
42238	242.74	0	0	26.362	-6215.3
42239	242.95	0	0	26.362	-6215.3
42240	242.89	0	0	26.362	-6215.3
42241	242.92	0	0	26.362	-6215.3
42242	242.96	0	0	26.362	-6215.3
42243	242.99	0	0	26.362	-6215.3
42244	242.96	0	0	26.362	-6215.3
42245	243.04	0	0	26.362	-6215.3
42246	242.77	0	0	26.362	-6215.3
42247	243.03	0	0	26.362	-6215.3
42248	242.97	0	0	26.362	-6215.3
42249	243.05	0	0	26.362	-6215.3
42250	242.98	0	0	26.362	-6215.3
42251	242.87	0	0	26.362	-6215.3

42252	243.03	0	0	26.362	-6215.3
42253	243.08	0	0	26.362	-6215.3
42254	242.91	0	0	26.362	-6215.3
42255	242.9	0	0	26.362	-6215.3
42256	243	0	0	26.362	-6215.3
42257	243.07	0	0	26.362	-6215.3
42258	242.91	0	0	26.362	-6215.3
42259	242.95	0	0	26.362	-6215.3
42260	243.03	0	0	26.362	-6215.3
42261	243.06	0	0	26.362	-6215.3
42262	243.13	0	0	26.362	-6215.3
42263	243.08	0	0	26.362	-6215.3
42264	243.19	0	0	26.362	-6215.3
42265	243.1	0	0	26.362	-6215.3
42266	243.11	0	0	26.362	-6215.3
42267	243.11	0	0	26.362	-6215.3
42268	243.13	0	0	26.362	-6215.3
42269	243.07	0	0	26.362	-6215.3
42270	243.07	0	0	26.362	-6215.3
42271	243.11	0	0	26.362	-6215.3
42272	243.14	0	0	26.362	-6215.3
42273	242.95	0	0	26.362	-6215.3
42274	243.17	0	0	26.362	-6215.3
42275	243.13	0	0	26.362	-6215.3
42276	243.24	0	0	26.362	-6215.3
42277	243.11	0	0	26.362	-6215.3
42278	243.17	0	0	26.362	-6215.3
42279	243.1	0	0	26.362	-6215.3
42280	243.08	0	0	26.362	-6215.3
42281	242.93	0	0	26.362	-6215.3
42282	242.78	0	0	26.362	-6215.3
42283	243.23	0	0	26.362	-6215.3
42284	243.2	0	0	26.362	-6215.3
42285	242.94	0	0	26.362	-6215.3
42286	243.08	0	0	26.362	-6215.3
42287	243.14	0	0	26.362	-6215.3
42288	243.16	0	0	26.362	-6215.3
42289	242.83	0	0	26.362	-6215.3
42290	243.17	0	0	26.362	-6215.3
42291	243.14	0	0	26.362	-6215.3
42292	243.15	0	0	26.362	-6215.3
42293	242.95	0	0	26.362	-6215.3
42294	242.88	0	0	26.362	-6215.3
42295	243.29	0	0	26.362	-6215.3
42296	243	0	0	26.362	-6215.3
42297	243.21	0	0	26.362	-6215.3
42298	243.09	0	0	26.362	-6215.3

42299	243.11	0	0	26.362	-6215.3
42300	243.07	0	0	26.362	-6215.3
42301	242.99	0	0	26.362	-6215.3
42302	243.07	0	0	26.362	-6215.3
42303	243.13	0	0	26.362	-6215.3
42304	243.04	0	0	26.362	-6215.3
42305	243.06	0	0	26.362	-6215.3
42306	243.08	0	0	26.362	-6215.3
42307	243.17	0	0	26.362	-6215.3
42308	243.19	0	0	26.362	-6215.3
42309	243.11	0	0	26.362	-6215.3
42310	243.17	0	0	26.362	-6215.3
42311	243.13	0	0	26.362	-6215.3
42312	243.16	0	0	26.362	-6215.3
42313	243.17	0	0	26.362	-6215.3
42314	243.06	0	0	26.362	-6215.3
42315	243.19	0	0	26.362	-6215.3
42316	243.14	0	0	26.362	-6215.3
42317	243.02	0	0	26.362	-6215.3
42318	243.13	0	0	26.362	-6215.3
42319	243.17	0	0	26.362	-6215.3
42320	243.12	0	0	26.362	-6215.3
42321	243.11	0	0	26.362	-6215.3
42322	243.04	0	0	26.362	-6215.3
42323	243.15	0	0	26.362	-6215.3
42324	243.13	0	0	26.362	-6215.3
42325	243.16	0	0	26.362	-6215.3
42326	243.13	0	0	26.362	-6215.3
42327	243.23	0	0	26.362	-6215.3
42328	243	0	0	26.362	-6215.3
42329	243.01	0	0	26.362	-6215.3
42330	243.07	0	0	26.362	-6215.3
42331	243.1	0	0	26.362	-6215.3
42332	243.09	0	0	26.362	-6215.3
42333	243.04	0	0	26.362	-6215.3
42334	242.91	0	0	26.362	-6215.3
42335	243.12	0	0	26.362	-6215.3
42336	242.87	0	0	26.362	-6215.3
42337	243.14	0	0	26.362	-6215.3
42338	243.04	0	0	26.362	-6215.3
42339	242.91	0	0	26.362	-6215.3
42340	242.9	0	0	26.362	-6215.3
42341	242.98	0	0	26.362	-6215.3
42342	242.85	0	0	26.362	-6215.3
42343	242.9	0	0	26.362	-6215.3
42344	242.98	0	0	26.362	-6215.3
42345	242.81	0	0	26.362	-6215.3

42346	242.76	0	0	26.362	-6215.3
42347	242.65	0	0	26.362	-6215.3
42348	242.8	0	0	26.362	-6215.3
42349	243.07	0	0	26.362	-6215.3
42350	242.98	0	0	26.362	-6215.3
42351	242.95	0	0	26.362	-6215.3
42352	243.03	0	0	26.362	-6215.3
42353	242.75	0	0	26.362	-6215.3
42354	243.11	0	0	26.362	-6215.3
42355	243.15	0	0	26.362	-6215.3
42356	243.06	0	0	26.362	-6215.3
42357	242.95	0	0	26.362	-6215.3
42358	242.96	0	0	26.362	-6215.3
42359	242.98	0	0	26.362	-6215.3
42360	242.98	0	0	26.362	-6215.3
42361	243.12	0	0	26.362	-6215.3
42362	243.07	0	0	26.362	-6215.3
42363	243.06	0	0	26.362	-6215.3
42364	243.04	0	0	26.362	-6215.3
42365	243.1	0	0	26.362	-6215.3
42366	243.06	0	0	26.362	-6215.3
42367	242.98	0	0	26.362	-6215.3
42368	243.17	0	0	26.362	-6215.3
42369	243.02	0	0	26.362	-6215.3
42370	243.13	0	0	26.362	-6215.3
42371	243.14	0	0	26.362	-6215.3
42372	243.11	0	0	26.362	-6215.3
42373	243.12	0	0	26.362	-6215.3
42374	243.08	0	0	26.362	-6215.3
42375	243.1	0	0	26.362	-6215.3
42376	243.06	0	0	26.362	-6215.3
42377	243.07	0	0	26.362	-6215.3
42378	242.9	0	0	26.362	-6215.3
42379	243.03	0	0	26.362	-6215.3
42380	243.02	0	0	26.362	-6215.3
42381	242.96	0	0	26.362	-6215.3
42382	242.79	0	0	26.362	-6215.3
42383	243.05	0	0	26.362	-6215.3
42384	243.02	0	0	26.362	-6215.3
42385	243.01	0	0	26.362	-6215.3
42386	243.14	0	0	26.362	-6215.3
42387	243.12	0	0	26.362	-6215.3
42388	243.09	0	0	26.362	-6215.3
42389	243.14	0	0	26.362	-6215.3
42390	243.06	0	0	26.362	-6215.3
42391	243.11	0	0	26.362	-6215.3
42392	243.14	0	0	26.362	-6215.3

42393	243.09	0	0	26.362	-6215.3
42394	243.11	0	0	26.362	-6215.3
42395	243.08	0	0	26.362	-6215.3
42396	243.03	0	0	26.362	-6215.3
42397	243.12	0	0	26.362	-6215.3
42398	243.21	0	0	26.362	-6215.3
42399	243.06	0	0	26.362	-6215.3
42400	243.11	0	0	26.362	-6215.3
42401	243.1	0	0	26.362	-6215.3
42402	243.01	0	0	26.362	-6215.3
42403	243.14	0	0	26.362	-6215.3
42404	242.8	0	0	26.362	-6215.3
42405	243.17	0	0	26.362	-6215.3
42406	243.03	0	0	26.362	-6215.3
42407	243.21	0	0	26.362	-6215.3
42408	242.94	0	0	26.362	-6215.3
42409	243.15	0	0	26.362	-6215.3
42410	243.13	0	0	26.362	-6215.3
42411	243.04	0	0	26.362	-6215.3
42412	243	0	0	26.362	-6215.3
42413	243.12	0	0	26.362	-6215.3
42414	243.25	0	0	26.362	-6215.3
42415	243.01	0	0	26.362	-6215.3
42416	243.12	0	0	26.362	-6215.3
42417	243.12	0	0	26.362	-6215.3
42418	243.11	0	0	26.362	-6215.3
42419	243.02	0	0	26.362	-6215.3
42420	243.09	0	0	26.362	-6215.3
42421	243.03	0	0	26.362	-6215.3
42422	243.03	0	0	26.362	-6215.3
42423	242.71	0	0	26.362	-6215.3
42424	243.06	0	0	26.362	-6215.3
42425	242.95	0	0	26.362	-6215.3
42426	242.92	0	0	26.362	-6215.3
42427	243.03	0	0	26.362	-6215.3
42428	243.1	0	0	26.362	-6215.3
42429	243.01	0	0	26.362	-6215.3
42430	243.06	0	0	26.362	-6215.3
42431	243.07	0	0	26.362	-6215.3
42432	242.98	0	0	26.362	-6215.3
42433	243.18	0	0	26.362	-6215.3
42434	242.98	0	0	26.362	-6215.3
42435	242.99	0	0	26.362	-6215.3
42436	242.99	0	0	26.362	-6215.3
42437	243.07	0	0	26.362	-6215.3
42438	243.07	0	0	26.362	-6215.3
42439	242.84	0	0	26.362	-6215.3

42440	243.03	0	0	26.362	-6215.3
42441	243.12	0	0	26.362	-6215.3
42442	242.87	0	0	26.362	-6215.3
42443	243.03	0	0	26.362	-6215.3
42444	242.95	0	0	26.362	-6215.3
42445	242.97	0	0	26.362	-6215.3
42446	243.04	0	0	26.362	-6215.3
42447	243.03	0	0	26.362	-6215.3
42448	243.07	0	0	26.362	-6215.3
42449	243.02	0	0	26.362	-6215.3
42450	243.11	0	0	26.362	-6215.3
42451	243.11	0	0	26.362	-6215.3
42452	243	0	0	26.362	-6215.3
42453	243.13	0	0	26.362	-6215.3
42454	243.06	0	0	26.362	-6215.3
42455	242.99	0	0	26.362	-6215.3
42456	243.01	0	0	26.362	-6215.3
42457	243.08	0	0	26.362	-6215.3
42458	243	0	0	26.362	-6215.3
42459	243.03	0	0	26.362	-6215.3
42460	242.99	0	0	26.362	-6215.3
42461	243.16	0	0	26.362	-6215.3
42462	243.1	0	0	26.362	-6215.3
42463	243.13	0	0	26.362	-6215.3
42464	243.16	0	0	26.362	-6215.3
42465	243.1	0	0	26.362	-6215.3
42466	242.88	0	0	26.362	-6215.3
42467	243.05	0	0	26.362	-6215.3
42468	243.14	0	0	26.362	-6215.3
42469	243.04	0	0	26.362	-6215.3
42470	243.04	0	0	26.362	-6215.3
42471	243.13	0	0	26.362	-6215.3
42472	243.09	0	0	26.362	-6215.3
42473	242.93	0	0	26.362	-6215.3
42474	243.1	0	0	26.362	-6215.3
42475	243.02	0	0	26.362	-6215.3
42476	243.11	0	0	26.362	-6215.3
42477	242.82	0	0	26.362	-6215.3
42478	243.11	0	0	26.362	-6215.3
42479	243.13	0	0	26.362	-6215.3
42480	243.03	0	0	26.362	-6215.3
42481	243.17	0	0	26.362	-6215.3
42482	243.08	0	0	26.362	-6215.3
42483	243.11	0	0	26.362	-6215.3
42484	243.13	0	0	26.362	-6215.3
42485	243.05	0	0	26.362	-6215.3
42486	243.14	0	0	26.362	-6215.3

42487	243	0	0	26.362	-6215.3
42488	243.08	0	0	26.362	-6215.3
42489	242.98	0	0	26.362	-6215.3
42490	243.14	0	0	26.362	-6215.3
42491	243	0	0	26.362	-6215.3
42492	243.07	0	0	26.362	-6215.3
42493	243.04	0	0	26.362	-6215.3
42494	243.05	0	0	26.362	-6215.3
42495	243.02	0	0	26.362	-6215.3
42496	242.96	0	0	26.362	-6215.3
42497	243.1	0	0	26.362	-6215.3
42498	242.99	0	0	26.362	-6215.3
42499	243	0	0	26.362	-6215.3
42500	243.07	0	0	26.362	-6215.3
42501	243.16	0	0	26.362	-6215.3
42502	243.03	0	0	26.362	-6215.3
42503	243.06	0	0	26.362	-6215.3
42504	243.06	0	0	26.362	-6215.3
42505	243.02	0	0	26.362	-6215.3
42506	242.95	0	0	26.362	-6215.3
42507	243.03	0	0	26.362	-6215.3
42508	243.08	0	0	26.362	-6215.3
42509	243.03	0	0	26.362	-6215.3
42510	242.96	0	0	26.362	-6215.3
42511	243	0	0	26.362	-6215.3
42512	242.96	0	0	26.362	-6215.3
42513	242.95	0	0	26.362	-6215.3
42514	243.03	0	0	26.362	-6215.3
42515	242.92	0	0	26.362	-6215.3
42516	242.92	0	0	26.362	-6215.3
42517	242.85	0	0	26.362	-6215.3
42518	242.86	0	0	26.362	-6215.3
42519	243.01	0	0	26.362	-6215.3
42520	242.85	0	0	26.362	-6215.3
42521	242.66	0	0	26.362	-6215.3
42522	243.02	0	0	26.362	-6215.3
42523	242.83	0	0	26.362	-6215.3
42524	242.86	0	0	26.362	-6215.3
42525	242.88	0	0	26.362	-6215.3
42526	242.87	0	0	26.362	-6215.3
42527	242.82	0	0	26.362	-6215.3
42528	242.72	0	0	26.362	-6215.3
42529	242.87	0	0	26.362	-6215.3
42530	242.73	0	0	26.362	-6215.3
42531	242.78	0	0	26.362	-6215.3
42532	242.89	0	0	26.362	-6215.3
42533	242.73	0	0	26.362	-6215.3

42534	242.78	0	0	26.362	-6215.3
42535	242.82	0	0	26.362	-6215.3
42536	242.84	0	0	26.362	-6215.3
42537	242.78	0	0	26.362	-6215.3
42538	242.69	0	0	26.362	-6215.3
42539	242.64	0	0	26.362	-6215.3
42540	242.77	0	0	26.362	-6215.3
42541	242.79	0	0	26.362	-6215.3
42542	242.73	0	0	26.362	-6215.3
42543	242.84	0	0	26.362	-6215.3
42544	242.99	0	0	26.362	-6215.3
42545	242.95	0	0	26.362	-6215.3
42546	242.94	0	0	26.362	-6215.3
42547	242.9	0	0	26.362	-6215.3
42548	242.82	0	0	26.362	-6215.3
42549	242.84	0	0	26.362	-6215.3
42550	242.82	0	0	26.362	-6215.3
42551	242.8	0	0	26.362	-6215.3
42552	242.84	0	0	26.362	-6215.3
42553	242.91	0	0	26.362	-6215.3
42554	242.91	0	0	26.362	-6215.3
42555	242.91	0	0	26.362	-6215.3
42556	242.89	0	0	26.362	-6215.3
42557	242.9	0	0	26.362	-6215.3
42558	242.91	0	0	26.362	-6215.3
42559	242.96	0	0	26.362	-6215.3
42560	242.92	0	0	26.362	-6215.3
42561	242.94	0	0	26.362	-6215.3
42562	242.98	0	0	26.362	-6215.3
42563	242.93	0	0	26.362	-6215.3
42564	242.95	0	0	26.362	-6215.3
42565	242.91	0	0	26.362	-6215.3
42566	242.92	0	0	26.362	-6215.3
42567	242.85	0	0	26.362	-6215.3
42568	242.81	0	0	26.362	-6215.3
42569	242.9	0	0	26.362	-6215.3
42570	242.87	0	0	26.362	-6215.3
42571	242.83	0	0	26.362	-6215.3
42572	242.93	0	0	26.362	-6215.3
42573	242.91	0	0	26.362	-6215.3
42574	242.88	0	0	26.362	-6215.3
42575	242.94	0	0	26.362	-6215.3
42576	242.93	0	0	26.362	-6215.3
42577	242.94	0	0	26.362	-6215.3
42578	242.94	0	0	26.362	-6215.3
42579	242.96	0	0	26.362	-6215.3
42580	242.93	0	0	26.362	-6215.3

42581	242.93	0	0	26.362	-6215.3
42582	242.92	0	0	26.362	-6215.3
42583	242.93	0	0	26.362	-6215.3
42584	242.94	0	0	26.362	-6215.3
42585	242.97	0	0	26.362	-6215.3
42586	242.98	0	0	26.362	-6215.3
42587	242.93	0	0	26.362	-6215.3
42588	242.93	0	0	26.362	-6215.3
42589	242.93	0	0	26.362	-6215.3
42590	242.19	0	0	26.362	-6215.3
42591	242.32	0	0	26.362	-6215.3
42592	242.82	0	0	26.362	-6215.3
42593	242.8	0	0	26.362	-6215.3
42594	242.81	0	0	26.362	-6215.3
42595	242.79	0	0	26.362	-6215.3
42596	242.81	0	0	26.362	-6215.3
42597	242.89	0	0	26.362	-6215.3
42598	242.87	0	0	26.362	-6215.3
42599	242.8	0	0	26.362	-6215.3
42600	242.88	0	0	26.362	-6215.3
42601	242.98	0	0	26.362	-6215.3
42602	242.95	0	0	26.362	-6215.3
42603	242.97	0	0	26.362	-6215.3
42604	242.92	0	0	26.362	-6215.3
42605	242.99	0	0	26.362	-6215.3
42606	242.98	0	0	26.362	-6215.3
42607	243.01	0	0	26.362	-6215.3
42608	242.94	0	0	26.362	-6215.3
42609	242.88	0	0	26.362	-6215.3
42610	243.01	0	0	26.362	-6215.3
42611	243.04	0	0	26.362	-6215.3
42612	242.99	0	0	26.362	-6215.3
42613	242.89	0	0	26.362	-6215.3
42614	242.91	0	0	26.362	-6215.3
42615	242.94	0	0	26.362	-6215.3
42616	243.02	0	0	26.362	-6215.3
42617	243	0	0	26.362	-6215.3
42618	242.94	0	0	26.362	-6215.3
42619	243.06	0	0	26.362	-6215.3
42620	243.04	0	0	26.362	-6215.3
42621	242.98	0	0	26.362	-6215.3
42622	243.05	0	0	26.362	-6215.3
42623	243.07	0	0	26.362	-6215.3
42624	242.92	0	0	26.362	-6215.3
42625	242.89	0	0	26.362	-6215.3
42626	242.93	0	0	26.362	-6215.3
42627	242.92	0	0	26.362	-6215.3

42628	242.96	0	0	26.362	-6215.3
42629	242.97	0	0	26.362	-6215.3
42630	242.95	0	0	26.362	-6215.3
42631	242.93	0	0	26.362	-6215.3
42632	242.89	0	0	26.362	-6215.3
42633	242.93	0	0	26.362	-6215.3
42634	242.97	0	0	26.362	-6215.3
42635	242.93	0	0	26.362	-6215.3
42636	242.97	0	0	26.362	-6215.3
42637	243.03	0	0	26.362	-6215.3
42638	243.05	0	0	26.362	-6215.3
42639	243.04	0	0	26.362	-6215.3
42640	243.14	0	0	26.362	-6215.3
42641	243.21	0	0	26.362	-6215.3
42642	243.18	0	0	26.362	-6215.3
42643	243.18	0	0	26.362	-6215.3
42644	243.22	0	0	26.362	-6215.3
42645	243.15	0	0	26.362	-6215.3
42646	243.19	0	0	26.362	-6215.3
42647	243.11	0	0	26.362	-6215.3
42648	243.22	0	0	26.362	-6215.3
42649	243.18	0	0	26.362	-6215.3
42650	243.21	0	0	26.362	-6215.3
42651	243.14	0	0	26.362	-6215.3
42652	243.25	0	0	26.362	-6215.3
42653	243.22	0	0	26.362	-6215.3
42654	243.18	0	0	26.362	-6215.3
42655	243.17	0	0	26.362	-6215.3
42656	243.18	0	0	26.362	-6215.3
42657	243.23	0	0	26.362	-6215.3
42658	243.26	0	0	26.362	-6215.3
42659	243.25	0	0	26.362	-6215.3
42660	243.25	0	0	26.362	-6215.3
42661	243.3	0	0	26.362	-6215.3
42662	243.33	0	0	26.362	-6215.3
42663	243.3	0	0	26.362	-6215.3
42664	243.31	0	0	26.362	-6215.3
42665	243.35	0	0	26.362	-6215.3
42666	243.38	0	0	26.362	-6215.3
42667	243.36	0	0	26.362	-6215.3
42668	243.36	0	0	26.362	-6215.3
42669	243.33	0	0	26.362	-6215.3
42670	243.39	0	0	26.362	-6215.3
42671	243.44	0	0	26.362	-6215.3
42672	243.45	0	0	26.362	-6215.3
42673	243.45	0	0	26.362	-6215.3
42674	243.42	0	0	26.362	-6215.3

42675	243.39	0	0	26.362	-6215.3
42676	243.46	0	0	26.362	-6215.3
42677	243.4	0	0	26.362	-6215.3
42678	243.39	0	0	26.362	-6215.3
42679	243.47	0	0	26.362	-6215.3
42680	243.36	0	0	26.362	-6215.3
42681	243.48	0	0	26.362	-6215.3
42682	243.22	0	0	26.362	-6215.3
42683	243.42	0	0	26.362	-6215.3
42684	243.37	0	0	26.362	-6215.3
42685	243.45	0	0	26.362	-6215.3
42686	243.35	0	0	26.362	-6215.3
42687	243.39	0	0	26.362	-6215.3
42688	243.42	0	0	26.362	-6215.3
42689	243.42	0	0	26.362	-6215.3
42690	243.36	0	0	26.362	-6215.3
42691	243.4	0	0	26.362	-6215.3
42692	243.44	0	0	26.362	-6215.3
42693	243.35	0	0	26.362	-6215.3
42694	243.4	0	0	26.362	-6215.3
42695	243.39	0	0	26.362	-6215.3
42696	243.41	0	0	26.362	-6215.3
42697	243.41	0	0	26.362	-6215.3
42698	243.42	0	0	26.362	-6215.3
42699	243.47	0	0	26.362	-6215.3
42700	243.47	0	0	26.362	-6215.3
42701	243.32	0	0	26.362	-6215.3
42702	243.36	0	0	26.362	-6215.3
42703	243.39	0	0	26.362	-6215.3
42704	243.37	0	0	26.362	-6215.3
42705	243.36	0	0	26.362	-6215.3
42706	243.42	0	0	26.362	-6215.3
42707	243.4	0	0	26.362	-6215.3
42708	243.38	0	0	26.362	-6215.3
42709	243.33	0	0	26.362	-6215.3
42710	243.35	0	0	26.362	-6215.3
42711	243.38	0	0	26.362	-6215.3
42712	243.39	0	0	26.362	-6215.3
42713	243.31	0	0	26.362	-6215.3
42714	243.31	0	0	26.362	-6215.3
42715	243.29	0	0	26.362	-6215.3
42716	243.33	0	0	26.362	-6215.3
42717	243.33	0	0	26.362	-6215.3
42718	243.26	0	0	26.362	-6215.3
42719	243.21	0	0	26.362	-6215.3
42720	243.33	0	0	26.362	-6215.3
42721	243.27	0	0	26.362	-6215.3

42722	243.33	0	0	26.362	-6215.3
42723	243.26	0	0	26.362	-6215.3
42724	243.36	0	0	26.362	-6215.3
42725	243.34	0	0	26.362	-6215.3
42726	243.28	0	0	26.362	-6215.3
42727	243.32	0	0	26.362	-6215.3
42728	243.25	0	0	26.362	-6215.3
42729	243.32	0	0	26.362	-6215.3
42730	243.33	0	0	26.362	-6215.3
42731	243.33	0	0	26.362	-6215.3
42732	243.34	0	0	26.362	-6215.3
42733	243.36	0	0	26.362	-6215.3
42734	243.31	0	0	26.362	-6215.3
42735	243.35	0	0	26.362	-6215.3
42736	243.29	0	0	26.362	-6215.3
42737	243.3	0	0	26.362	-6215.3
42738	243.33	0	0	26.362	-6215.3
42739	243.34	0	0	26.362	-6215.3
42740	243.31	0	0	26.362	-6215.3
42741	243.37	0	0	26.362	-6215.3
42742	243.35	0	0	26.362	-6215.3
42743	243.3	0	0	26.362	-6215.3
42744	243.34	0	0	26.362	-6215.3
42745	243.31	0	0	26.362	-6215.3
42746	243.34	0	0	26.362	-6215.3
42747	243.35	0	0	26.362	-6215.3
42748	243.32	0	0	26.362	-6215.3
42749	243.36	0	0	26.362	-6215.3
42750	243.31	0	0	26.362	-6215.3
42751	243.33	0	0	26.362	-6215.3
42752	243.35	0	0	26.362	-6215.3
42753	243.37	0	0	26.362	-6215.3
42754	243.41	0	0	26.362	-6215.3
42755	243.39	0	0	26.362	-6215.3
42756	243.39	0	0	26.362	-6215.3
42757	243.37	0	0	26.362	-6215.3
42758	243.38	0	0	26.362	-6215.3
42759	243.39	0	0	26.362	-6215.3
42760	243.36	0	0	26.362	-6215.3
42761	243.41	0	0	26.362	-6215.3
42762	243.44	0	0	26.362	-6215.3
42763	243.42	0	0	26.362	-6215.3
42764	243.4	0	0	26.362	-6215.3
42765	243.42	0	0	26.362	-6215.3
42766	243.42	0	0	26.362	-6215.3
42767	243.38	0	0	26.362	-6215.3
42768	243.4	0	0	26.362	-6215.3

42769	243.37	0	0	26.362	-6215.3
42770	243.4	0	0	26.362	-6215.3
42771	243.43	0	0	26.362	-6215.3
42772	243.46	0	0	26.362	-6215.3
42773	243.45	0	0	26.362	-6215.3
42774	243.46	0	0	26.362	-6215.3
42775	243.41	0	0	26.362	-6215.3
42776	243.36	0	0	26.362	-6215.3
42777	243.4	0	0	26.362	-6215.3
42778	243.42	0	0	26.362	-6215.3
42779	243.36	0	0	26.362	-6215.3
42780	243.45	0	0	26.362	-6215.3
42781	243.43	0	0	26.362	-6215.3
42782	243.43	0	0	26.362	-6215.3
42783	243.57	0	0	26.362	-6215.3
42784	243.5	0	0	26.362	-6215.3
42785	243.45	0	0	26.362	-6215.3
42786	243.49	0	0	26.362	-6215.3
42787	243.52	0	0	26.362	-6215.3
42788	243.41	0	0	26.362	-6215.3
42789	243.43	0	0	26.362	-6215.3
42790	243.41	0	0	26.362	-6215.3
42791	243.48	0	0	26.362	-6215.3
42792	243.44	0	0	26.362	-6215.3
42793	243.41	0	0	26.362	-6215.3
42794	243.35	0	0	26.362	-6215.3
42795	243.35	0	0	26.362	-6215.3
42796	243.3	0	0	26.362	-6215.3
42797	243.26	0	0	26.362	-6215.3
42798	243.31	0	0	26.362	-6215.3
42799	243.35	0	0	26.362	-6215.3
42800	243.3	0	0	26.362	-6215.3
42801	243.29	0	0	26.362	-6215.3
42802	243.27	0	0	26.362	-6215.3
42803	243.23	0	0	26.362	-6215.3
42804	243.28	0	0	26.362	-6215.3
42805	243.27	0	0	26.362	-6215.3
42806	243.25	0	0	26.362	-6215.3
42807	243.26	0	0	26.362	-6215.3
42808	243.27	0	0	26.362	-6215.3
42809	243.28	0	0	26.362	-6215.3
42810	243.33	0	0	26.362	-6215.3
42811	243.3	0	0	26.362	-6215.3
42812	243.3	0	0	26.362	-6215.3
42813	243.26	0	0	26.362	-6215.3
42814	243.25	0	0	26.362	-6215.3
42815	243.36	0	0	26.362	-6215.3

42816	243.31	0	0	26.362	-6215.3
42817	243.34	0	0	26.362	-6215.3
42818	243.32	0	0	26.362	-6215.3
42819	243.31	0	0	26.362	-6215.3
42820	243.32	0	0	26.362	-6215.3
42821	243.27	0	0	26.362	-6215.3
42822	243.29	0	0	26.362	-6215.3
42823	243.22	0	0	26.362	-6215.3
42824	243.23	0	0	26.362	-6215.3
42825	243.28	0	0	26.362	-6215.3
42826	243.29	0	0	26.362	-6215.3
42827	243.3	0	0	26.362	-6215.3
42828	243.28	0	0	26.362	-6215.3
42829	243.26	0	0	26.362	-6215.3
42830	243.25	0	0	26.362	-6215.3
42831	243.32	0	0	26.362	-6215.3
42832	243.36	0	0	26.362	-6215.3
42833	243.36	0	0	26.362	-6215.3
42834	243.41	0	0	26.362	-6215.3
42835	243.47	0	0	26.362	-6215.3
42836	243.42	0	0	26.362	-6215.3
42837	243.4	0	0	26.362	-6215.3
42838	243.35	0	0	26.362	-6215.3
42839	243.43	0	0	26.362	-6215.3
42840	243.39	0	0	26.362	-6215.3
42841	243.37	0	0	26.362	-6215.3
42842	243.48	0	0	26.362	-6215.3
42843	243.46	0	0	26.362	-6215.3
42844	243.42	0	0	26.362	-6215.3
42845	243.48	0	0	26.362	-6215.3
42846	243.48	0	0	26.362	-6215.3
42847	243.48	0	0	26.362	-6215.3
42848	243.43	0	0	26.362	-6215.3
42849	243.42	0	0	26.362	-6215.3
42850	243.43	0	0	26.362	-6215.3
42851	243.54	0	0	26.362	-6215.3
42852	243.48	0	0	26.362	-6215.3
42853	243.43	0	0	26.362	-6215.3
42854	243.49	0	0	26.362	-6215.3
42855	243.45	0	0	26.362	-6215.3
42856	243.52	0	0	26.362	-6215.3
42857	243.4	0	0	26.362	-6215.3
42858	243.42	0	0	26.362	-6215.3
42859	243.41	0	0	26.362	-6215.3
42860	243.42	0	0	26.362	-6215.3
42861	243.41	0	0	26.362	-6215.3
42862	243.44	0	0	26.362	-6215.3

42863	243.45	0	0	26.362	-6215.3
42864	243.39	0	0	26.362	-6215.3
42865	243.37	0	0	26.362	-6215.3
42866	243.48	0	0	26.362	-6215.3
42867	243.46	0	0	26.362	-6215.3
42868	243.47	0	0	26.362	-6215.3
42869	243.46	0	0	26.362	-6215.3
42870	243.46	0	0	26.362	-6215.3
42871	243.41	0	0	26.362	-6215.3
42872	243.45	0	0	26.362	-6215.3
42873	243.41	0	0	26.362	-6215.3
42874	243.38	0	0	26.362	-6215.3
42875	243.48	0	0	26.362	-6215.3
42876	243.42	0	0	26.362	-6215.3
42877	243.43	0	0	26.362	-6215.3
42878	243.46	0	0	26.362	-6215.3
42879	243.45	0	0	26.362	-6215.3
42880	243.41	0	0	26.362	-6215.3
42881	243.46	0	0	26.362	-6215.3
42882	243.41	0	0	26.362	-6215.3
42883	243.4	0	0	26.362	-6215.3
42884	243.44	0	0	26.362	-6215.3
42885	243.45	0	0	26.362	-6215.3
42886	243.39	0	0	26.362	-6215.3
42887	243.5	0	0	26.362	-6215.3
42888	243.38	0	0	26.362	-6215.3
42889	243.43	0	0	26.362	-6215.3
42890	243.39	0	0	26.362	-6215.3
42891	243.41	0	0	26.362	-6215.3
42892	243.47	0	0	26.362	-6215.3
42893	243.45	0	0	26.362	-6215.3
42894	243.43	0	0	26.362	-6215.3
42895	243.45	0	0	26.362	-6215.3
42896	243.4	0	0	26.362	-6215.3
42897	243.41	0	0	26.362	-6215.3
42898	243.38	0	0	26.362	-6215.3
42899	243.48	0	0	26.362	-6215.3
42900	243.46	0	0	26.362	-6215.3
42901	243.49	0	0	26.362	-6215.3
42902	243.53	0	0	26.362	-6215.3
42903	243.48	0	0	26.362	-6215.3
42904	243.41	0	0	26.362	-6215.3
42905	243.5	0	0	26.362	-6215.3
42906	243.41	0	0	26.362	-6215.3
42907	243.46	0	0	26.362	-6215.3
42908	243.46	0	0	26.362	-6215.3
42909	243.45	0	0	26.362	-6215.3

42910	243.48	0	0	26.362	-6215.3
42911	243.44	0	0	26.362	-6215.3
42912	243.46	0	0	26.362	-6215.3
42913	243.45	0	0	26.362	-6215.3
42914	243.47	0	0	26.362	-6215.3
42915	243.57	0	0	26.362	-6215.3
42916	243.43	0	0	26.362	-6215.3
42917	243.46	0	0	26.362	-6215.3
42918	243.47	0	0	26.362	-6215.3
42919	243.52	0	0	26.362	-6215.3
42920	243.52	0	0	26.362	-6215.3
42921	243.49	0	0	26.362	-6215.3
42922	243.54	0	0	26.362	-6215.3
42923	243.56	0	0	26.362	-6215.3
42924	243.44	0	0	26.362	-6215.3
42925	243.54	0	0	26.362	-6215.3
42926	243.56	0	0	26.362	-6215.3
42927	243.54	0	0	26.362	-6215.3
42928	243.57	0	0	26.362	-6215.3
42929	243.59	0	0	26.362	-6215.3
42930	243.57	0	0	26.362	-6215.3
42931	243.64	0	0	26.362	-6215.3
42932	243.63	0	0	26.362	-6215.3
42933	243.64	0	0	26.362	-6215.3
42934	243.63	0	0	26.362	-6215.3
42935	243.55	0	0	26.362	-6215.3
42936	243.58	0	0	26.362	-6215.3
42937	243.62	0	0	26.362	-6215.3
42938	243.59	0	0	26.362	-6215.3
42939	243.59	0	0	26.362	-6215.3
42940	243.66	0	0	26.362	-6215.3
42941	243.55	0	0	26.362	-6215.3
42942	243.54	0	0	26.362	-6215.3
42943	243.55	0	0	26.362	-6215.3
42944	243.58	0	0	26.362	-6215.3
42945	243.59	0	0	26.362	-6215.3
42946	243.53	0	0	26.362	-6215.3
42947	243.48	0	0	26.362	-6215.3
42948	243.62	0	0	26.362	-6215.3
42949	243.5	0	0	26.362	-6215.3
42950	243.54	0	0	26.362	-6215.3
42951	243.57	0	0	26.362	-6215.3
42952	243.57	0	0	26.362	-6215.3
42953	243.58	0	0	26.362	-6215.3
42954	243.6	0	0	26.362	-6215.3
42955	243.64	0	0	26.362	-6215.3
42956	243.56	0	0	26.362	-6215.3

42957	243.39	0	0	26.362	-6215.3
42958	243.66	0	0	26.362	-6215.3
42959	243.53	0	0	26.362	-6215.3
42960	243.32	0	0	26.362	-6215.3
42961	243.61	0	0	26.362	-6215.3
42962	243.4	0	0	26.362	-6215.3
42963	243.09	0	0	26.362	-6215.3
42964	243.48	0	0	26.362	-6215.3
42965	243.28	0	0	26.362	-6215.3
42966	243.3	0	0	26.362	-6215.3
42967	243.31	0	0	26.362	-6215.3
42968	243.09	0	0	26.362	-6215.3
42969	243.2	0	0	26.362	-6215.3
42970	243.45	0	0	26.362	-6215.3
42971	243.36	0	0	26.362	-6215.3
42972	243.48	0	0	26.362	-6215.3
42973	243.45	0	0	26.362	-6215.3
42974	243.41	0	0	26.362	-6215.3
42975	243.56	0	0	26.362	-6215.3
42976	243.35	0	0	26.362	-6215.3
42977	243.69	0	0	26.362	-6215.3
42978	243.22	0	0	26.362	-6215.3
42979	243.57	0	0	26.362	-6215.3
42980	243.21	0	0	26.362	-6215.3
42981	243.51	0	0	26.362	-6215.3
42982	243.56	0	0	26.362	-6215.3
42983	243.44	0	0	26.362	-6215.3
42984	243.16	0	0	26.362	-6215.3
42985	243.41	0	0	26.362	-6215.3
42986	243.47	0	0	26.362	-6215.3
42987	243.61	0	0	26.362	-6215.3
42988	243.36	0	0	26.362	-6215.3
42989	243.51	0	0	26.362	-6215.3
42990	243.31	0	0	26.362	-6215.3
42991	243.58	0	0	26.362	-6215.3
42992	243.52	0	0	26.362	-6215.3
42993	243.31	0	0	26.362	-6215.3
42994	243.6	0	0	26.362	-6215.3
42995	243.57	0	0	26.362	-6215.3
42996	243.45	0	0	26.362	-6215.3
42997	243.48	0	0	26.362	-6215.3
42998	243.41	0	0	26.362	-6215.3
42999	243.36	0	0	26.362	-6215.3
43000	242.65	0	0	26.362	-6215.3
43001	243	0	0	26.362	-6215.3
43002	243.46	0	0	26.362	-6215.3
43003	243.46	0	0	26.362	-6215.3

43004	243.4	0	0	26.362	-6215.3
43005	243.28	0	0	26.362	-6215.3
43006	243.44	0	0	26.362	-6215.3
43007	243.44	0	0	26.362	-6215.3
43008	243.44	0	0	26.362	-6215.3
43009	243.35	0	0	26.362	-6215.3
43010	243.48	0	0	26.362	-6215.3
43011	243.43	0	0	26.362	-6215.3
43012	243.32	0	0	26.362	-6215.3
43013	243.5	0	0	26.362	-6215.3
43014	243.41	0	0	26.362	-6215.3
43015	243.44	0	0	26.362	-6215.3
43016	243.31	0	0	26.362	-6215.3
43017	243.28	0	0	26.362	-6215.3
43018	243.21	0	0	26.362	-6215.3
43019	243.32	0	0	26.362	-6215.3
43020	243.4	0	0	26.362	-6215.3
43021	243.37	0	0	26.362	-6215.3
43022	243.28	0	0	26.362	-6215.3
43023	243.32	0	0	26.362	-6215.3
43024	243.37	0	0	26.362	-6215.3
43025	243.23	0	0	26.362	-6215.3
43026	243.29	0	0	26.362	-6215.3
43027	243.22	0	0	26.362	-6215.3
43028	243.19	0	0	26.362	-6215.3
43029	243.14	0	0	26.362	-6215.3
43030	243.18	0	0	26.362	-6215.3
43031	243.14	0	0	26.362	-6215.3
43032	243.2	0	0	26.362	-6215.3
43033	243.04	0	0	26.362	-6215.3
43034	243.2	0	0	26.362	-6215.3
43035	243.07	0	0	26.362	-6215.3
43036	243.16	0	0	26.362	-6215.3
43037	243.15	0	0	26.362	-6215.3
43038	243.15	0	0	26.362	-6215.3
43039	243.2	0	0	26.362	-6215.3
43040	243.24	0	0	26.362	-6215.3
43041	243.18	0	0	26.362	-6215.3
43042	243.21	0	0	26.362	-6215.3
43043	243.14	0	0	26.362	-6215.3
43044	243.24	0	0	26.362	-6215.3
43045	243.15	0	0	26.362	-6215.3
43046	243.23	0	0	26.362	-6215.3
43047	243.25	0	0	26.362	-6215.3
43048	243.23	0	0	26.362	-6215.3
43049	243.27	0	0	26.362	-6215.3
43050	243.24	0	0	26.362	-6215.3

43051	243.29	0	0	26.362	-6215.3
43052	243.22	0	0	26.362	-6215.3
43053	243.14	0	0	26.362	-6215.3
43054	243.22	0	0	26.362	-6215.3
43055	243.18	0	0	26.362	-6215.3
43056	243.35	0	0	26.362	-6215.3
43057	243.33	0	0	26.362	-6215.3
43058	243.25	0	0	26.362	-6215.3
43059	243.35	0	0	26.362	-6215.3
43060	243.38	0	0	26.362	-6215.3
43061	243.39	0	0	26.362	-6215.3
43062	243.35	0	0	26.362	-6215.3
43063	243.41	0	0	26.362	-6215.3
43064	243.38	0	0	26.362	-6215.3
43065	243.31	0	0	26.362	-6215.3
43066	243.54	0	0	26.362	-6215.3
43067	243.45	0	0	26.362	-6215.3
43068	243.51	0	0	26.362	-6215.3
43069	243.39	0	0	26.362	-6215.3
43070	243.55	0	0	26.362	-6215.3
43071	243.39	0	0	26.362	-6215.3
43072	243.52	0	0	26.362	-6215.3
43073	243.5	0	0	26.362	-6215.3
43074	243.43	0	0	26.362	-6215.3
43075	243.5	0	0	26.362	-6215.3
43076	243.57	0	0	26.362	-6215.3
43077	243.52	0	0	26.362	-6215.3
43078	243.5	0	0	26.362	-6215.3
43079	243.5	0	0	26.362	-6215.3
43080	243.46	0	0	26.362	-6215.3
43081	243.53	0	0	26.362	-6215.3
43082	243.43	0	0	26.362	-6215.3
43083	243.45	0	0	26.362	-6215.3
43084	243.57	0	0	26.362	-6215.3
43085	243.54	0	0	26.362	-6215.3
43086	243.48	0	0	26.362	-6215.3
43087	243.57	0	0	26.362	-6215.3
43088	243.36	0	0	26.362	-6215.3
43089	243.56	0	0	26.362	-6215.3
43090	243.45	0	0	26.362	-6215.3
43091	243.47	0	0	26.362	-6215.3
43092	243.51	0	0	26.362	-6215.3
43093	243.54	0	0	26.362	-6215.3
43094	243.62	0	0	26.362	-6215.3
43095	243.57	0	0	26.362	-6215.3
43096	243.53	0	0	26.362	-6215.3
43097	243.51	0	0	26.362	-6215.3

43098	243.44	0	0	26.362	-6215.3
43099	243.63	0	0	26.362	-6215.3
43100	243.61	0	0	26.362	-6215.3
43101	243.6	0	0	26.362	-6215.3
43102	243.53	0	0	26.362	-6215.3
43103	243.47	0	0	26.362	-6215.3
43104	243.5	0	0	26.362	-6215.3
43105	243.43	0	0	26.362	-6215.3
43106	243.53	0	0	26.362	-6215.3
43107	243.68	0	0	26.362	-6215.3
43108	243.59	0	0	26.362	-6215.3
43109	243.44	0	0	26.362	-6215.3
43110	243.52	0	0	26.362	-6215.3
43111	243.59	0	0	26.362	-6215.3
43112	243.59	0	0	26.362	-6215.3
43113	243.51	0	0	26.362	-6215.3
43114	243.5	0	0	26.362	-6215.3
43115	243.52	0	0	26.362	-6215.3
43116	243.54	0	0	26.362	-6215.3
43117	243.55	0	0	26.362	-6215.3
43118	243.5	0	0	26.362	-6215.3
43119	243.55	0	0	26.362	-6215.3
43120	243.56	0	0	26.362	-6215.3
43121	243.48	0	0	26.362	-6215.3
43122	243.51	0	0	26.362	-6215.3
43123	243.49	0	0	26.362	-6215.3
43124	243.41	0	0	26.362	-6215.3
43125	243.5	0	0	26.362	-6215.3
43126	243.43	0	0	26.362	-6215.3
43127	243.48	0	0	26.362	-6215.3
43128	243.49	0	0	26.362	-6215.3
43129	243.35	0	0	26.362	-6215.3
43130	243.47	0	0	26.362	-6215.3
43131	243.39	0	0	26.362	-6215.3
43132	243.4	0	0	26.362	-6215.3
43133	243.38	0	0	26.362	-6215.3
43134	243.36	0	0	26.362	-6215.3
43135	243.24	0	0	26.362	-6215.3
43136	243.34	0	0	26.362	-6215.3
43137	243.39	0	0	26.362	-6215.3
43138	243.54	0	0	26.362	-6215.3
43139	243.45	0	0	26.362	-6215.3
43140	243.51	0	0	26.362	-6215.3
43141	243.51	0	0	26.362	-6215.3
43142	243.5	0	0	26.362	-6215.3
43143	243.39	0	0	26.362	-6215.3
43144	243.49	0	0	26.362	-6215.3

43145	243.43	0	0	26.362	-6215.3
43146	243.35	0	0	26.362	-6215.3
43147	243.48	0	0	26.362	-6215.3
43148	243.54	0	0	26.362	-6215.3
43149	243.54	0	0	26.362	-6215.3
43150	243.46	0	0	26.362	-6215.3
43151	243.37	0	0	26.362	-6215.3
43152	243.42	0	0	26.362	-6215.3
43153	243.37	0	0	26.362	-6215.3
43154	243.41	0	0	26.362	-6215.3
43155	243.39	0	0	26.362	-6215.3
43156	243.42	0	0	26.362	-6215.3
43157	243.23	0	0	26.362	-6215.3
43158	243.45	0	0	26.362	-6215.3
43159	243.42	0	0	26.362	-6215.3
43160	243.4	0	0	26.362	-6215.3
43161	243.5	0	0	26.362	-6215.3
43162	243.4	0	0	26.362	-6215.3
43163	243.49	0	0	26.362	-6215.3
43164	243.51	0	0	26.362	-6215.3
43165	243.48	0	0	26.362	-6215.3
43166	243.38	0	0	26.362	-6215.3
43167	243.3	0	0	26.362	-6215.3
43168	243.3	0	0	26.362	-6215.3
43169	243.34	0	0	26.362	-6215.3
43170	243.41	0	0	26.362	-6215.3
43171	243.38	0	0	26.362	-6215.3
43172	243.42	0	0	26.362	-6215.3
43173	243.37	0	0	26.362	-6215.3
43174	243.47	0	0	26.362	-6215.3
43175	243.4	0	0	26.362	-6215.3
43176	243.29	0	0	26.362	-6215.3
43177	243.52	0	0	26.362	-6215.3
43178	243.35	0	0	26.362	-6215.3
43179	243.52	0	0	26.362	-6215.3
43180	243.45	0	0	26.362	-6215.3
43181	243.49	0	0	26.362	-6215.3
43182	243.35	0	0	26.362	-6215.3
43183	243.49	0	0	26.362	-6215.3
43184	243.43	0	0	26.362	-6215.3
43185	243.53	0	0	26.362	-6215.3
43186	243.51	0	0	26.362	-6215.3
43187	243.42	0	0	26.362	-6215.3
43188	243.41	0	0	26.362	-6215.3
43189	243.35	0	0	26.362	-6215.3
43190	243.36	0	0	26.362	-6215.3
43191	243.4	0	0	26.362	-6215.3

43192	243.33	0	0	26.362	-6215.3
43193	243.33	0	0	26.362	-6215.3
43194	243.28	0	0	26.362	-6215.3
43195	243.37	0	0	26.362	-6215.3
43196	243.37	0	0	26.362	-6215.3
43197	243.44	0	0	26.362	-6215.3
43198	243.55	0	0	26.362	-6215.3
43199	243.73	0	0	26.362	-6215.3
43200	243.57	0	0	26.362	-6215.3
43201	243.72	0	0	26.362	-6215.3
43202	243.62	0	0	26.362	-6215.3
43203	243.7	0	0	26.362	-6215.3
43204	243.53	0	0	26.362	-6215.3
43205	243.67	0	0	26.362	-6215.3
43206	243.81	0	0	26.362	-6215.3
43207	243.78	0	0	26.362	-6215.3
43208	243.65	0	0	26.362	-6215.3
43209	243.65	0	0	26.362	-6215.3
43210	243.68	0	0	26.362	-6215.3
43211	243.78	0	0	26.362	-6215.3
43212	243.58	0	0	26.362	-6215.3
43213	243.65	0	0	26.362	-6215.3
43214	243.6	0	0	26.362	-6215.3
43215	243.49	0	0	26.362	-6215.3
43216	243.35	0	0	26.362	-6215.3
43217	243.66	0	0	26.362	-6215.3
43218	243.55	0	0	26.362	-6215.3
43219	243.58	0	0	26.362	-6215.3
43220	243.56	0	0	26.362	-6215.3
43221	243.57	0	0	26.362	-6215.3
43222	243.45	0	0	26.362	-6215.3
43223	243.53	0	0	26.362	-6215.3
43224	243.39	0	0	26.362	-6215.3
43225	243.68	0	0	26.362	-6215.3
43226	243.56	0	0	26.362	-6215.3
43227	243.52	0	0	26.362	-6215.3
43228	243.38	0	0	26.362	-6215.3
43229	243.44	0	0	26.362	-6215.3
43230	243.49	0	0	26.362	-6215.3
43231	243.48	0	0	26.362	-6215.3
43232	243.39	0	0	26.362	-6215.3
43233	243.48	0	0	26.362	-6215.3
43234	243.31	0	0	26.362	-6215.3
43235	243.3	0	0	26.362	-6215.3
43236	243.47	0	0	26.362	-6215.3
43237	243.31	0	0	26.362	-6215.3
43238	243.45	0	0	26.362	-6215.3

43239	243.44	0	0	26.362	-6215.3
43240	243.38	0	0	26.362	-6215.3
43241	243.33	0	0	26.362	-6215.3
43242	243.39	0	0	26.362	-6215.3
43243	243.45	0	0	26.362	-6215.3
43244	243.41	0	0	26.362	-6215.3
43245	243.27	0	0	26.362	-6215.3
43246	243.57	0	0	26.362	-6215.3
43247	243.24	0	0	26.362	-6215.3
43248	243.53	0	0	26.362	-6215.3
43249	243.3	0	0	26.362	-6215.3
43250	243.31	0	0	26.362	-6215.3
43251	243.38	0	0	26.362	-6215.3
43252	243.39	0	0	26.362	-6215.3
43253	243.28	0	0	26.362	-6215.3
43254	243.31	0	0	26.362	-6215.3
43255	243.43	0	0	26.362	-6215.3
43256	243.37	0	0	26.362	-6215.3
43257	243.19	0	0	26.362	-6215.3
43258	243.18	0	0	26.362	-6215.3
43259	243.14	0	0	26.362	-6215.3
43260	243.37	0	0	26.362	-6215.3
43261	243.24	0	0	26.362	-6215.3
43262	243.18	0	0	26.362	-6215.3
43263	243.36	0	0	26.362	-6215.3
43264	243.28	0	0	26.362	-6215.3
43265	243.33	0	0	26.362	-6215.3
43266	243.35	0	0	26.362	-6215.3
43267	243.37	0	0	26.362	-6215.3
43268	243.47	0	0	26.362	-6215.3
43269	243.47	0	0	26.362	-6215.3
43270	243.48	0	0	26.362	-6215.3
43271	243.4	0	0	26.362	-6215.3
43272	243.55	0	0	26.362	-6215.3
43273	243.51	0	0	26.362	-6215.3
43274	243.53	0	0	26.362	-6215.3
43275	243.63	0	0	26.362	-6215.3
43276	243.49	0	0	26.362	-6215.3
43277	243.46	0	0	26.362	-6215.3
43278	243.44	0	0	26.362	-6215.3
43279	243.32	0	0	26.362	-6215.3
43280	243.48	0	0	26.362	-6215.3
43281	243.33	0	0	26.362	-6215.3
43282	243.54	0	0	26.362	-6215.3
43283	243.41	0	0	26.362	-6215.3
43284	243.37	0	0	26.362	-6215.3
43285	243.49	0	0	26.362	-6215.3

43286	243.57	0	0	26.362	-6215.3
43287	243.35	0	0	26.362	-6215.3
43288	243.41	0	0	26.362	-6215.3
43289	243.66	0	0	26.362	-6215.3
43290	243.42	0	0	26.362	-6215.3
43291	243.44	0	0	26.362	-6215.3
43292	243.39	0	0	26.362	-6215.3
43293	243.58	0	0	26.362	-6215.3
43294	242.55	0	0	26.362	-6215.3
43295	243.53	0	0	26.362	-6215.3
43296	243.43	0	0	26.362	-6215.3
43297	243.29	0	0	26.362	-6215.3
43298	243.25	0	0	26.362	-6215.3
43299	243.4	0	0	26.362	-6215.3
43300	243.23	0	0	26.362	-6215.3
43301	243.3	0	0	26.362	-6215.3
43302	243.36	0	0	26.362	-6215.3
43303	243.55	0	0	26.362	-6215.3
43304	243.44	0	0	26.362	-6215.3
43305	243.31	0	0	26.362	-6215.3
43306	243.33	0	0	26.362	-6215.3
43307	243.57	0	0	26.362	-6215.3
43308	243.2	0	0	26.362	-6215.3
43309	243.34	0	0	26.362	-6215.3
43310	243.46	0	0	26.362	-6215.3
43311	243.48	0	0	26.362	-6215.3
43312	243.62	0	0	26.362	-6215.3
43313	243.6	0	0	26.362	-6215.3
43314	243.59	0	0	26.362	-6215.3
43315	243.54	0	0	26.362	-6215.3
43316	243.58	0	0	26.362	-6215.3
43317	243.58	0	0	26.362	-6215.3
43318	243.48	0	0	26.362	-6215.3
43319	243.54	0	0	26.362	-6215.3
43320	243.52	0	0	26.362	-6215.3
43321	243.45	0	0	26.362	-6215.3
43322	243.61	0	0	26.362	-6215.3
43323	243.43	0	0	26.362	-6215.3
43324	243.48	0	0	26.362	-6215.3
43325	243.46	0	0	26.362	-6215.3
43326	243.49	0	0	26.362	-6215.3
43327	243.5	0	0	26.362	-6215.3
43328	243.44	0	0	26.362	-6215.3
43329	243.5	0	0	26.362	-6215.3
43330	243.51	0	0	26.362	-6215.3
43331	243.51	0	0	26.362	-6215.3
43332	243.46	0	0	26.362	-6215.3

43333	243.35	0	0	26.362	-6215.3
43334	243.46	0	0	26.362	-6215.3
43335	243.55	0	0	26.362	-6215.3
43336	243.37	0	0	26.362	-6215.3
43337	243.45	0	0	26.362	-6215.3
43338	243.55	0	0	26.362	-6215.3
43339	243.41	0	0	26.362	-6215.3
43340	243.23	0	0	26.362	-6215.3
43341	243.63	0	0	26.362	-6215.3
43342	243.63	0	0	26.362	-6215.3
43343	243.44	0	0	26.362	-6215.3
43344	243.44	0	0	26.362	-6215.3
43345	243.49	0	0	26.362	-6215.3
43346	243.53	0	0	26.362	-6215.3
43347	243.5	0	0	26.362	-6215.3
43348	243.53	0	0	26.362	-6215.3
43349	243.4	0	0	26.362	-6215.3
43350	243.56	0	0	26.362	-6215.3
43351	243.47	0	0	26.362	-6215.3
43352	243.48	0	0	26.362	-6215.3
43353	243.45	0	0	26.362	-6215.3
43354	243.47	0	0	26.362	-6215.3
43355	243.43	0	0	26.362	-6215.3
43356	243.39	0	0	26.362	-6215.3
43357	243.4	0	0	26.362	-6215.3
43358	243.53	0	0	26.362	-6215.3
43359	243.5	0	0	26.362	-6215.3
43360	243.46	0	0	26.362	-6215.3
43361	243.3	0	0	26.362	-6215.3
43362	243.49	0	0	26.362	-6215.3
43363	243.52	0	0	26.362	-6215.3
43364	243.49	0	0	26.362	-6215.3
43365	243.49	0	0	26.362	-6215.3
43366	243.41	0	0	26.362	-6215.3
43367	243.28	0	0	26.362	-6215.3
43368	243.38	0	0	26.362	-6215.3
43369	243.42	0	0	26.362	-6215.3
43370	243.16	0	0	26.362	-6215.3
43371	243.5	0	0	26.362	-6215.3
43372	243.41	0	0	26.362	-6215.3
43373	243.36	0	0	26.362	-6215.3
43374	243.29	0	0	26.362	-6215.3
43375	243.36	0	0	26.362	-6215.3
43376	243.2	0	0	26.362	-6215.3
43377	243.16	0	0	26.362	-6215.3
43378	243.35	0	0	26.362	-6215.3
43379	243.34	0	0	26.362	-6215.3

43380	243.23	0	0	26.362	-6215.3
43381	243.35	0	0	26.362	-6215.3
43382	243.15	0	0	26.362	-6215.3
43383	243.23	0	0	26.362	-6215.3
43384	243.22	0	0	26.362	-6215.3
43385	243.32	0	0	26.362	-6215.3
43386	243.1	0	0	26.362	-6215.3
43387	243.28	0	0	26.362	-6215.3
43388	243.18	0	0	26.362	-6215.3
43389	243.3	0	0	26.362	-6215.3
43390	243.18	0	0	26.362	-6215.3
43391	243.26	0	0	26.362	-6215.3
43392	243.29	0	0	26.362	-6215.3
43393	243.14	0	0	26.362	-6215.3
43394	243.3	0	0	26.362	-6215.3
43395	243.32	0	0	26.362	-6215.3
43396	243.26	0	0	26.362	-6215.3
43397	243.34	0	0	26.362	-6215.3
43398	243.33	0	0	26.362	-6215.3
43399	243.16	0	0	26.362	-6215.3
43400	243.35	0	0	26.362	-6215.3
43401	243.06	0	0	26.362	-6215.3
43402	243.05	0	0	26.362	-6215.3
43403	243.1	0	0	26.362	-6215.3
43404	243.05	0	0	26.362	-6215.3
43405	243.05	0	0	26.362	-6215.3
43406	243.17	0	0	26.362	-6215.3
43407	243.11	0	0	26.362	-6215.3
43408	243.22	0	0	26.362	-6215.3
43409	243.31	0	0	26.362	-6215.3
43410	243.07	0	0	26.362	-6215.3
43411	243.14	0	0	26.362	-6215.3
43412	243	0	0	26.362	-6215.3
43413	243.02	0	0	26.362	-6215.3
43414	242.91	0	0	26.362	-6215.3
43415	242.95	0	0	26.362	-6215.3
43416	243.19	0	0	26.362	-6215.3
43417	242.57	0	0	26.362	-6215.3
43418	243.13	0	0	26.362	-6215.3
43419	242.88	0	0	26.362	-6215.3
43420	242.71	0	0	26.362	-6215.3
43421	243.02	0	0	26.362	-6215.3
43422	242.93	0	0	26.362	-6215.3
43423	243	0	0	26.362	-6215.3
43424	243.09	0	0	26.362	-6215.3
43425	243.22	0	0	26.362	-6215.3
43426	243.25	0	0	26.362	-6215.3

43427	243.27	0	0	26.362	-6215.3
43428	243.14	0	0	26.362	-6215.3
43429	243.22	0	0	26.362	-6215.3
43430	243.18	0	0	26.362	-6215.3
43431	243.2	0	0	26.362	-6215.3
43432	243.45	0	0	26.362	-6215.3
43433	243.29	0	0	26.362	-6215.3
43434	243.19	0	0	26.362	-6215.3
43435	243.39	0	0	26.362	-6215.3
43436	243.43	0	0	26.362	-6215.3
43437	243.35	0	0	26.362	-6215.3
43438	243.34	0	0	26.362	-6215.3
43439	243.29	0	0	26.362	-6215.3
43440	243.23	0	0	26.362	-6215.3
43441	243.21	0	0	26.362	-6215.3
43442	243.29	0	0	26.362	-6215.3
43443	243.32	0	0	26.362	-6215.3
43444	243.27	0	0	26.362	-6215.3
43445	243.25	0	0	26.362	-6215.3
43446	243.26	0	0	26.362	-6215.3
43447	243.38	0	0	26.362	-6215.3
43448	243.21	0	0	26.362	-6215.3
43449	243.35	0	0	26.362	-6215.3
43450	243.33	0	0	26.362	-6215.3
43451	243.3	0	0	26.362	-6215.3
43452	243.21	0	0	26.362	-6215.3
43453	243.37	0	0	26.362	-6215.3
43454	243.37	0	0	26.362	-6215.3
43455	243.29	0	0	26.362	-6215.3
43456	243.38	0	0	26.362	-6215.3
43457	243.4	0	0	26.362	-6215.3
43458	243.3	0	0	26.362	-6215.3
43459	243.35	0	0	26.362	-6215.3
43460	243.31	0	0	26.362	-6215.3
43461	243.28	0	0	26.362	-6215.3
43462	243.45	0	0	26.362	-6215.3
43463	243.33	0	0	26.362	-6215.3
43464	243.37	0	0	26.362	-6215.3
43465	243.3	0	0	26.362	-6215.3
43466	243.34	0	0	26.362	-6215.3
43467	243.4	0	0	26.362	-6215.3
43468	243.5	0	0	26.362	-6215.3
43469	243.32	0	0	26.362	-6215.3
43470	243.39	0	0	26.362	-6215.3
43471	243.45	0	0	26.362	-6215.3
43472	243.52	0	0	26.362	-6215.3
43473	243.46	0	0	26.362	-6215.3

43474	243.36	0	0	26.362	-6215.3
43475	243.32	0	0	26.362	-6215.3
43476	243.36	0	0	26.362	-6215.3
43477	243.28	0	0	26.362	-6215.3
43478	243.54	0	0	26.362	-6215.3
43479	243.45	0	0	26.362	-6215.3
43480	243.43	0	0	26.362	-6215.3
43481	243.48	0	0	26.362	-6215.3
43482	243.57	0	0	26.362	-6215.3
43483	243.32	0	0	26.362	-6215.3
43484	243.53	0	0	26.362	-6215.3
43485	243.42	0	0	26.362	-6215.3
43486	243.36	0	0	26.362	-6215.3
43487	243.38	0	0	26.362	-6215.3
43488	243.54	0	0	26.362	-6215.3
43489	243.51	0	0	26.362	-6215.3
43490	243.52	0	0	26.362	-6215.3
43491	243.36	0	0	26.362	-6215.3
43492	243.52	0	0	26.362	-6215.3
43493	243.53	0	0	26.362	-6215.3
43494	243.51	0	0	26.362	-6215.3
43495	243.49	0	0	26.362	-6215.3
43496	243.6	0	0	26.362	-6215.3
43497	243.36	0	0	26.362	-6215.3
43498	243.36	0	0	26.362	-6215.3
43499	243.5	0	0	26.362	-6215.3
43500	243.57	0	0	26.362	-6215.3
43501	243.51	0	0	26.362	-6215.3
43502	243.53	0	0	26.362	-6215.3
43503	243.48	0	0	26.362	-6215.3
43504	243.42	0	0	26.362	-6215.3
43505	243.48	0	0	26.362	-6215.3
43506	243.46	0	0	26.362	-6215.3
43507	243.58	0	0	26.362	-6215.3
43508	243.44	0	0	26.362	-6215.3
43509	243.48	0	0	26.362	-6215.3
43510	243.6	0	0	26.362	-6215.3
43511	243.27	0	0	26.362	-6215.3
43512	243.53	0	0	26.362	-6215.3
43513	243.48	0	0	26.362	-6215.3
43514	243.54	0	0	26.362	-6215.3
43515	243.5	0	0	26.362	-6215.3
43516	243.45	0	0	26.362	-6215.3
43517	243.5	0	0	26.362	-6215.3
43518	243.46	0	0	26.362	-6215.3
43519	243.48	0	0	26.362	-6215.3
43520	243.35	0	0	26.362	-6215.3

43521	243.57	0	0	26.362	-6215.3
43522	243.46	0	0	26.362	-6215.3
43523	243.43	0	0	26.362	-6215.3
43524	243.42	0	0	26.362	-6215.3
43525	243.47	0	0	26.362	-6215.3
43526	243.4	0	0	26.362	-6215.3
43527	243.45	0	0	26.362	-6215.3
43528	243.32	0	0	26.362	-6215.3
43529	243.45	0	0	26.362	-6215.3
43530	243.44	0	0	26.362	-6215.3
43531	243.54	0	0	26.362	-6215.3
43532	243.44	0	0	26.362	-6215.3
43533	243.49	0	0	26.362	-6215.3
43534	243.39	0	0	26.362	-6215.3
43535	243.32	0	0	26.362	-6215.3
43536	243.66	0	0	26.362	-6215.3
43537	243.27	0	0	26.362	-6215.3
43538	243.51	0	0	26.362	-6215.3
43539	243.42	0	0	26.362	-6215.3
43540	243.53	0	0	26.362	-6215.3
43541	243.48	0	0	26.362	-6215.3
43542	243.66	0	0	26.362	-6215.3
43543	243.43	0	0	26.362	-6215.3
43544	243.59	0	0	26.362	-6215.3
43545	243.54	0	0	26.362	-6215.3
43546	243.55	0	0	26.362	-6215.3
43547	243.48	0	0	26.362	-6215.3
43548	243.73	0	0	26.362	-6215.3
43549	243.72	0	0	26.362	-6215.3
43550	243.5	0	0	26.362	-6215.3
43551	243.36	0	0	26.362	-6215.3
43552	243.58	0	0	26.362	-6215.3
43553	243.51	0	0	26.362	-6215.3
43554	243.32	0	0	26.362	-6215.3
43555	243.62	0	0	26.362	-6215.3
43556	243.42	0	0	26.362	-6215.3
43557	243.46	0	0	26.362	-6215.3
43558	243.5	0	0	26.362	-6215.3
43559	243.45	0	0	26.362	-6215.3
43560	243.34	0	0	26.362	-6215.3
43561	243.58	0	0	26.362	-6215.3
43562	243.41	0	0	26.362	-6215.3
43563	243.56	0	0	26.362	-6215.3
43564	243.44	0	0	26.362	-6215.3
43565	243.44	0	0	26.362	-6215.3
43566	243.47	0	0	26.362	-6215.3
43567	243.48	0	0	26.362	-6215.3

43568	243.64	0	0	26.362	-6215.3
43569	243.69	0	0	26.362	-6215.3
43570	243.72	0	0	26.362	-6215.3
43571	243.67	0	0	26.362	-6215.3
43572	243.61	0	0	26.362	-6215.3
43573	243.69	0	0	26.362	-6215.3
43574	243.73	0	0	26.362	-6215.3
43575	243.49	0	0	26.362	-6215.3
43576	243.67	0	0	26.362	-6215.3
43577	243.62	0	0	26.362	-6215.3
43578	243.51	0	0	26.362	-6215.3
43579	243.68	0	0	26.362	-6215.3
43580	243.7	0	0	26.362	-6215.3
43581	243.65	0	0	26.362	-6215.3
43582	243.47	0	0	26.362	-6215.3
43583	243.54	0	0	26.362	-6215.3
43584	243.65	0	0	26.362	-6215.3
43585	243.56	0	0	26.362	-6215.3
43586	243.6	0	0	26.362	-6215.3
43587	243.5	0	0	26.362	-6215.3
43588	243.7	0	0	26.362	-6215.3
43589	243.56	0	0	26.362	-6215.3
43590	243.73	0	0	26.362	-6215.3
43591	243.5	0	0	26.362	-6215.3
43592	243.65	0	0	26.362	-6215.3
43593	243.6	0	0	26.362	-6215.3
43594	243.63	0	0	26.362	-6215.3
43595	243.64	0	0	26.362	-6215.3
43596	243.49	0	0	26.362	-6215.3
43597	243.69	0	0	26.362	-6215.3
43598	243.62	0	0	26.362	-6215.3
43599	243.65	0	0	26.362	-6215.3
43600	243.56	0	0	26.362	-6215.3
43601	243.46	0	0	26.362	-6215.3
43602	243.41	0	0	26.362	-6215.3
43603	243.52	0	0	26.362	-6215.3
43604	243.33	0	0	26.362	-6215.3
43605	243.39	0	0	26.362	-6215.3
43606	243.41	0	0	26.362	-6215.3
43607	243.49	0	0	26.362	-6215.3
43608	243.47	0	0	26.362	-6215.3
43609	243.4	0	0	26.362	-6215.3
43610	243.5	0	0	26.362	-6215.3
43611	243.39	0	0	26.362	-6215.3
43612	243.38	0	0	26.362	-6215.3
43613	243.31	0	0	26.362	-6215.3
43614	243.39	0	0	26.362	-6215.3

43615	243.39	0	0	26.362	-6215.3
43616	243.25	0	0	26.362	-6215.3
43617	243.44	0	0	26.362	-6215.3
43618	243.31	0	0	26.362	-6215.3
43619	243.3	0	0	26.362	-6215.3
43620	243.21	0	0	26.362	-6215.3
43621	243.34	0	0	26.362	-6215.3
43622	243.4	0	0	26.362	-6215.3
43623	243.27	0	0	26.362	-6215.3
43624	243.3	0	0	26.362	-6215.3
43625	243.37	0	0	26.362	-6215.3
43626	243.35	0	0	26.362	-6215.3
43627	243.31	0	0	26.362	-6215.3
43628	243.15	0	0	26.362	-6215.3
43629	243.32	0	0	26.362	-6215.3
43630	243.29	0	0	26.362	-6215.3
43631	243.24	0	0	26.362	-6215.3
43632	243.23	0	0	26.362	-6215.3
43633	243.23	0	0	26.362	-6215.3
43634	243.23	0	0	26.362	-6215.3
43635	243.2	0	0	26.362	-6215.3
43636	242.99	0	0	26.362	-6215.3
43637	243.14	0	0	26.362	-6215.3
43638	243.32	0	0	26.362	-6215.3
43639	243.34	0	0	26.362	-6215.3
43640	243.21	0	0	26.362	-6215.3
43641	243.34	0	0	26.362	-6215.3
43642	243.38	0	0	26.362	-6215.3
43643	243.28	0	0	26.362	-6215.3
43644	243.48	0	0	26.362	-6215.3
43645	243.14	0	0	26.362	-6215.3
43646	243.44	0	0	26.362	-6215.3
43647	243.21	0	0	26.362	-6215.3
43648	243.16	0	0	26.362	-6215.3
43649	243.38	0	0	26.362	-6215.3
43650	243.1	0	0	26.362	-6215.3
43651	243.13	0	0	26.362	-6215.3
43652	243.33	0	0	26.362	-6215.3
43653	243.24	0	0	26.362	-6215.3
43654	243.28	0	0	26.362	-6215.3
43655	243.33	0	0	26.362	-6215.3
43656	243.28	0	0	26.362	-6215.3
43657	243.08	0	0	26.362	-6215.3
43658	243.34	0	0	26.362	-6215.3
43659	243.19	0	0	26.362	-6215.3
43660	243.19	0	0	26.362	-6215.3
43661	243.16	0	0	26.362	-6215.3

43662	243.18	0	0	26.362	-6215.3
43663	243.32	0	0	26.362	-6215.3
43664	243.34	0	0	26.362	-6215.3
43665	243.13	0	0	26.362	-6215.3
43666	243.19	0	0	26.362	-6215.3
43667	243.17	0	0	26.362	-6215.3
43668	243.26	0	0	26.362	-6215.3
43669	243.27	0	0	26.362	-6215.3
43670	243.31	0	0	26.362	-6215.3
43671	243.29	0	0	26.362	-6215.3
43672	243.41	0	0	26.362	-6215.3
43673	243.31	0	0	26.362	-6215.3
43674	243.21	0	0	26.362	-6215.3
43675	243.3	0	0	26.362	-6215.3
43676	243.37	0	0	26.362	-6215.3
43677	243.38	0	0	26.362	-6215.3
43678	243.37	0	0	26.362	-6215.3
43679	243.44	0	0	26.362	-6215.3
43680	243.41	0	0	26.362	-6215.3
43681	243.44	0	0	26.362	-6215.3
43682	243.32	0	0	26.362	-6215.3
43683	243.34	0	0	26.362	-6215.3
43684	243.48	0	0	26.362	-6215.3
43685	243.53	0	0	26.362	-6215.3
43686	243.33	0	0	26.362	-6215.3
43687	243.29	0	0	26.362	-6215.3
43688	243.55	0	0	26.362	-6215.3
43689	243.33	0	0	26.362	-6215.3
43690	243.5	0	0	26.362	-6215.3
43691	243.27	0	0	26.362	-6215.3
43692	243.35	0	0	26.362	-6215.3
43693	243.27	0	0	26.362	-6215.3
43694	243.43	0	0	26.362	-6215.3
43695	243.54	0	0	26.362	-6215.3
43696	243.43	0	0	26.362	-6215.3
43697	243.49	0	0	26.362	-6215.3
43698	243.39	0	0	26.362	-6215.3
43699	243.3	0	0	26.362	-6215.3
43700	243.39	0	0	26.362	-6215.3
43701	243.42	0	0	26.362	-6215.3
43702	243.28	0	0	26.362	-6215.3
43703	243.45	0	0	26.362	-6215.3
43704	243.49	0	0	26.362	-6215.3
43705	243.34	0	0	26.362	-6215.3
43706	243.28	0	0	26.362	-6215.3
43707	243.3	0	0	26.362	-6215.3
43708	243.26	0	0	26.362	-6215.3

43709	243.3	0	0	26.362	-6215.3
43710	243.17	0	0	26.362	-6215.3
43711	243.41	0	0	26.362	-6215.3
43712	243.31	0	0	26.362	-6215.3
43713	243.33	0	0	26.362	-6215.3
43714	243.3	0	0	26.362	-6215.3
43715	243.33	0	0	26.362	-6215.3
43716	243.18	0	0	26.362	-6215.3
43717	243.17	0	0	26.362	-6215.3
43718	243.27	0	0	26.362	-6215.3
43719	243.24	0	0	26.362	-6215.3
43720	243.26	0	0	26.362	-6215.3
43721	243.22	0	0	26.362	-6215.3
43722	243.22	0	0	26.362	-6215.3
43723	243.26	0	0	26.362	-6215.3
43724	243.3	0	0	26.362	-6215.3
43725	243.34	0	0	26.362	-6215.3
43726	243.16	0	0	26.362	-6215.3
43727	243.26	0	0	26.362	-6215.3
43728	243.17	0	0	26.362	-6215.3
43729	243.36	0	0	26.362	-6215.3
43730	243.11	0	0	26.362	-6215.3
43731	243.17	0	0	26.362	-6215.3
43732	243.14	0	0	26.362	-6215.3
43733	243.14	0	0	26.362	-6215.3
43734	243.19	0	0	26.362	-6215.3
43735	243.15	0	0	26.362	-6215.3
43736	243.19	0	0	26.362	-6215.3
43737	243.14	0	0	26.362	-6215.3
43738	243.19	0	0	26.362	-6215.3
43739	243.14	0	0	26.362	-6215.3
43740	243.14	0	0	26.362	-6215.3
43741	243.21	0	0	26.362	-6215.3
43742	243.18	0	0	26.362	-6215.3
43743	243.26	0	0	26.362	-6215.3
43744	243.14	0	0	26.362	-6215.3
43745	243.29	0	0	26.362	-6215.3
43746	243.07	0	0	26.362	-6215.3
43747	243.16	0	0	26.362	-6215.3
43748	243.21	0	0	26.362	-6215.3
43749	243.23	0	0	26.362	-6215.3
43750	243.23	0	0	26.362	-6215.3
43751	243.19	0	0	26.362	-6215.3
43752	243.26	0	0	26.362	-6215.3
43753	243.21	0	0	26.362	-6215.3
43754	243.19	0	0	26.362	-6215.3
43755	243.25	0	0	26.362	-6215.3

43756	243.21	0	0	26.362	-6215.3
43757	243.26	0	0	26.362	-6215.3
43758	243.2	0	0	26.362	-6215.3
43759	243.27	0	0	26.362	-6215.3
43760	243.25	0	0	26.362	-6215.3
43761	243.28	0	0	26.362	-6215.3
43762	243.23	0	0	26.362	-6215.3
43763	243.29	0	0	26.362	-6215.3
43764	243.24	0	0	26.362	-6215.3
43765	243.32	0	0	26.362	-6215.3
43766	243.24	0	0	26.362	-6215.3
43767	243.33	0	0	26.362	-6215.3
43768	243.3	0	0	26.362	-6215.3
43769	243.29	0	0	26.362	-6215.3
43770	243.32	0	0	26.362	-6215.3
43771	243.31	0	0	26.362	-6215.3
43772	243.33	0	0	26.362	-6215.3
43773	243.2	0	0	26.362	-6215.3
43774	243.45	0	0	26.362	-6215.3
43775	243.41	0	0	26.362	-6215.3
43776	243.21	0	0	26.362	-6215.3
43777	243.35	0	0	26.362	-6215.3
43778	243.29	0	0	26.362	-6215.3
43779	243.4	0	0	26.362	-6215.3
43780	243.29	0	0	26.362	-6215.3
43781	243.21	0	0	26.362	-6215.3
43782	243.36	0	0	26.362	-6215.3
43783	243.26	0	0	26.362	-6215.3
43784	243.31	0	0	26.362	-6215.3
43785	243.44	0	0	26.362	-6215.3
43786	243.32	0	0	26.362	-6215.3
43787	243.4	0	0	26.362	-6215.3
43788	243.29	0	0	26.362	-6215.3
43789	243.26	0	0	26.362	-6215.3
43790	243.3	0	0	26.362	-6215.3
43791	243.47	0	0	26.362	-6215.3
43792	243.34	0	0	26.362	-6215.3
43793	243.27	0	0	26.362	-6215.3
43794	243.45	0	0	26.362	-6215.3
43795	243.61	0	0	26.362	-6215.3
43796	243.42	0	0	26.362	-6215.3
43797	243.29	0	0	26.362	-6215.3
43798	243.3	0	0	26.362	-6215.3
43799	243.37	0	0	26.362	-6215.3
43800	243.37	0	0	26.362	-6215.3
43801	243.29	0	0	26.362	-6215.3
43802	243.52	0	0	26.362	-6215.3

43803	243.38	0	0	26.362	-6215.3
43804	243.35	0	0	26.362	-6215.3
43805	243.56	0	0	26.362	-6215.3
43806	243.46	0	0	26.362	-6215.3
43807	243.46	0	0	26.362	-6215.3
43808	243.58	0	0	26.362	-6215.3
43809	243.48	0	0	26.362	-6215.3
43810	243.51	0	0	26.362	-6215.3
43811	243.55	0	0	26.362	-6215.3
43812	243.52	0	0	26.362	-6215.3
43813	243.45	0	0	26.362	-6215.3
43814	243.52	0	0	26.362	-6215.3
43815	243.49	0	0	26.362	-6215.3
43816	243.55	0	0	26.362	-6215.3
43817	243.52	0	0	26.362	-6215.3
43818	243.55	0	0	26.362	-6215.3
43819	243.52	0	0	26.362	-6215.3
43820	243.4	0	0	26.362	-6215.3
43821	243.53	0	0	26.362	-6215.3
43822	243.55	0	0	26.362	-6215.3
43823	243.43	0	0	26.362	-6215.3
43824	243.44	0	0	26.362	-6215.3
43825	243.5	0	0	26.362	-6215.3
43826	243.38	0	0	26.362	-6215.3
43827	243.45	0	0	26.362	-6215.3
43828	243.52	0	0	26.362	-6215.3
43829	243.38	0	0	26.362	-6215.3
43830	243.38	0	0	26.362	-6215.3
43831	243.54	0	0	26.362	-6215.3
43832	243.41	0	0	26.362	-6215.3
43833	243.55	0	0	26.362	-6215.3
43834	243.48	0	0	26.362	-6215.3
43835	243.43	0	0	26.362	-6215.3
43836	243.5	0	0	26.362	-6215.3
43837	243.48	0	0	26.362	-6215.3
43838	243.61	0	0	26.362	-6215.3
43839	243.42	0	0	26.362	-6215.3
43840	243.55	0	0	26.362	-6215.3
43841	243.48	0	0	26.362	-6215.3
43842	242.76	0	0	26.362	-6215.3
43843	243.33	0	0	26.362	-6215.3
43844	243.34	0	0	26.362	-6215.3
43845	243.24	0	0	26.362	-6215.3
43846	243.3	0	0	26.362	-6215.3
43847	243.41	0	0	26.362	-6215.3
43848	243.28	0	0	26.362	-6215.3
43849	243.4	0	0	26.362	-6215.3

43850	243.34	0	0	26.362	-6215.3
43851	243.21	0	0	26.362	-6215.3
43852	243.25	0	0	26.362	-6215.3
43853	243.29	0	0	26.362	-6215.3
43854	243.26	0	0	26.362	-6215.3
43855	243.24	0	0	26.362	-6215.3
43856	243.23	0	0	26.362	-6215.3
43857	243.19	0	0	26.362	-6215.3
43858	243.36	0	0	26.362	-6215.3
43859	243.21	0	0	26.362	-6215.3
43860	243.36	0	0	26.362	-6215.3
43861	243.29	0	0	26.362	-6215.3
43862	243.19	0	0	26.362	-6215.3
43863	243.2	0	0	26.362	-6215.3
43864	243.19	0	0	26.362	-6215.3
43865	243.18	0	0	26.362	-6215.3
43866	243.17	0	0	26.362	-6215.3
43867	242.91	0	0	26.362	-6215.3
43868	242.81	0	0	26.362	-6215.3
43869	243.38	0	0	26.362	-6215.3
43870	243.35	0	0	26.362	-6215.3
43871	243.39	0	0	26.362	-6215.3
43872	243.15	0	0	26.362	-6215.3
43873	243.23	0	0	26.362	-6215.3
43874	243.19	0	0	26.362	-6215.3
43875	243.06	0	0	26.362	-6215.3
43876	243.29	0	0	26.362	-6215.3
43877	243.28	0	0	26.362	-6215.3
43878	243.07	0	0	26.362	-6215.3
43879	243.22	0	0	26.362	-6215.3
43880	243.24	0	0	26.362	-6215.3
43881	243.22	0	0	26.362	-6215.3
43882	243.16	0	0	26.362	-6215.3
43883	242.96	0	0	26.362	-6215.3
43884	243.36	0	0	26.362	-6215.3
43885	243.03	0	0	26.362	-6215.3
43886	243.22	0	0	26.362	-6215.3
43887	243.2	0	0	26.362	-6215.3
43888	243.26	0	0	26.362	-6215.3
43889	243.21	0	0	26.362	-6215.3
43890	243.25	0	0	26.362	-6215.3
43891	243.23	0	0	26.362	-6215.3
43892	243.31	0	0	26.362	-6215.3
43893	243.3	0	0	26.362	-6215.3
43894	243.3	0	0	26.362	-6215.3
43895	243.18	0	0	26.362	-6215.3
43896	243.26	0	0	26.362	-6215.3

43897	243.31	0	0	26.362	-6215.3
43898	243.31	0	0	26.362	-6215.3
43899	243.23	0	0	26.362	-6215.3
43900	243.28	0	0	26.362	-6215.3
43901	243.16	0	0	26.362	-6215.3
43902	243.15	0	0	26.362	-6215.3
43903	243.21	0	0	26.362	-6215.3
43904	243.17	0	0	26.362	-6215.3
43905	243	0	0	26.362	-6215.3
43906	243.14	0	0	26.362	-6215.3
43907	243.22	0	0	26.362	-6215.3
43908	243.14	0	0	26.362	-6215.3
43909	243.07	0	0	26.362	-6215.3
43910	243.21	0	0	26.362	-6215.3
43911	243.18	0	0	26.362	-6215.3
43912	243.1	0	0	26.362	-6215.3
43913	243.05	0	0	26.362	-6215.3
43914	243.24	0	0	26.362	-6215.3
43915	243.22	0	0	26.362	-6215.3
43916	243.21	0	0	26.362	-6215.3
43917	243.18	0	0	26.362	-6215.3
43918	243.23	0	0	26.362	-6215.3
43919	243.22	0	0	26.362	-6215.3
43920	243.27	0	0	26.362	-6215.3
43921	243.24	0	0	26.362	-6215.3
43922	243.26	0	0	26.362	-6215.3
43923	243.37	0	0	26.362	-6215.3
43924	243.44	0	0	26.362	-6215.3
43925	243.38	0	0	26.362	-6215.3
43926	243.35	0	0	26.362	-6215.3
43927	243.43	0	0	26.362	-6215.3
43928	243.39	0	0	26.362	-6215.3
43929	243.33	0	0	26.362	-6215.3
43930	243.4	0	0	26.362	-6215.3
43931	243.44	0	0	26.362	-6215.3
43932	243.37	0	0	26.362	-6215.3
43933	243.45	0	0	26.362	-6215.3
43934	243.37	0	0	26.362	-6215.3
43935	243.28	0	0	26.362	-6215.3
43936	243.43	0	0	26.362	-6215.3
43937	243.36	0	0	26.362	-6215.3
43938	243.37	0	0	26.362	-6215.3
43939	243.22	0	0	26.362	-6215.3
43940	243.28	0	0	26.362	-6215.3
43941	243.27	0	0	26.362	-6215.3
43942	243.28	0	0	26.362	-6215.3
43943	243.32	0	0	26.362	-6215.3

43944	243.24	0	0	26.362	-6215.3
43945	243.33	0	0	26.362	-6215.3
43946	243.26	0	0	26.362	-6215.3
43947	243.09	0	0	26.362	-6215.3
43948	243.19	0	0	26.362	-6215.3
43949	243.27	0	0	26.362	-6215.3
43950	243.35	0	0	26.362	-6215.3
43951	243.18	0	0	26.362	-6215.3
43952	243.26	0	0	26.362	-6215.3
43953	243.11	0	0	26.362	-6215.3
43954	243.05	0	0	26.362	-6215.3
43955	243.18	0	0	26.362	-6215.3
43956	243.17	0	0	26.362	-6215.3
43957	243.11	0	0	26.362	-6215.3
43958	243.23	0	0	26.362	-6215.3
43959	243.19	0	0	26.362	-6215.3
43960	243.23	0	0	26.362	-6215.3
43961	243.01	0	0	26.362	-6215.3
43962	243.06	0	0	26.362	-6215.3
43963	243.09	0	0	26.362	-6215.3
43964	242.99	0	0	26.362	-6215.3
43965	243.1	0	0	26.362	-6215.3
43966	243.2	0	0	26.362	-6215.3
43967	243.01	0	0	26.362	-6215.3
43968	243.04	0	0	26.362	-6215.3
43969	243.13	0	0	26.362	-6215.3
43970	243.15	0	0	26.362	-6215.3
43971	243.08	0	0	26.362	-6215.3
43972	243.1	0	0	26.362	-6215.3
43973	243.14	0	0	26.362	-6215.3
43974	243.16	0	0	26.362	-6215.3
43975	242.95	0	0	26.362	-6215.3
43976	242.91	0	0	26.362	-6215.3
43977	243.08	0	0	26.362	-6215.3
43978	243.1	0	0	26.362	-6215.3
43979	241.44	0	0	26.362	-6215.3
43980	242.67	0	0	26.362	-6215.3
43981	242.74	0	0	26.362	-6215.3
43982	242.85	0	0	26.362	-6215.3
43983	242.78	0	0	26.362	-6215.3
43984	242.74	0	0	26.362	-6215.3
43985	242.69	0	0	26.362	-6215.3
43986	242.69	0	0	26.362	-6215.3
43987	242.62	0	0	26.362	-6215.3
43988	242.79	0	0	26.362	-6215.3
43989	242.81	0	0	26.362	-6215.3
43990	242.7	0	0	26.362	-6215.3

43991	242.71	0	0	26.362	-6215.3
43992	242.89	0	0	26.362	-6215.3
43993	242.8	0	0	26.362	-6215.3
43994	242.68	0	0	26.362	-6215.3
43995	242.75	0	0	26.362	-6215.3
43996	242.59	0	0	26.362	-6215.3
43997	242.73	0	0	26.362	-6215.3
43998	242.54	0	0	26.362	-6215.3
43999	242.58	0	0	26.362	-6215.3
44000	242.76	0	0	26.362	-6215.3
44001	242.61	0	0	26.362	-6215.3
44002	242.57	0	0	26.362	-6215.3
44003	242.61	0	0	26.362	-6215.3
44004	242.69	0	0	26.362	-6215.3
44005	242.87	0	0	26.362	-6215.3
44006	243.12	0	0	26.362	-6215.3
44007	243.01	0	0	26.362	-6215.3
44008	243.08	0	0	26.362	-6215.3
44009	243.02	0	0	26.362	-6215.3
44010	242.96	0	0	26.362	-6215.3
44011	243.03	0	0	26.362	-6215.3
44012	243.05	0	0	26.362	-6215.3
44013	243.02	0	0	26.362	-6215.3
44014	243.02	0	0	26.362	-6215.3
44015	243.03	0	0	26.362	-6215.3
44016	243.08	0	0	26.362	-6215.3
44017	243.06	0	0	26.362	-6215.3
44018	243.03	0	0	26.362	-6215.3
44019	243.02	0	0	26.362	-6215.3
44020	243.07	0	0	26.362	-6215.3
44021	243.06	0	0	26.362	-6215.3
44022	242.99	0	0	26.362	-6215.3
44023	242.99	0	0	26.362	-6215.3
44024	242.97	0	0	26.362	-6215.3
44025	243.03	0	0	26.362	-6215.3
44026	243.09	0	0	26.362	-6215.3
44027	243.03	0	0	26.362	-6215.3
44028	243.01	0	0	26.362	-6215.3
44029	242.97	0	0	26.362	-6215.3
44030	242.99	0	0	26.362	-6215.3
44031	243.04	0	0	26.362	-6215.3
44032	243.09	0	0	26.362	-6215.3
44033	243.03	0	0	26.362	-6215.3
44034	243.09	0	0	26.362	-6215.3
44035	243.06	0	0	26.362	-6215.3
44036	243	0	0	26.362	-6215.3
44037	243.08	0	0	26.362	-6215.3

44038	243.13	0	0	26.362	-6215.3
44039	243.15	0	0	26.362	-6215.3
44040	243.03	0	0	26.362	-6215.3
44041	243.08	0	0	26.362	-6215.3
44042	243.15	0	0	26.362	-6215.3
44043	243.1	0	0	26.362	-6215.3
44044	243.09	0	0	26.362	-6215.3
44045	243.07	0	0	26.362	-6215.3
44046	243.09	0	0	26.362	-6215.3
44047	243.21	0	0	26.362	-6215.3
44048	243.21	0	0	26.362	-6215.3
44049	243.17	0	0	26.362	-6215.3
44050	243.26	0	0	26.362	-6215.3
44051	243.17	0	0	26.362	-6215.3
44052	243.19	0	0	26.362	-6215.3
44053	243.24	0	0	26.362	-6215.3
44054	243.13	0	0	26.362	-6215.3
44055	243.22	0	0	26.362	-6215.3
44056	243.18	0	0	26.362	-6215.3
44057	243.16	0	0	26.362	-6215.3
44058	243.26	0	0	26.362	-6215.3
44059	243.19	0	0	26.362	-6215.3
44060	243.18	0	0	26.362	-6215.3
44061	243.23	0	0	26.362	-6215.3
44062	243.32	0	0	26.362	-6215.3
44063	243.36	0	0	26.362	-6215.3
44064	243.27	0	0	26.362	-6215.3
44065	243.29	0	0	26.362	-6215.3
44066	243.35	0	0	26.362	-6215.3
44067	243.3	0	0	26.362	-6215.3
44068	243.36	0	0	26.362	-6215.3
44069	243.37	0	0	26.362	-6215.3
44070	243.3	0	0	26.362	-6215.3
44071	243.32	0	0	26.362	-6215.3
44072	243.24	0	0	26.362	-6215.3
44073	243.21	0	0	26.362	-6215.3
44074	243.21	0	0	26.362	-6215.3
44075	243.23	0	0	26.362	-6215.3
44076	243.22	0	0	26.362	-6215.3
44077	243.24	0	0	26.362	-6215.3
44078	243.17	0	0	26.362	-6215.3
44079	243.18	0	0	26.362	-6215.3
44080	243.24	0	0	26.362	-6215.3
44081	243.17	0	0	26.362	-6215.3
44082	243.25	0	0	26.362	-6215.3
44083	243.26	0	0	26.362	-6215.3
44084	243.24	0	0	26.362	-6215.3

44085	243.23	0	0	26.362	-6215.3
44086	243.22	0	0	26.362	-6215.3
44087	243.31	0	0	26.362	-6215.3
44088	243.3	0	0	26.362	-6215.3
44089	243.3	0	0	26.362	-6215.3
44090	243.2	0	0	26.362	-6215.3
44091	243.31	0	0	26.362	-6215.3
44092	243.24	0	0	26.362	-6215.3
44093	243.28	0	0	26.362	-6215.3
44094	243.25	0	0	26.362	-6215.3
44095	243.27	0	0	26.362	-6215.3
44096	243.27	0	0	26.362	-6215.3
44097	243.2	0	0	26.362	-6215.3
44098	243.21	0	0	26.362	-6215.3
44099	243.31	0	0	26.362	-6215.3
44100	243.29	0	0	26.362	-6215.3
44101	243.28	0	0	26.362	-6215.3
44102	243.32	0	0	26.362	-6215.3
44103	243.28	0	0	26.362	-6215.3
44104	243.25	0	0	26.362	-6215.3
44105	243.35	0	0	26.362	-6215.3
44106	243.31	0	0	26.362	-6215.3
44107	243.31	0	0	26.362	-6215.3
44108	243.27	0	0	26.362	-6215.3
44109	243.23	0	0	26.362	-6215.3
44110	243.26	0	0	26.362	-6215.3
44111	243.28	0	0	26.362	-6215.3
44112	243.21	0	0	26.362	-6215.3
44113	243.19	0	0	26.362	-6215.3
44114	243.21	0	0	26.362	-6215.3
44115	243.24	0	0	26.362	-6215.3
44116	243.09	0	0	26.362	-6215.3
44117	243.13	0	0	26.362	-6215.3
44118	243.13	0	0	26.362	-6215.3
44119	243.08	0	0	26.362	-6215.3
44120	243.07	0	0	26.362	-6215.3
44121	243.15	0	0	26.362	-6215.3
44122	243.16	0	0	26.362	-6215.3
44123	243.14	0	0	26.362	-6215.3
44124	243.14	0	0	26.362	-6215.3
44125	243.16	0	0	26.362	-6215.3
44126	243.14	0	0	26.362	-6215.3
44127	243.16	0	0	26.362	-6215.3
44128	243.18	0	0	26.362	-6215.3
44129	243.1	0	0	26.362	-6215.3
44130	243.12	0	0	26.362	-6215.3
44131	243.15	0	0	26.362	-6215.3

44132	243.17	0	0	26.362	-6215.3
44133	243.16	0	0	26.362	-6215.3
44134	243.09	0	0	26.362	-6215.3
44135	243.14	0	0	26.362	-6215.3
44136	243.13	0	0	26.362	-6215.3
44137	243.14	0	0	26.362	-6215.3
44138	243.16	0	0	26.362	-6215.3
44139	243.24	0	0	26.362	-6215.3
44140	243.23	0	0	26.362	-6215.3
44141	243.2	0	0	26.362	-6215.3
44142	243.18	0	0	26.362	-6215.3
44143	243.18	0	0	26.362	-6215.3
44144	243.19	0	0	26.362	-6215.3
44145	243.2	0	0	26.362	-6215.3
44146	243.14	0	0	26.362	-6215.3
44147	243.2	0	0	26.362	-6215.3
44148	243.15	0	0	26.362	-6215.3
44149	243.14	0	0	26.362	-6215.3
44150	243.12	0	0	26.362	-6215.3
44151	243.2	0	0	26.362	-6215.3
44152	243.21	0	0	26.362	-6215.3
44153	243.06	0	0	26.362	-6215.3
44154	243.08	0	0	26.362	-6215.3
44155	243.1	0	0	26.362	-6215.3
44156	243.14	0	0	26.362	-6215.3
44157	243.12	0	0	26.362	-6215.3
44158	243.1	0	0	26.362	-6215.3
44159	243.04	0	0	26.362	-6215.3
44160	243.14	0	0	26.362	-6215.3
44161	243.08	0	0	26.362	-6215.3
44162	243.1	0	0	26.362	-6215.3
44163	243.17	0	0	26.362	-6215.3
44164	243.18	0	0	26.362	-6215.3
44165	243.21	0	0	26.362	-6215.3
44166	243.22	0	0	26.362	-6215.3
44167	243.17	0	0	26.362	-6215.3
44168	243.14	0	0	26.362	-6215.3
44169	243.18	0	0	26.362	-6215.3
44170	243.27	0	0	26.362	-6215.3
44171	243.19	0	0	26.362	-6215.3
44172	243.09	0	0	26.362	-6215.3
44173	243.27	0	0	26.362	-6215.3
44174	243.12	0	0	26.362	-6215.3
44175	243.16	0	0	26.362	-6215.3
44176	243.08	0	0	26.362	-6215.3
44177	243.17	0	0	26.362	-6215.3
44178	243.18	0	0	26.362	-6215.3

44179	243.24	0	0	26.362	-6215.3
44180	243.24	0	0	26.362	-6215.3
44181	243.34	0	0	26.362	-6215.3
44182	243.33	0	0	26.362	-6215.3
44183	243.34	0	0	26.362	-6215.3
44184	243.37	0	0	26.362	-6215.3
44185	243.35	0	0	26.362	-6215.3
44186	243.35	0	0	26.362	-6215.3
44187	243.35	0	0	26.362	-6215.3
44188	243.37	0	0	26.362	-6215.3
44189	243.16	0	0	26.362	-6215.3
44190	242.93	0	0	26.362	-6215.3
44191	243.21	0	0	26.362	-6215.3
44192	243.12	0	0	26.362	-6215.3
44193	243.07	0	0	26.362	-6215.3
44194	243.14	0	0	26.362	-6215.3
44195	243.22	0	0	26.362	-6215.3
44196	242.95	0	0	26.362	-6215.3
44197	243.16	0	0	26.362	-6215.3
44198	243	0	0	26.362	-6215.3
44199	243.3	0	0	26.362	-6215.3
44200	243.38	0	0	26.362	-6215.3
44201	242.92	0	0	26.362	-6215.3
44202	243.28	0	0	26.362	-6215.3
44203	243.18	0	0	26.362	-6215.3
44204	243.28	0	0	26.362	-6215.3
44205	243.35	0	0	26.362	-6215.3
44206	243.22	0	0	26.362	-6215.3
44207	243.22	0	0	26.362	-6215.3
44208	243.21	0	0	26.362	-6215.3
44209	243.25	0	0	26.362	-6215.3
44210	243.18	0	0	26.362	-6215.3
44211	243.17	0	0	26.362	-6215.3
44212	243.07	0	0	26.362	-6215.3
44213	243.27	0	0	26.362	-6215.3
44214	243.3	0	0	26.362	-6215.3
44215	243.02	0	0	26.362	-6215.3
44216	243.07	0	0	26.362	-6215.3
44217	243.2	0	0	26.362	-6215.3
44218	243.28	0	0	26.362	-6215.3
44219	243.1	0	0	26.362	-6215.3
44220	243.24	0	0	26.362	-6215.3
44221	243.32	0	0	26.362	-6215.3
44222	243.13	0	0	26.362	-6215.3
44223	243.2	0	0	26.362	-6215.3
44224	243.14	0	0	26.362	-6215.3
44225	243.35	0	0	26.362	-6215.3

44226	243.12	0	0	26.362	-6215.3
44227	243.17	0	0	26.362	-6215.3
44228	243.07	0	0	26.362	-6215.3
44229	243.05	0	0	26.362	-6215.3
44230	243.2	0	0	26.362	-6215.3
44231	243.15	0	0	26.362	-6215.3
44232	243.13	0	0	26.362	-6215.3
44233	243.21	0	0	26.362	-6215.3
44234	243.13	0	0	26.362	-6215.3
44235	243.06	0	0	26.362	-6215.3
44236	243.03	0	0	26.362	-6215.3
44237	243.08	0	0	26.362	-6215.3
44238	243.04	0	0	26.362	-6215.3
44239	242.91	0	0	26.362	-6215.3
44240	243.11	0	0	26.362	-6215.3
44241	243.1	0	0	26.362	-6215.3
44242	243.01	0	0	26.362	-6215.3
44243	243.15	0	0	26.362	-6215.3
44244	242.96	0	0	26.362	-6215.3
44245	243.12	0	0	26.362	-6215.3
44246	243.16	0	0	26.362	-6215.3
44247	243.06	0	0	26.362	-6215.3
44248	243.04	0	0	26.362	-6215.3
44249	243.08	0	0	26.362	-6215.3
44250	243.16	0	0	26.362	-6215.3
44251	243.15	0	0	26.362	-6215.3
44252	243.16	0	0	26.362	-6215.3
44253	243.16	0	0	26.362	-6215.3
44254	243.02	0	0	26.362	-6215.3
44255	243.08	0	0	26.362	-6215.3
44256	243.08	0	0	26.362	-6215.3
44257	242.96	0	0	26.362	-6215.3
44258	243.07	0	0	26.362	-6215.3
44259	243.01	0	0	26.362	-6215.3
44260	243.09	0	0	26.362	-6215.3
44261	243.06	0	0	26.362	-6215.3
44262	243.02	0	0	26.362	-6215.3
44263	243.15	0	0	26.362	-6215.3
44264	242.39	0	0	26.362	-6215.3
44265	243.05	0	0	26.362	-6215.3
44266	243.02	0	0	26.362	-6215.3
44267	242.97	0	0	26.362	-6215.3
44268	243.02	0	0	26.362	-6215.3
44269	243.03	0	0	26.362	-6215.3
44270	242.9	0	0	26.362	-6215.3
44271	242.91	0	0	26.362	-6215.3
44272	243.03	0	0	26.362	-6215.3

44273	242.99	0	0	26.362	-6215.3
44274	243.02	0	0	26.362	-6215.3
44275	242.98	0	0	26.362	-6215.3
44276	243.06	0	0	26.362	-6215.3
44277	243.11	0	0	26.362	-6215.3
44278	243.36	0	0	26.362	-6215.3
44279	243.44	0	0	26.362	-6215.3
44280	243.49	0	0	26.362	-6215.3
44281	243.46	0	0	26.362	-6215.3
44282	243.49	0	0	26.362	-6215.3
44283	243.25	0	0	26.362	-6215.3
44284	243.35	0	0	26.362	-6215.3
44285	243.36	0	0	26.362	-6215.3
44286	243.51	0	0	26.362	-6215.3
44287	243.4	0	0	26.362	-6215.3
44288	243.48	0	0	26.362	-6215.3
44289	243.55	0	0	26.362	-6215.3
44290	243.25	0	0	26.362	-6215.3
44291	243.53	0	0	26.362	-6215.3
44292	243.54	0	0	26.362	-6215.3
44293	243.54	0	0	26.362	-6215.3
44294	243.38	0	0	26.362	-6215.3
44295	243.5	0	0	26.362	-6215.3
44296	243.14	0	0	26.362	-6215.3
44297	243.54	0	0	26.362	-6215.3
44298	243.47	0	0	26.362	-6215.3
44299	243.34	0	0	26.362	-6215.3
44300	243.46	0	0	26.362	-6215.3
44301	243.53	0	0	26.362	-6215.3
44302	243.32	0	0	26.362	-6215.3
44303	243.58	0	0	26.362	-6215.3
44304	243.43	0	0	26.362	-6215.3
44305	243.44	0	0	26.362	-6215.3
44306	243.41	0	0	26.362	-6215.3
44307	243.64	0	0	26.362	-6215.3
44308	243.5	0	0	26.362	-6215.3
44309	243.56	0	0	26.362	-6215.3
44310	243.52	0	0	26.362	-6215.3
44311	243.44	0	0	26.362	-6215.3
44312	243.65	0	0	26.362	-6215.3
44313	243.51	0	0	26.362	-6215.3
44314	243.5	0	0	26.362	-6215.3
44315	243.59	0	0	26.362	-6215.3
44316	243.54	0	0	26.362	-6215.3
44317	243.53	0	0	26.362	-6215.3
44318	243.71	0	0	26.362	-6215.3
44319	243.47	0	0	26.362	-6215.3

44320	243.55	0	0	26.362	-6215.3
44321	243.52	0	0	26.362	-6215.3
44322	243.69	0	0	26.362	-6215.3
44323	243.58	0	0	26.362	-6215.3
44324	243.44	0	0	26.362	-6215.3
44325	243.58	0	0	26.362	-6215.3
44326	243.5	0	0	26.362	-6215.3
44327	243.61	0	0	26.362	-6215.3
44328	243.6	0	0	26.362	-6215.3
44329	243.78	0	0	26.362	-6215.3
44330	243.74	0	0	26.362	-6215.3
44331	243.74	0	0	26.362	-6215.3
44332	243.74	0	0	26.362	-6215.3
44333	243.73	0	0	26.362	-6215.3
44334	243.76	0	0	26.362	-6215.3
44335	243.68	0	0	26.362	-6215.3
44336	243.48	0	0	26.362	-6215.3
44337	243.56	0	0	26.362	-6215.3
44338	243.83	0	0	26.362	-6215.3
44339	243.74	0	0	26.362	-6215.3
44340	243.54	0	0	26.362	-6215.3
44341	243.62	0	0	26.362	-6215.3
44342	243.58	0	0	26.362	-6215.3
44343	243.48	0	0	26.362	-6215.3
44344	243.56	0	0	26.362	-6215.3
44345	243.55	0	0	26.362	-6215.3
44346	243.49	0	0	26.362	-6215.3
44347	243.48	0	0	26.362	-6215.3
44348	243.47	0	0	26.362	-6215.3
44349	243.55	0	0	26.362	-6215.3
44350	243.52	0	0	26.362	-6215.3
44351	243.41	0	0	26.362	-6215.3
44352	243.57	0	0	26.362	-6215.3
44353	243.58	0	0	26.362	-6215.3
44354	243.53	0	0	26.362	-6215.3
44355	243.43	0	0	26.362	-6215.3
44356	243.46	0	0	26.362	-6215.3
44357	243.6	0	0	26.362	-6215.3
44358	243.46	0	0	26.362	-6215.3
44359	243.51	0	0	26.362	-6215.3
44360	243.55	0	0	26.362	-6215.3
44361	243.42	0	0	26.362	-6215.3
44362	243.47	0	0	26.362	-6215.3
44363	243.46	0	0	26.362	-6215.3
44364	243.5	0	0	26.362	-6215.3
44365	243.46	0	0	26.362	-6215.3
44366	243.51	0	0	26.362	-6215.3

44367	243.51	0	0	26.362	-6215.3
44368	243.41	0	0	26.362	-6215.3
44369	243.48	0	0	26.362	-6215.3
44370	243.51	0	0	26.362	-6215.3
44371	243.48	0	0	26.362	-6215.3
44372	243.5	0	0	26.362	-6215.3
44373	243.42	0	0	26.362	-6215.3
44374	243.46	0	0	26.362	-6215.3
44375	243.46	0	0	26.362	-6215.3
44376	243.46	0	0	26.362	-6215.3
44377	243.46	0	0	26.362	-6215.3
44378	243.43	0	0	26.362	-6215.3
44379	243.44	0	0	26.362	-6215.3
44380	243.44	0	0	26.362	-6215.3
44381	243.49	0	0	26.362	-6215.3
44382	243.51	0	0	26.362	-6215.3
44383	243.41	0	0	26.362	-6215.3
44384	243.49	0	0	26.362	-6215.3
44385	243.07	0	0	26.362	-6215.3
44386	243.44	0	0	26.362	-6215.3
44387	243.48	0	0	26.362	-6215.3
44388	243.19	0	0	26.362	-6215.3
44389	243.44	0	0	26.362	-6215.3
44390	243.51	0	0	26.362	-6215.3
44391	243.54	0	0	26.362	-6215.3
44392	243.34	0	0	26.362	-6215.3
44393	243.41	0	0	26.362	-6215.3
44394	243.51	0	0	26.362	-6215.3
44395	243.55	0	0	26.362	-6215.3
44396	243.47	0	0	26.362	-6215.3
44397	243.46	0	0	26.362	-6215.3
44398	243.49	0	0	26.362	-6215.3
44399	243.48	0	0	26.362	-6215.3
44400	243.51	0	0	26.362	-6215.3
44401	243.43	0	0	26.362	-6215.3
44402	243.44	0	0	26.362	-6215.3
44403	243.4	0	0	26.362	-6215.3
44404	243.51	0	0	26.362	-6215.3
44405	243.45	0	0	26.362	-6215.3
44406	243.42	0	0	26.362	-6215.3
44407	243.53	0	0	26.362	-6215.3
44408	243.44	0	0	26.362	-6215.3
44409	243.48	0	0	26.362	-6215.3
44410	243.43	0	0	26.362	-6215.3
44411	243.42	0	0	26.362	-6215.3
44412	243.52	0	0	26.362	-6215.3
44413	243.54	0	0	26.362	-6215.3

44414	243.55	0	0	26.362	-6215.3
44415	243.61	0	0	26.362	-6215.3
44416	243.61	0	0	26.362	-6215.3
44417	243.67	0	0	26.362	-6215.3
44418	243.6	0	0	26.362	-6215.3
44419	243.56	0	0	26.362	-6215.3
44420	243.5	0	0	26.362	-6215.3
44421	243.57	0	0	26.362	-6215.3
44422	243.64	0	0	26.362	-6215.3
44423	243.64	0	0	26.362	-6215.3
44424	243.65	0	0	26.362	-6215.3
44425	243.66	0	0	26.362	-6215.3
44426	243.67	0	0	26.362	-6215.3
44427	243.64	0	0	26.362	-6215.3
44428	243.63	0	0	26.362	-6215.3
44429	243.6	0	0	26.362	-6215.3
44430	243.63	0	0	26.362	-6215.3
44431	243.62	0	0	26.362	-6215.3
44432	243.42	0	0	26.362	-6215.3
44433	243.54	0	0	26.362	-6215.3
44434	243.55	0	0	26.362	-6215.3
44435	243.6	0	0	26.362	-6215.3
44436	243.52	0	0	26.362	-6215.3
44437	243.53	0	0	26.362	-6215.3
44438	243.6	0	0	26.362	-6215.3
44439	243.59	0	0	26.362	-6215.3
44440	243.44	0	0	26.362	-6215.3
44441	243.5	0	0	26.362	-6215.3
44442	243.48	0	0	26.362	-6215.3
44443	243.51	0	0	26.362	-6215.3
44444	243.53	0	0	26.362	-6215.3
44445	243.29	0	0	26.362	-6215.3
44446	243.57	0	0	26.362	-6215.3
44447	243.48	0	0	26.362	-6215.3
44448	243.49	0	0	26.362	-6215.3
44449	243.48	0	0	26.362	-6215.3
44450	243.43	0	0	26.362	-6215.3
44451	243.45	0	0	26.362	-6215.3
44452	243.5	0	0	26.362	-6215.3
44453	243.26	0	0	26.362	-6215.3
44454	243.45	0	0	26.362	-6215.3
44455	243.43	0	0	26.362	-6215.3
44456	243.44	0	0	26.362	-6215.3
44457	243.55	0	0	26.362	-6215.3
44458	243.51	0	0	26.362	-6215.3
44459	243.54	0	0	26.362	-6215.3
44460	243.54	0	0	26.362	-6215.3

44461	243.48	0	0	26.362	-6215.3
44462	243.46	0	0	26.362	-6215.3
44463	243.47	0	0	26.362	-6215.3
44464	243.43	0	0	26.362	-6215.3
44465	243.53	0	0	26.362	-6215.3
44466	243.22	0	0	26.362	-6215.3
44467	243.36	0	0	26.362	-6215.3
44468	243.33	0	0	26.362	-6215.3
44469	243.44	0	0	26.362	-6215.3
44470	243.43	0	0	26.362	-6215.3
44471	243.42	0	0	26.362	-6215.3
44472	243.27	0	0	26.362	-6215.3
44473	243.5	0	0	26.362	-6215.3
44474	243.58	0	0	26.362	-6215.3
44475	243.57	0	0	26.362	-6215.3
44476	243.46	0	0	26.362	-6215.3
44477	243.39	0	0	26.362	-6215.3
44478	243.33	0	0	26.362	-6215.3
44479	243.36	0	0	26.362	-6215.3
44480	243.44	0	0	26.362	-6215.3
44481	243.47	0	0	26.362	-6215.3
44482	243.43	0	0	26.362	-6215.3
44483	243.51	0	0	26.362	-6215.3
44484	243.44	0	0	26.362	-6215.3
44485	243.53	0	0	26.362	-6215.3
44486	243.5	0	0	26.362	-6215.3
44487	243.5	0	0	26.362	-6215.3
44488	243.46	0	0	26.362	-6215.3
44489	243.48	0	0	26.362	-6215.3
44490	243.52	0	0	26.362	-6215.3
44491	243.47	0	0	26.362	-6215.3
44492	243.4	0	0	26.362	-6215.3
44493	243.44	0	0	26.362	-6215.3
44494	243.51	0	0	26.362	-6215.3
44495	243.39	0	0	26.362	-6215.3
44496	243.45	0	0	26.362	-6215.3
44497	243.56	0	0	26.362	-6215.3
44498	243.53	0	0	26.362	-6215.3
44499	243.54	0	0	26.362	-6215.3
44500	243.66	0	0	26.362	-6215.3
44501	243.47	0	0	26.362	-6215.3
44502	243.44	0	0	26.362	-6215.3
44503	243.45	0	0	26.362	-6215.3
44504	243.46	0	0	26.362	-6215.3
44505	243.44	0	0	26.362	-6215.3
44506	243.35	0	0	26.362	-6215.3
44507	243.35	0	0	26.362	-6215.3

44508	243.24	0	0	26.362	-6215.3
44509	243.13	0	0	26.362	-6215.3
44510	242.97	0	0	26.362	-6215.3
44511	243.54	0	0	26.362	-6215.3
44512	243.36	0	0	26.362	-6215.3
44513	243.37	0	0	26.362	-6215.3
44514	243.35	0	0	26.362	-6215.3
44515	243.2	0	0	26.362	-6215.3
44516	243.27	0	0	26.362	-6215.3
44517	243.41	0	0	26.362	-6215.3
44518	243.07	0	0	26.362	-6215.3
44519	243.17	0	0	26.362	-6215.3
44520	243.34	0	0	26.362	-6215.3
44521	243.27	0	0	26.362	-6215.3
44522	243.27	0	0	26.362	-6215.3
44523	243.3	0	0	26.362	-6215.3
44524	243.28	0	0	26.362	-6215.3
44525	243.32	0	0	26.362	-6215.3
44526	243.2	0	0	26.362	-6215.3
44527	243.28	0	0	26.362	-6215.3
44528	243.24	0	0	26.362	-6215.3
44529	243.21	0	0	26.362	-6215.3
44530	243.32	0	0	26.362	-6215.3
44531	243.29	0	0	26.362	-6215.3
44532	243.28	0	0	26.362	-6215.3
44533	243.32	0	0	26.362	-6215.3
44534	243.29	0	0	26.362	-6215.3
44535	243.34	0	0	26.362	-6215.3
44536	243.27	0	0	26.362	-6215.3
44537	243.34	0	0	26.362	-6215.3
44538	243.31	0	0	26.362	-6215.3
44539	243.12	0	0	26.362	-6215.3
44540	243.1	0	0	26.362	-6215.3
44541	243.19	0	0	26.362	-6215.3
44542	243.43	0	0	26.362	-6215.3
44543	242.99	0	0	26.362	-6215.3
44544	243.14	0	0	26.362	-6215.3
44545	243.05	0	0	26.362	-6215.3
44546	243.03	0	0	26.362	-6215.3
44547	243.21	0	0	26.362	-6215.3
44548	243.19	0	0	26.362	-6215.3
44549	243.39	0	0	26.362	-6215.3
44550	243.3	0	0	26.362	-6215.3
44551	243.02	0	0	26.362	-6215.3
44552	243.09	0	0	26.362	-6215.3
44553	243.24	0	0	26.362	-6215.3
44554	243.19	0	0	26.362	-6215.3

44555	243.16	0	0	26.362	-6215.3
44556	243.23	0	0	26.362	-6215.3
44557	243.14	0	0	26.362	-6215.3
44558	243.38	0	0	26.362	-6215.3
44559	243.27	0	0	26.362	-6215.3
44560	243.3	0	0	26.362	-6215.3
44561	243.3	0	0	26.362	-6215.3
44562	243.31	0	0	26.362	-6215.3
44563	243.35	0	0	26.362	-6215.3
44564	243.27	0	0	26.362	-6215.3
44565	243.22	0	0	26.362	-6215.3
44566	243.31	0	0	26.362	-6215.3
44567	243.34	0	0	26.362	-6215.3
44568	243.25	0	0	26.362	-6215.3
44569	243.37	0	0	26.362	-6215.3
44570	243.26	0	0	26.362	-6215.3
44571	243.38	0	0	26.362	-6215.3
44572	243.19	0	0	26.362	-6215.3
44573	243.22	0	0	26.362	-6215.3
44574	243.09	0	0	26.362	-6215.3
44575	243.13	0	0	26.362	-6215.3
44576	243.19	0	0	26.362	-6215.3
44577	243.53	0	0	26.362	-6215.3
44578	243.44	0	0	26.362	-6215.3
44579	243.45	0	0	26.362	-6215.3
44580	243.42	0	0	26.362	-6215.3
44581	243.44	0	0	26.362	-6215.3
44582	243.49	0	0	26.362	-6215.3
44583	243.51	0	0	26.362	-6215.3
44584	243.38	0	0	26.362	-6215.3
44585	243.45	0	0	26.362	-6215.3
44586	243.39	0	0	26.362	-6215.3
44587	243.37	0	0	26.362	-6215.3
44588	243.32	0	0	26.362	-6215.3
44589	243.36	0	0	26.362	-6215.3
44590	243.19	0	0	26.362	-6215.3
44591	243.12	0	0	26.362	-6215.3
44592	243.33	0	0	26.362	-6215.3
44593	243.44	0	0	26.362	-6215.3
44594	243.34	0	0	26.362	-6215.3
44595	243.32	0	0	26.362	-6215.3
44596	243.27	0	0	26.362	-6215.3
44597	243.34	0	0	26.362	-6215.3
44598	243.33	0	0	26.362	-6215.3
44599	243.35	0	0	26.362	-6215.3
44600	243.35	0	0	26.362	-6215.3
44601	243.17	0	0	26.362	-6215.3

44602	243.27	0	0	26.362	-6215.3
44603	243.22	0	0	26.362	-6215.3
44604	243.22	0	0	26.362	-6215.3
44605	243.32	0	0	26.362	-6215.3
44606	243.26	0	0	26.362	-6215.3
44607	243.2	0	0	26.362	-6215.3
44608	243.13	0	0	26.362	-6215.3
44609	243.23	0	0	26.362	-6215.3
44610	243.12	0	0	26.362	-6215.3
44611	243.28	0	0	26.362	-6215.3
44612	243.34	0	0	26.362	-6215.3
44613	243.16	0	0	26.362	-6215.3
44614	243.23	0	0	26.362	-6215.3
44615	243.23	0	0	26.362	-6215.3
44616	243.17	0	0	26.362	-6215.3
44617	243.2	0	0	26.362	-6215.3
44618	243.28	0	0	26.362	-6215.3
44619	243.26	0	0	26.362	-6215.3
44620	243.18	0	0	26.362	-6215.3
44621	243.06	0	0	26.362	-6215.3
44622	243.12	0	0	26.362	-6215.3
44623	243.15	0	0	26.362	-6215.3
44624	243.3	0	0	26.362	-6215.3
44625	243.18	0	0	26.362	-6215.3
44626	243.24	0	0	26.362	-6215.3
44627	243.3	0	0	26.362	-6215.3
44628	243.3	0	0	26.362	-6215.3
44629	243.28	0	0	26.362	-6215.3
44630	243.16	0	0	26.362	-6215.3
44631	243.33	0	0	26.362	-6215.3
44632	243.34	0	0	26.362	-6215.3
44633	243.31	0	0	26.362	-6215.3
44634	243.21	0	0	26.362	-6215.3
44635	243.18	0	0	26.362	-6215.3
44636	243.2	0	0	26.362	-6215.3
44637	243.23	0	0	26.362	-6215.3
44638	243.32	0	0	26.362	-6215.3
44639	243.27	0	0	26.362	-6215.3
44640	243.24	0	0	26.362	-6215.3
44641	243.21	0	0	26.362	-6215.3
44642	243.26	0	0	26.362	-6215.3
44643	243.21	0	0	26.362	-6215.3
44644	243.23	0	0	26.362	-6215.3
44645	243.26	0	0	26.362	-6215.3
44646	243.26	0	0	26.362	-6215.3
44647	243.17	0	0	26.362	-6215.3
44648	243.27	0	0	26.362	-6215.3

44649	243.27	0	0	26.362	-6215.3
44650	243.21	0	0	26.362	-6215.3
44651	243.29	0	0	26.362	-6215.3
44652	243.23	0	0	26.362	-6215.3
44653	243.27	0	0	26.362	-6215.3
44654	243.31	0	0	26.362	-6215.3
44655	243.26	0	0	26.362	-6215.3
44656	243.26	0	0	26.362	-6215.3
44657	243.19	0	0	26.362	-6215.3
44658	243.13	0	0	26.362	-6215.3
44659	243.15	0	0	26.362	-6215.3
44660	243.24	0	0	26.362	-6215.3
44661	243.24	0	0	26.362	-6215.3
44662	243.24	0	0	26.362	-6215.3
44663	243.16	0	0	26.362	-6215.3
44664	243.25	0	0	26.362	-6215.3
44665	243.2	0	0	26.362	-6215.3
44666	243.18	0	0	26.362	-6215.3
44667	243.2	0	0	26.362	-6215.3
44668	243.14	0	0	26.362	-6215.3
44669	243.15	0	0	26.362	-6215.3
44670	243.14	0	0	26.362	-6215.3
44671	243.12	0	0	26.362	-6215.3
44672	242.46	0	0	26.362	-6215.3
44673	242.82	0	0	26.362	-6215.3
44674	243.07	0	0	26.362	-6215.3
44675	243.08	0	0	26.362	-6215.3
44676	242.99	0	0	26.362	-6215.3
44677	243.06	0	0	26.362	-6215.3
44678	243.08	0	0	26.362	-6215.3
44679	243.04	0	0	26.362	-6215.3
44680	243.13	0	0	26.362	-6215.3
44681	243.11	0	0	26.362	-6215.3
44682	243.07	0	0	26.362	-6215.3
44683	243.15	0	0	26.362	-6215.3
44684	243.09	0	0	26.362	-6215.3
44685	242.95	0	0	26.362	-6215.3
44686	243	0	0	26.362	-6215.3
44687	243.04	0	0	26.362	-6215.3
44688	243.15	0	0	26.362	-6215.3
44689	243.15	0	0	26.362	-6215.3
44690	243.15	0	0	26.362	-6215.3
44691	243.25	0	0	26.362	-6215.3
44692	243.28	0	0	26.362	-6215.3
44693	243.28	0	0	26.362	-6215.3
44694	243.15	0	0	26.362	-6215.3
44695	243.05	0	0	26.362	-6215.3

44696	243.13	0	0	26.362	-6215.3
44697	242.98	0	0	26.362	-6215.3
44698	243.14	0	0	26.362	-6215.3
44699	243.11	0	0	26.362	-6215.3
44700	243.15	0	0	26.362	-6215.3
44701	243.14	0	0	26.362	-6215.3
44702	243.15	0	0	26.362	-6215.3
44703	243.21	0	0	26.362	-6215.3
44704	243.19	0	0	26.362	-6215.3
44705	243.12	0	0	26.362	-6215.3
44706	243.08	0	0	26.362	-6215.3
44707	243.13	0	0	26.362	-6215.3
44708	243.14	0	0	26.362	-6215.3
44709	243.21	0	0	26.362	-6215.3
44710	243.1	0	0	26.362	-6215.3
44711	243.24	0	0	26.362	-6215.3
44712	243.12	0	0	26.362	-6215.3
44713	243.12	0	0	26.362	-6215.3
44714	243.01	0	0	26.362	-6215.3
44715	243.1	0	0	26.362	-6215.3
44716	243.15	0	0	26.362	-6215.3
44717	243.26	0	0	26.362	-6215.3
44718	243.23	0	0	26.362	-6215.3
44719	243.4	0	0	26.362	-6215.3
44720	243.24	0	0	26.362	-6215.3
44721	243.29	0	0	26.362	-6215.3
44722	243.28	0	0	26.362	-6215.3
44723	243.27	0	0	26.362	-6215.3
44724	243.22	0	0	26.362	-6215.3
44725	243.04	0	0	26.362	-6215.3
44726	243.24	0	0	26.362	-6215.3
44727	243.12	0	0	26.362	-6215.3
44728	243.1	0	0	26.362	-6215.3
44729	243	0	0	26.362	-6215.3
44730	243.15	0	0	26.362	-6215.3
44731	243.03	0	0	26.362	-6215.3
44732	243.5	0	0	26.362	-6215.3
44733	243.45	0	0	26.362	-6215.3
44734	243.32	0	0	26.362	-6215.3
44735	243.18	0	0	26.362	-6215.3
44736	243.29	0	0	26.362	-6215.3
44737	243.21	0	0	26.362	-6215.3
44738	243.32	0	0	26.362	-6215.3
44739	243.16	0	0	26.362	-6215.3
44740	243.29	0	0	26.362	-6215.3
44741	243.24	0	0	26.362	-6215.3
44742	243.26	0	0	26.362	-6215.3

44743	243.3	0	0	26.362	-6215.3
44744	243.3	0	0	26.362	-6215.3
44745	243.28	0	0	26.362	-6215.3
44746	243.19	0	0	26.362	-6215.3
44747	243.29	0	0	26.362	-6215.3
44748	243.29	0	0	26.362	-6215.3
44749	243.23	0	0	26.362	-6215.3
44750	243.18	0	0	26.362	-6215.3
44751	243.27	0	0	26.362	-6215.3
44752	243.15	0	0	26.362	-6215.3
44753	243.08	0	0	26.362	-6215.3
44754	243.06	0	0	26.362	-6215.3
44755	243.06	0	0	26.362	-6215.3
44756	243.01	0	0	26.362	-6215.3
44757	242.99	0	0	26.362	-6215.3
44758	242.92	0	0	26.362	-6215.3
44759	242.97	0	0	26.362	-6215.3
44760	242.9	0	0	26.362	-6215.3
44761	242.83	0	0	26.362	-6215.3
44762	242.96	0	0	26.362	-6215.3
44763	243.12	0	0	26.362	-6215.3
44764	243.17	0	0	26.362	-6215.3
44765	243.18	0	0	26.362	-6215.3
44766	243.22	0	0	26.362	-6215.3
44767	243.06	0	0	26.362	-6215.3
44768	243.22	0	0	26.362	-6215.3
44769	243.25	0	0	26.362	-6215.3
44770	243.1	0	0	26.362	-6215.3
44771	243.18	0	0	26.362	-6215.3
44772	243.15	0	0	26.362	-6215.3
44773	243.23	0	0	26.362	-6215.3
44774	243.31	0	0	26.362	-6215.3
44775	243.22	0	0	26.362	-6215.3
44776	243.13	0	0	26.362	-6215.3
44777	243.22	0	0	26.362	-6215.3
44778	243.11	0	0	26.362	-6215.3
44779	243.07	0	0	26.362	-6215.3
44780	243.14	0	0	26.362	-6215.3
44781	243.12	0	0	26.362	-6215.3
44782	243.16	0	0	26.362	-6215.3
44783	243.28	0	0	26.362	-6215.3
44784	243.2	0	0	26.362	-6215.3
44785	243.21	0	0	26.362	-6215.3
44786	243.18	0	0	26.362	-6215.3
44787	243.23	0	0	26.362	-6215.3
44788	243.22	0	0	26.362	-6215.3
44789	243.17	0	0	26.362	-6215.3

44790	243.28	0	0	26.362	-6215.3
44791	243.3	0	0	26.362	-6215.3
44792	243.24	0	0	26.362	-6215.3
44793	243.27	0	0	26.362	-6215.3
44794	243.25	0	0	26.362	-6215.3
44795	243.05	0	0	26.362	-6215.3
44796	243.06	0	0	26.362	-6215.3
44797	243.29	0	0	26.362	-6215.3
44798	243.3	0	0	26.362	-6215.3
44799	243.26	0	0	26.362	-6215.3
44800	243.23	0	0	26.362	-6215.3
44801	243.23	0	0	26.362	-6215.3
44802	243.26	0	0	26.362	-6215.3
44803	243.28	0	0	26.362	-6215.3
44804	243.22	0	0	26.362	-6215.3
44805	243.31	0	0	26.362	-6215.3
44806	243.27	0	0	26.362	-6215.3
44807	243.28	0	0	26.362	-6215.3
44808	243.23	0	0	26.362	-6215.3
44809	243.2	0	0	26.362	-6215.3
44810	243.26	0	0	26.362	-6215.3
44811	243.2	0	0	26.362	-6215.3
44812	243.17	0	0	26.362	-6215.3
44813	243.2	0	0	26.362	-6215.3
44814	243.17	0	0	26.362	-6215.3
44815	243.18	0	0	26.362	-6215.3
44816	243.26	0	0	26.362	-6215.3
44817	243.24	0	0	26.362	-6215.3
44818	243.19	0	0	26.362	-6215.3
44819	243.22	0	0	26.362	-6215.3
44820	243.28	0	0	26.362	-6215.3
44821	243.09	0	0	26.362	-6215.3
44822	243.08	0	0	26.362	-6215.3
44823	243.1	0	0	26.362	-6215.3
44824	243.11	0	0	26.362	-6215.3
44825	243.23	0	0	26.362	-6215.3
44826	243.14	0	0	26.362	-6215.3
44827	243.25	0	0	26.362	-6215.3
44828	243.13	0	0	26.362	-6215.3
44829	243.18	0	0	26.362	-6215.3
44830	243.26	0	0	26.362	-6215.3
44831	243.27	0	0	26.362	-6215.3
44832	243.23	0	0	26.362	-6215.3
44833	243.3	0	0	26.362	-6215.3
44834	243.31	0	0	26.362	-6215.3
44835	243.3	0	0	26.362	-6215.3
44836	243.33	0	0	26.362	-6215.3

44837	243.27	0	0	26.362	-6215.3
44838	243.13	0	0	26.362	-6215.3
44839	243.33	0	0	26.362	-6215.3
44840	243.21	0	0	26.362	-6215.3
44841	243.25	0	0	26.362	-6215.3
44842	243.25	0	0	26.362	-6215.3
44843	243.28	0	0	26.362	-6215.3
44844	243.16	0	0	26.362	-6215.3
44845	243.12	0	0	26.362	-6215.3
44846	243.14	0	0	26.362	-6215.3
44847	243.22	0	0	26.362	-6215.3
44848	242.98	0	0	26.362	-6215.3
44849	243.08	0	0	26.362	-6215.3
44850	243.09	0	0	26.362	-6215.3
44851	243.37	0	0	26.362	-6215.3
44852	243.33	0	0	26.362	-6215.3
44853	243.42	0	0	26.362	-6215.3
44854	243.4	0	0	26.362	-6215.3
44855	243.4	0	0	26.362	-6215.3
44856	243.45	0	0	26.362	-6215.3
44857	243.43	0	0	26.362	-6215.3
44858	243.5	0	0	26.362	-6215.3
44859	243.46	0	0	26.362	-6215.3
44860	243.49	0	0	26.362	-6215.3
44861	243.46	0	0	26.362	-6215.3
44862	243.41	0	0	26.362	-6215.3
44863	243.47	0	0	26.362	-6215.3
44864	243.4	0	0	26.362	-6215.3
44865	243.45	0	0	26.362	-6215.3
44866	243.39	0	0	26.362	-6215.3
44867	243.43	0	0	26.362	-6215.3
44868	243.44	0	0	26.362	-6215.3
44869	243.36	0	0	26.362	-6215.3
44870	243.37	0	0	26.362	-6215.3
44871	243.42	0	0	26.362	-6215.3
44872	243.37	0	0	26.362	-6215.3
44873	243.43	0	0	26.362	-6215.3
44874	243.43	0	0	26.362	-6215.3
44875	243.34	0	0	26.362	-6215.3
44876	243.31	0	0	26.362	-6215.3
44877	243.29	0	0	26.362	-6215.3
44878	243.34	0	0	26.362	-6215.3
44879	243.38	0	0	26.362	-6215.3
44880	243.36	0	0	26.362	-6215.3
44881	243.29	0	0	26.362	-6215.3
44882	243.36	0	0	26.362	-6215.3
44883	243.42	0	0	26.362	-6215.3

44884	243.35	0	0	26.362	-6215.3
44885	243.32	0	0	26.362	-6215.3
44886	243.29	0	0	26.362	-6215.3
44887	243.31	0	0	26.362	-6215.3
44888	243.29	0	0	26.362	-6215.3
44889	243.27	0	0	26.362	-6215.3
44890	243.25	0	0	26.362	-6215.3
44891	243.23	0	0	26.362	-6215.3
44892	243.37	0	0	26.362	-6215.3
44893	243.4	0	0	26.362	-6215.3
44894	243.34	0	0	26.362	-6215.3
44895	243.35	0	0	26.362	-6215.3
44896	243.38	0	0	26.362	-6215.3
44897	243.48	0	0	26.362	-6215.3
44898	243.45	0	0	26.362	-6215.3
44899	243.45	0	0	26.362	-6215.3
44900	243.51	0	0	26.362	-6215.3
44901	243.5	0	0	26.362	-6215.3
44902	243.43	0	0	26.362	-6215.3
44903	243.42	0	0	26.362	-6215.3
44904	243.52	0	0	26.362	-6215.3
44905	243.46	0	0	26.362	-6215.3
44906	243.44	0	0	26.362	-6215.3
44907	243.49	0	0	26.362	-6215.3
44908	243.4	0	0	26.362	-6215.3
44909	243.46	0	0	26.362	-6215.3
44910	243.36	0	0	26.362	-6215.3
44911	243.39	0	0	26.362	-6215.3
44912	243.4	0	0	26.362	-6215.3
44913	243.45	0	0	26.362	-6215.3
44914	243.48	0	0	26.362	-6215.3
44915	243.53	0	0	26.362	-6215.3
44916	243.45	0	0	26.362	-6215.3
44917	243.46	0	0	26.362	-6215.3
44918	243.46	0	0	26.362	-6215.3
44919	243.45	0	0	26.362	-6215.3
44920	243.45	0	0	26.362	-6215.3
44921	243.47	0	0	26.362	-6215.3
44922	243.42	0	0	26.362	-6215.3
44923	243.48	0	0	26.362	-6215.3
44924	243.48	0	0	26.362	-6215.3
44925	243.5	0	0	26.362	-6215.3
44926	243.48	0	0	26.362	-6215.3
44927	243.49	0	0	26.362	-6215.3
44928	243.46	0	0	26.362	-6215.3
44929	243.47	0	0	26.362	-6215.3
44930	243.41	0	0	26.362	-6215.3

44931	243.49	0	0	26.362	-6215.3
44932	243.49	0	0	26.362	-6215.3
44933	243.42	0	0	26.362	-6215.3
44934	243.5	0	0	26.362	-6215.3
44935	243.44	0	0	26.362	-6215.3
44936	243.47	0	0	26.362	-6215.3
44937	243.43	0	0	26.362	-6215.3
44938	243.55	0	0	26.362	-6215.3
44939	243.48	0	0	26.362	-6215.3
44940	243.48	0	0	26.362	-6215.3
44941	243.35	0	0	26.362	-6215.3
44942	243.37	0	0	26.362	-6215.3
44943	243.4	0	0	26.362	-6215.3
44944	243.53	0	0	26.362	-6215.3
44945	243.47	0	0	26.362	-6215.3
44946	243.7	0	0	26.362	-6215.3
44947	243.73	0	0	26.362	-6215.3
44948	243.63	0	0	26.362	-6215.3
44949	243.69	0	0	26.362	-6215.3
44950	243.66	0	0	26.362	-6215.3
44951	243.68	0	0	26.362	-6215.3
44952	243.67	0	0	26.362	-6215.3
44953	243.69	0	0	26.362	-6215.3
44954	243.7	0	0	26.362	-6215.3
44955	243.72	0	0	26.362	-6215.3
44956	243.64	0	0	26.362	-6215.3
44957	243.59	0	0	26.362	-6215.3
44958	243.64	0	0	26.362	-6215.3
44959	243.59	0	0	26.362	-6215.3
44960	243.65	0	0	26.362	-6215.3
44961	243.58	0	0	26.362	-6215.3
44962	243.54	0	0	26.362	-6215.3
44963	243.63	0	0	26.362	-6215.3
44964	243.55	0	0	26.362	-6215.3
44965	243.52	0	0	26.362	-6215.3
44966	243.55	0	0	26.362	-6215.3
44967	243.5	0	0	26.362	-6215.3
44968	243.46	0	0	26.362	-6215.3
44969	243.44	0	0	26.362	-6215.3
44970	243.49	0	0	26.362	-6215.3
44971	243.53	0	0	26.362	-6215.3
44972	243.44	0	0	26.362	-6215.3
44973	243.44	0	0	26.362	-6215.3
44974	243.54	0	0	26.362	-6215.3
44975	243.48	0	0	26.362	-6215.3
44976	243.45	0	0	26.362	-6215.3
44977	243.48	0	0	26.362	-6215.3

44978	243.53	0	0	26.362	-6215.3
44979	243.51	0	0	26.362	-6215.3
44980	243.51	0	0	26.362	-6215.3
44981	243.48	0	0	26.362	-6215.3
44982	243.48	0	0	26.362	-6215.3
44983	243.51	0	0	26.362	-6215.3
44984	243.46	0	0	26.362	-6215.3
44985	243.49	0	0	26.362	-6215.3
44986	243.4	0	0	26.362	-6215.3
44987	243.43	0	0	26.362	-6215.3
44988	243.45	0	0	26.362	-6215.3
44989	243.51	0	0	26.362	-6215.3
44990	243.43	0	0	26.362	-6215.3
44991	243.53	0	0	26.362	-6215.3
44992	243.46	0	0	26.362	-6215.3
44993	243.47	0	0	26.362	-6215.3
44994	243.55	0	0	26.362	-6215.3
44995	243.52	0	0	26.362	-6215.3
44996	243.54	0	0	26.362	-6215.3
44997	243.55	0	0	26.362	-6215.3
44998	243.55	0	0	26.362	-6215.3
44999	243.51	0	0	26.362	-6215.3
45000	243.5	0	0	26.362	-6215.3
45001	243.5	0	0	26.362	-6215.3
45002	243.45	0	0	26.362	-6215.3
45003	243.46	0	0	26.362	-6215.3
45004	243.44	0	0	26.362	-6215.3
45005	243.42	0	0	26.362	-6215.3
45006	243.39	0	0	26.362	-6215.3
45007	243.41	0	0	26.362	-6215.3
45008	243.49	0	0	26.362	-6215.3
45009	243.49	0	0	26.362	-6215.3
45010	243.42	0	0	26.362	-6215.3
45011	243.49	0	0	26.362	-6215.3
45012	243.44	0	0	26.362	-6215.3
45013	243.42	0	0	26.362	-6215.3
45014	243.4	0	0	26.362	-6215.3
45015	243.43	0	0	26.362	-6215.3
45016	243.37	0	0	26.362	-6215.3
45017	243.22	0	0	26.362	-6215.3
45018	243.29	0	0	26.362	-6215.3
45019	243.26	0	0	26.362	-6215.3
45020	243.3	0	0	26.362	-6215.3
45021	243.38	0	0	26.362	-6215.3
45022	243.28	0	0	26.362	-6215.3
45023	243.23	0	0	26.362	-6215.3
45024	243.25	0	0	26.362	-6215.3

45025	243.26	0	0	26.362	-6215.3
45026	243.35	0	0	26.362	-6215.3
45027	243.35	0	0	26.362	-6215.3
45028	243.32	0	0	26.362	-6215.3
45029	243.27	0	0	26.362	-6215.3
45030	243.33	0	0	26.362	-6215.3
45031	243.3	0	0	26.362	-6215.3
45032	243.25	0	0	26.362	-6215.3
45033	243.34	0	0	26.362	-6215.3
45034	243.28	0	0	26.362	-6215.3
45035	243.32	0	0	26.362	-6215.3
45036	243.29	0	0	26.362	-6215.3
45037	243.36	0	0	26.362	-6215.3
45038	243.4	0	0	26.362	-6215.3
45039	243.42	0	0	26.362	-6215.3
45040	243.39	0	0	26.362	-6215.3
45041	243.42	0	0	26.362	-6215.3
45042	243.45	0	0	26.362	-6215.3
45043	243.53	0	0	26.362	-6215.3
45044	243.48	0	0	26.362	-6215.3
45045	243.47	0	0	26.362	-6215.3
45046	243.45	0	0	26.362	-6215.3
45047	243.34	0	0	26.362	-6215.3
45048	243.36	0	0	26.362	-6215.3
45049	243.41	0	0	26.362	-6215.3
45050	243.41	0	0	26.362	-6215.3
45051	243.4	0	0	26.362	-6215.3
45052	243.39	0	0	26.362	-6215.3
45053	243.43	0	0	26.362	-6215.3
45054	243.39	0	0	26.362	-6215.3
45055	243.44	0	0	26.362	-6215.3
45056	243.39	0	0	26.362	-6215.3
45057	243.4	0	0	26.362	-6215.3
45058	243.38	0	0	26.362	-6215.3
45059	243.49	0	0	26.362	-6215.3
45060	243.37	0	0	26.362	-6215.3
45061	243.4	0	0	26.362	-6215.3
45062	243.46	0	0	26.362	-6215.3
45063	243.4	0	0	26.362	-6215.3
45064	243.46	0	0	26.362	-6215.3
45065	243.47	0	0	26.362	-6215.3
45066	243.45	0	0	26.362	-6215.3
45067	243.39	0	0	26.362	-6215.3
45068	243.45	0	0	26.362	-6215.3
45069	243.43	0	0	26.362	-6215.3
45070	243.49	0	0	26.362	-6215.3
45071	243.49	0	0	26.362	-6215.3

45072	243.55	0	0	26.362	-6215.3
45073	243.54	0	0	26.362	-6215.3
45074	243.33	0	0	26.362	-6215.3
45075	243.47	0	0	26.362	-6215.3
45076	243.44	0	0	26.362	-6215.3
45077	243.36	0	0	26.362	-6215.3
45078	243.34	0	0	26.362	-6215.3
45079	243.5	0	0	26.362	-6215.3
45080	243.49	0	0	26.362	-6215.3
45081	243.53	0	0	26.362	-6215.3
45082	243.45	0	0	26.362	-6215.3
45083	243.58	0	0	26.362	-6215.3
45084	243.54	0	0	26.362	-6215.3
45085	243.45	0	0	26.362	-6215.3
45086	243.53	0	0	26.362	-6215.3
45087	242.85	0	0	26.362	-6215.3
45088	243.42	0	0	26.362	-6215.3
45089	243.35	0	0	26.362	-6215.3
45090	243.38	0	0	26.362	-6215.3
45091	243.37	0	0	26.362	-6215.3
45092	243.39	0	0	26.362	-6215.3
45093	243.34	0	0	26.362	-6215.3
45094	243.29	0	0	26.362	-6215.3
45095	243.23	0	0	26.362	-6215.3
45096	243.16	0	0	26.362	-6215.3
45097	243.13	0	0	26.362	-6215.3
45098	243.19	0	0	26.362	-6215.3
45099	243.13	0	0	26.362	-6215.3
45100	243.29	0	0	26.362	-6215.3
45101	243.22	0	0	26.362	-6215.3
45102	243.26	0	0	26.362	-6215.3
45103	243.26	0	0	26.362	-6215.3
45104	243.25	0	0	26.362	-6215.3
45105	243.29	0	0	26.362	-6215.3
45106	243.33	0	0	26.362	-6215.3
45107	243.31	0	0	26.362	-6215.3
45108	243.34	0	0	26.362	-6215.3
45109	243.3	0	0	26.362	-6215.3
45110	243.54	0	0	26.362	-6215.3
45111	243.61	0	0	26.362	-6215.3
45112	243.63	0	0	26.362	-6215.3
45113	243.62	0	0	26.362	-6215.3
45114	243.64	0	0	26.362	-6215.3
45115	243.55	0	0	26.362	-6215.3
45116	243.61	0	0	26.362	-6215.3
45117	243.61	0	0	26.362	-6215.3
45118	243.61	0	0	26.362	-6215.3

45119	243.58	0	0	26.362	-6215.3
45120	243.58	0	0	26.362	-6215.3
45121	243.62	0	0	26.362	-6215.3
45122	243.6	0	0	26.362	-6215.3
45123	243.66	0	0	26.362	-6215.3
45124	243.62	0	0	26.362	-6215.3
45125	243.59	0	0	26.362	-6215.3
45126	243.61	0	0	26.362	-6215.3
45127	243.61	0	0	26.362	-6215.3
45128	243.59	0	0	26.362	-6215.3
45129	243.55	0	0	26.362	-6215.3
45130	243.59	0	0	26.362	-6215.3
45131	243.54	0	0	26.362	-6215.3
45132	243.61	0	0	26.362	-6215.3
45133	243.6	0	0	26.362	-6215.3
45134	243.57	0	0	26.362	-6215.3
45135	243.59	0	0	26.362	-6215.3
45136	243.64	0	0	26.362	-6215.3
45137	243.6	0	0	26.362	-6215.3
45138	243.54	0	0	26.362	-6215.3
45139	243.53	0	0	26.362	-6215.3
45140	243.61	0	0	26.362	-6215.3
45141	243.63	0	0	26.362	-6215.3
45142	243.66	0	0	26.362	-6215.3
45143	243.63	0	0	26.362	-6215.3
45144	243.56	0	0	26.362	-6215.3
45145	243.56	0	0	26.362	-6215.3
45146	243.56	0	0	26.362	-6215.3
45147	243.59	0	0	26.362	-6215.3
45148	243.55	0	0	26.362	-6215.3
45149	243.48	0	0	26.362	-6215.3
45150	243.54	0	0	26.362	-6215.3
45151	243.58	0	0	26.362	-6215.3
45152	243.56	0	0	26.362	-6215.3
45153	243.53	0	0	26.362	-6215.3
45154	243.58	0	0	26.362	-6215.3
45155	243.46	0	0	26.362	-6215.3
45156	243.54	0	0	26.362	-6215.3
45157	243.58	0	0	26.362	-6215.3
45158	243.39	0	0	26.362	-6215.3
45159	243.57	0	0	26.362	-6215.3
45160	243.48	0	0	26.362	-6215.3
45161	243.45	0	0	26.362	-6215.3
45162	243.54	0	0	26.362	-6215.3
45163	243.54	0	0	26.362	-6215.3
45164	243.56	0	0	26.362	-6215.3
45165	243.66	0	0	26.362	-6215.3

45166	243.61	0	0	26.362	-6215.3
45167	243.33	0	0	26.362	-6215.3
45168	243.46	0	0	26.362	-6215.3
45169	243.29	0	0	26.362	-6215.3
45170	243.39	0	0	26.362	-6215.3
45171	243.37	0	0	26.362	-6215.3
45172	243.39	0	0	26.362	-6215.3
45173	243.4	0	0	26.362	-6215.3
45174	243.49	0	0	26.362	-6215.3
45175	243.37	0	0	26.362	-6215.3
45176	243.35	0	0	26.362	-6215.3
45177	243.44	0	0	26.362	-6215.3
45178	243.43	0	0	26.362	-6215.3
45179	243.4	0	0	26.362	-6215.3
45180	243.49	0	0	26.362	-6215.3
45181	243.52	0	0	26.362	-6215.3
45182	243.47	0	0	26.362	-6215.3
45183	243.54	0	0	26.362	-6215.3
45184	243.58	0	0	26.362	-6215.3
45185	243.72	0	0	26.362	-6215.3
45186	243.71	0	0	26.362	-6215.3
45187	243.65	0	0	26.362	-6215.3
45188	243.57	0	0	26.362	-6215.3
45189	243.65	0	0	26.362	-6215.3
45190	243.56	0	0	26.362	-6215.3
45191	243.6	0	0	26.362	-6215.3
45192	243.57	0	0	26.362	-6215.3
45193	243.67	0	0	26.362	-6215.3
45194	243.63	0	0	26.362	-6215.3
45195	243.58	0	0	26.362	-6215.3
45196	243.57	0	0	26.362	-6215.3
45197	243.59	0	0	26.362	-6215.3
45198	243.64	0	0	26.362	-6215.3
45199	243.49	0	0	26.362	-6215.3
45200	243.52	0	0	26.362	-6215.3
45201	243.54	0	0	26.362	-6215.3
45202	243.51	0	0	26.362	-6215.3
45203	243.53	0	0	26.362	-6215.3
45204	243.61	0	0	26.362	-6215.3
45205	243.55	0	0	26.362	-6215.3
45206	243.61	0	0	26.362	-6215.3
45207	243.47	0	0	26.362	-6215.3
45208	243.56	0	0	26.362	-6215.3
45209	243.49	0	0	26.362	-6215.3
45210	243.54	0	0	26.362	-6215.3
45211	243.48	0	0	26.362	-6215.3
45212	243.19	0	0	26.362	-6215.3

45213	243.45	0	0	26.362	-6215.3
45214	243.54	0	0	26.362	-6215.3
45215	243.4	0	0	26.362	-6215.3
45216	243.41	0	0	26.362	-6215.3
45217	243.41	0	0	26.362	-6215.3
45218	243.52	0	0	26.362	-6215.3
45219	243.37	0	0	26.362	-6215.3
45220	243.39	0	0	26.362	-6215.3
45221	243.36	0	0	26.362	-6215.3
45222	243.34	0	0	26.362	-6215.3
45223	243.27	0	0	26.362	-6215.3
45224	243.35	0	0	26.362	-6215.3
45225	243.39	0	0	26.362	-6215.3
45226	243.4	0	0	26.362	-6215.3
45227	243.35	0	0	26.362	-6215.3
45228	243.36	0	0	26.362	-6215.3
45229	243.34	0	0	26.362	-6215.3
45230	243.3	0	0	26.362	-6215.3
45231	243.24	0	0	26.362	-6215.3
45232	243.25	0	0	26.362	-6215.3
45233	243.49	0	0	26.362	-6215.3
45234	243.46	0	0	26.362	-6215.3
45235	243.37	0	0	26.362	-6215.3
45236	243.5	0	0	26.362	-6215.3
45237	243.41	0	0	26.362	-6215.3
45238	243.17	0	0	26.362	-6215.3
45239	243.37	0	0	26.362	-6215.3
45240	243.4	0	0	26.362	-6215.3
45241	243.3	0	0	26.362	-6215.3
45242	243.38	0	0	26.362	-6215.3
45243	243.3	0	0	26.362	-6215.3
45244	243.27	0	0	26.362	-6215.3
45245	243.28	0	0	26.362	-6215.3
45246	243.23	0	0	26.362	-6215.3
45247	243.26	0	0	26.362	-6215.3
45248	243.27	0	0	26.362	-6215.3
45249	243.17	0	0	26.362	-6215.3
45250	243.21	0	0	26.362	-6215.3
45251	243.27	0	0	26.362	-6215.3
45252	243.27	0	0	26.362	-6215.3
45253	243.27	0	0	26.362	-6215.3
45254	243.27	0	0	26.362	-6215.3
45255	243.21	0	0	26.362	-6215.3
45256	243.19	0	0	26.362	-6215.3
45257	243.19	0	0	26.362	-6215.3
45258	243.19	0	0	26.362	-6215.3
45259	243.14	0	0	26.362	-6215.3

45260	243.21	0	0	26.362	-6215.3
45261	243.23	0	0	26.362	-6215.3
45262	243.31	0	0	26.362	-6215.3
45263	243.27	0	0	26.362	-6215.3
45264	243.25	0	0	26.362	-6215.3
45265	243.41	0	0	26.362	-6215.3
45266	243.52	0	0	26.362	-6215.3
45267	243.55	0	0	26.362	-6215.3
45268	243.49	0	0	26.362	-6215.3
45269	243.52	0	0	26.362	-6215.3
45270	243.51	0	0	26.362	-6215.3
45271	243.52	0	0	26.362	-6215.3
45272	243.55	0	0	26.362	-6215.3
45273	243.52	0	0	26.362	-6215.3
45274	243.45	0	0	26.362	-6215.3
45275	243.54	0	0	26.362	-6215.3
45276	243.46	0	0	26.362	-6215.3
45277	243.45	0	0	26.362	-6215.3
45278	243.4	0	0	26.362	-6215.3
45279	243.51	0	0	26.362	-6215.3
45280	243.46	0	0	26.362	-6215.3
45281	243.49	0	0	26.362	-6215.3
45282	243.49	0	0	26.362	-6215.3
45283	243.44	0	0	26.362	-6215.3
45284	243.56	0	0	26.362	-6215.3
45285	243.55	0	0	26.362	-6215.3
45286	243.55	0	0	26.362	-6215.3
45287	243.51	0	0	26.362	-6215.3
45288	243.53	0	0	26.362	-6215.3
45289	243.55	0	0	26.362	-6215.3
45290	243.47	0	0	26.362	-6215.3
45291	243.55	0	0	26.362	-6215.3
45292	243.57	0	0	26.362	-6215.3
45293	243.51	0	0	26.362	-6215.3
45294	243.49	0	0	26.362	-6215.3
45295	243.43	0	0	26.362	-6215.3
45296	243.53	0	0	26.362	-6215.3
45297	243.44	0	0	26.362	-6215.3
45298	243.51	0	0	26.362	-6215.3
45299	243.51	0	0	26.362	-6215.3
45300	243.49	0	0	26.362	-6215.3
45301	243.53	0	0	26.362	-6215.3
45302	243.5	0	0	26.362	-6215.3
45303	243.49	0	0	26.362	-6215.3
45304	243.47	0	0	26.362	-6215.3
45305	243.51	0	0	26.362	-6215.3
45306	243.44	0	0	26.362	-6215.3

45307	243.61	0	0	26.362	-6215.3
45308	243.52	0	0	26.362	-6215.3
45309	243.5	0	0	26.362	-6215.3
45310	243.55	0	0	26.362	-6215.3
45311	243.65	0	0	26.362	-6215.3
45312	243.57	0	0	26.362	-6215.3
45313	243.61	0	0	26.362	-6215.3
45314	243.44	0	0	26.362	-6215.3
45315	243.43	0	0	26.362	-6215.3
45316	243.49	0	0	26.362	-6215.3
45317	243.41	0	0	26.362	-6215.3
45318	243.35	0	0	26.362	-6215.3
45319	243.46	0	0	26.362	-6215.3
45320	243.38	0	0	26.362	-6215.3
45321	243.39	0	0	26.362	-6215.3
45322	243.4	0	0	26.362	-6215.3
45323	243.41	0	0	26.362	-6215.3
45324	243.4	0	0	26.362	-6215.3
45325	243.39	0	0	26.362	-6215.3
45326	243.45	0	0	26.362	-6215.3
45327	243.49	0	0	26.362	-6215.3
45328	243.42	0	0	26.362	-6215.3
45329	243.44	0	0	26.362	-6215.3
45330	243.45	0	0	26.362	-6215.3
45331	243.41	0	0	26.362	-6215.3
45332	243.47	0	0	26.362	-6215.3
45333	243.41	0	0	26.362	-6215.3
45334	243.39	0	0	26.362	-6215.3
45335	243.39	0	0	26.362	-6215.3
45336	243.39	0	0	26.362	-6215.3
45337	243.44	0	0	26.362	-6215.3
45338	243.43	0	0	26.362	-6215.3
45339	243.41	0	0	26.362	-6215.3
45340	243.32	0	0	26.362	-6215.3
45341	243.43	0	0	26.362	-6215.3
45342	243.36	0	0	26.362	-6215.3
45343	243.43	0	0	26.362	-6215.3
45344	243.39	0	0	26.362	-6215.3
45345	243.45	0	0	26.362	-6215.3
45346	243.47	0	0	26.362	-6215.3
45347	243.39	0	0	26.362	-6215.3
45348	243.41	0	0	26.362	-6215.3
45349	243.39	0	0	26.362	-6215.3
45350	243.46	0	0	26.362	-6215.3
45351	243.54	0	0	26.362	-6215.3
45352	243.68	0	0	26.362	-6215.3
45353	243.63	0	0	26.362	-6215.3

45354	243.6	0	0	26.362	-6215.3
45355	243.57	0	0	26.362	-6215.3
45356	243.59	0	0	26.362	-6215.3
45357	243.61	0	0	26.362	-6215.3
45358	243.63	0	0	26.362	-6215.3
45359	243.61	0	0	26.362	-6215.3
45360	243.57	0	0	26.362	-6215.3
45361	243.62	0	0	26.362	-6215.3
45362	243.55	0	0	26.362	-6215.3
45363	243.49	0	0	26.362	-6215.3
45364	243.51	0	0	26.362	-6215.3
45365	243.44	0	0	26.362	-6215.3
45366	243.47	0	0	26.362	-6215.3
45367	243.4	0	0	26.362	-6215.3
45368	243.29	0	0	26.362	-6215.3
45369	243.37	0	0	26.362	-6215.3
45370	243.28	0	0	26.362	-6215.3
45371	243.33	0	0	26.362	-6215.3
45372	243.33	0	0	26.362	-6215.3
45373	243.32	0	0	26.362	-6215.3
45374	243.31	0	0	26.362	-6215.3
45375	243.39	0	0	26.362	-6215.3
45376	243.35	0	0	26.362	-6215.3
45377	243.38	0	0	26.362	-6215.3
45378	243.37	0	0	26.362	-6215.3
45379	243.36	0	0	26.362	-6215.3
45380	243.34	0	0	26.362	-6215.3
45381	243.35	0	0	26.362	-6215.3
45382	243.38	0	0	26.362	-6215.3
45383	243.39	0	0	26.362	-6215.3
45384	243.34	0	0	26.362	-6215.3
45385	243.39	0	0	26.362	-6215.3
45386	243.33	0	0	26.362	-6215.3
45387	243.31	0	0	26.362	-6215.3
45388	243.31	0	0	26.362	-6215.3
45389	243.33	0	0	26.362	-6215.3
45390	243.39	0	0	26.362	-6215.3
45391	243.39	0	0	26.362	-6215.3
45392	243.41	0	0	26.362	-6215.3
45393	243.52	0	0	26.362	-6215.3
45394	243.48	0	0	26.362	-6215.3
45395	243.52	0	0	26.362	-6215.3
45396	243.48	0	0	26.362	-6215.3
45397	243.51	0	0	26.362	-6215.3
45398	243.53	0	0	26.362	-6215.3
45399	243.56	0	0	26.362	-6215.3
45400	243.5	0	0	26.362	-6215.3

45401	243.08	0	0	26.362	-6215.3
45402	243.1	0	0	26.362	-6215.3
45403	243.12	0	0	26.362	-6215.3
45404	243.11	0	0	26.362	-6215.3
45405	243.16	0	0	26.362	-6215.3
45406	243.18	0	0	26.362	-6215.3
45407	243.2	0	0	26.362	-6215.3
45408	243.14	0	0	26.362	-6215.3
45409	243.11	0	0	26.362	-6215.3
45410	243.04	0	0	26.362	-6215.3
45411	243.07	0	0	26.362	-6215.3
45412	243.09	0	0	26.362	-6215.3
45413	243.2	0	0	26.362	-6215.3
45414	243.17	0	0	26.362	-6215.3
45415	243.19	0	0	26.362	-6215.3
45416	243.1	0	0	26.362	-6215.3
45417	242.95	0	0	26.362	-6215.3
45418	242.87	0	0	26.362	-6215.3
45419	242.84	0	0	26.362	-6215.3
45420	242.84	0	0	26.362	-6215.3
45421	242.84	0	0	26.362	-6215.3
45422	242.88	0	0	26.362	-6215.3
45423	242.89	0	0	26.362	-6215.3
45424	242.83	0	0	26.362	-6215.3
45425	242.85	0	0	26.362	-6215.3
45426	242.91	0	0	26.362	-6215.3
45427	242.93	0	0	26.362	-6215.3
45428	242.92	0	0	26.362	-6215.3
45429	242.95	0	0	26.362	-6215.3
45430	242.9	0	0	26.362	-6215.3
45431	242.96	0	0	26.362	-6215.3
45432	242.92	0	0	26.362	-6215.3
45433	242.9	0	0	26.362	-6215.3
45434	242.9	0	0	26.362	-6215.3
45435	242.94	0	0	26.362	-6215.3
45436	243	0	0	26.362	-6215.3
45437	242.99	0	0	26.362	-6215.3
45438	243.02	0	0	26.362	-6215.3
45439	242.98	0	0	26.362	-6215.3
45440	242.94	0	0	26.362	-6215.3
45441	242.95	0	0	26.362	-6215.3
45442	242.91	0	0	26.362	-6215.3
45443	242.99	0	0	26.362	-6215.3
45444	243.05	0	0	26.362	-6215.3
45445	243.05	0	0	26.362	-6215.3
45446	242.99	0	0	26.362	-6215.3
45447	243.03	0	0	26.362	-6215.3

45448	243.02	0	0	26.362	-6215.3
45449	242.93	0	0	26.362	-6215.3
45450	243.01	0	0	26.362	-6215.3
45451	242.93	0	0	26.362	-6215.3
45452	242.97	0	0	26.362	-6215.3
45453	242.98	0	0	26.362	-6215.3
45454	242.93	0	0	26.362	-6215.3
45455	242.98	0	0	26.362	-6215.3
45456	243	0	0	26.362	-6215.3
45457	242.99	0	0	26.362	-6215.3
45458	242.95	0	0	26.362	-6215.3
45459	242.97	0	0	26.362	-6215.3
45460	242.93	0	0	26.362	-6215.3
45461	242.94	0	0	26.362	-6215.3
45462	243.01	0	0	26.362	-6215.3
45463	242.91	0	0	26.362	-6215.3
45464	242.91	0	0	26.362	-6215.3
45465	243	0	0	26.362	-6215.3
45466	242.92	0	0	26.362	-6215.3
45467	242.93	0	0	26.362	-6215.3
45468	242.95	0	0	26.362	-6215.3
45469	242.91	0	0	26.362	-6215.3
45470	242.94	0	0	26.362	-6215.3
45471	242.83	0	0	26.362	-6215.3
45472	242.86	0	0	26.362	-6215.3
45473	242.87	0	0	26.362	-6215.3
45474	242.84	0	0	26.362	-6215.3
45475	242.81	0	0	26.362	-6215.3
45476	242.88	0	0	26.362	-6215.3
45477	242.81	0	0	26.362	-6215.3
45478	242.9	0	0	26.362	-6215.3
45479	242.92	0	0	26.362	-6215.3
45480	242.91	0	0	26.362	-6215.3
45481	242.82	0	0	26.362	-6215.3
45482	242.85	0	0	26.362	-6215.3
45483	242.91	0	0	26.362	-6215.3
45484	242.82	0	0	26.362	-6215.3
45485	242.84	0	0	26.362	-6215.3
45486	242.72	0	0	26.362	-6215.3
45487	242.64	0	0	26.362	-6215.3
45488	242.71	0	0	26.362	-6215.3
45489	242.73	0	0	26.362	-6215.3
45490	242.74	0	0	26.362	-6215.3
45491	242.69	0	0	26.362	-6215.3
45492	242.72	0	0	26.362	-6215.3
45493	242.82	0	0	26.362	-6215.3
45494	242.73	0	0	26.362	-6215.3

45495	242.69	0	0	26.362	-6215.3
45496	242	0	0	26.362	-6215.3
45497	242.53	0	0	26.362	-6215.3
45498	242.63	0	0	26.362	-6215.3
45499	242.58	0	0	26.362	-6215.3
45500	242.61	0	0	26.362	-6215.3
45501	242.64	0	0	26.362	-6215.3
45502	242.66	0	0	26.362	-6215.3
45503	242.65	0	0	26.362	-6215.3
45504	242.62	0	0	26.362	-6215.3
45505	242.66	0	0	26.362	-6215.3
45506	242.62	0	0	26.362	-6215.3
45507	242.59	0	0	26.362	-6215.3
45508	242.61	0	0	26.362	-6215.3
45509	242.55	0	0	26.362	-6215.3
45510	242.47	0	0	26.362	-6215.3
45511	242.52	0	0	26.362	-6215.3
45512	242.55	0	0	26.362	-6215.3
45513	242.46	0	0	26.362	-6215.3
45514	242.45	0	0	26.362	-6215.3
45515	242.4	0	0	26.362	-6215.3
45516	242.38	0	0	26.362	-6215.3
45517	242.46	0	0	26.362	-6215.3
45518	242.44	0	0	26.362	-6215.3
45519	242.42	0	0	26.362	-6215.3
45520	242.53	0	0	26.362	-6215.3
45521	242.48	0	0	26.362	-6215.3
45522	242.46	0	0	26.362	-6215.3
45523	242.41	0	0	26.362	-6215.3
45524	242.43	0	0	26.362	-6215.3
45525	242.41	0	0	26.362	-6215.3
45526	242.49	0	0	26.362	-6215.3
45527	242.45	0	0	26.362	-6215.3
45528	242.36	0	0	26.362	-6215.3
45529	242.49	0	0	26.362	-6215.3
45530	242.38	0	0	26.362	-6215.3
45531	242.46	0	0	26.362	-6215.3
45532	242.42	0	0	26.362	-6215.3
45533	242.38	0	0	26.362	-6215.3
45534	242.49	0	0	26.362	-6215.3
45535	242.35	0	0	26.362	-6215.3
45536	242.38	0	0	26.362	-6215.3
45537	242.44	0	0	26.362	-6215.3
45538	242.46	0	0	26.362	-6215.3
45539	242.47	0	0	26.362	-6215.3
45540	242.48	0	0	26.362	-6215.3
45541	242.52	0	0	26.362	-6215.3

45542	242.53	0	0	26.362	-6215.3
45543	242.59	0	0	26.362	-6215.3
45544	242.53	0	0	26.362	-6215.3
45545	242.56	0	0	26.362	-6215.3
45546	242.55	0	0	26.362	-6215.3
45547	242.51	0	0	26.362	-6215.3
45548	242.59	0	0	26.362	-6215.3
45549	242.55	0	0	26.362	-6215.3
45550	242.6	0	0	26.362	-6215.3
45551	242.57	0	0	26.362	-6215.3
45552	242.54	0	0	26.362	-6215.3
45553	242.56	0	0	26.362	-6215.3
45554	242.61	0	0	26.362	-6215.3
45555	242.59	0	0	26.362	-6215.3
45556	242.71	0	0	26.362	-6215.3
45557	242.63	0	0	26.362	-6215.3
45558	242.61	0	0	26.362	-6215.3
45559	242.69	0	0	26.362	-6215.3
45560	242.59	0	0	26.362	-6215.3
45561	242.65	0	0	26.362	-6215.3
45562	242.69	0	0	26.362	-6215.3
45563	242.71	0	0	26.362	-6215.3
45564	242.69	0	0	26.362	-6215.3
45565	242.65	0	0	26.362	-6215.3
45566	242.65	0	0	26.362	-6215.3
45567	242.67	0	0	26.362	-6215.3
45568	242.6	0	0	26.362	-6215.3
45569	242.71	0	0	26.362	-6215.3
45570	242.84	0	0	26.362	-6215.3
45571	242.82	0	0	26.362	-6215.3
45572	242.81	0	0	26.362	-6215.3
45573	242.78	0	0	26.362	-6215.3
45574	242.88	0	0	26.362	-6215.3
45575	242.75	0	0	26.362	-6215.3
45576	242.76	0	0	26.362	-6215.3
45577	242.78	0	0	26.362	-6215.3
45578	242.88	0	0	26.362	-6215.3
45579	242.89	0	0	26.362	-6215.3
45580	242.93	0	0	26.362	-6215.3
45581	242.9	0	0	26.362	-6215.3
45582	242.85	0	0	26.362	-6215.3
45583	242.85	0	0	26.362	-6215.3
45584	242.75	0	0	26.362	-6215.3
45585	242.86	0	0	26.362	-6215.3
45586	242.89	0	0	26.362	-6215.3
45587	242.91	0	0	26.362	-6215.3
45588	242.88	0	0	26.362	-6215.3

45589	242.8	0	0	26.362	-6215.3
45590	242.75	0	0	26.362	-6215.3
45591	242.8	0	0	26.362	-6215.3
45592	242.92	0	0	26.362	-6215.3
45593	242.77	0	0	26.362	-6215.3
45594	242.97	0	0	26.362	-6215.3
45595	242.78	0	0	26.362	-6215.3
45596	242.82	0	0	26.362	-6215.3
45597	242.87	0	0	26.362	-6215.3
45598	242.84	0	0	26.362	-6215.3
45599	242.9	0	0	26.362	-6215.3
45600	242.89	0	0	26.362	-6215.3
45601	242.93	0	0	26.362	-6215.3
45602	242.94	0	0	26.362	-6215.3
45603	242.93	0	0	26.362	-6215.3
45604	243.02	0	0	26.362	-6215.3
45605	243.02	0	0	26.362	-6215.3
45606	243	0	0	26.362	-6215.3
45607	242.98	0	0	26.362	-6215.3
45608	243.02	0	0	26.362	-6215.3
45609	242.98	0	0	26.362	-6215.3
45610	242.82	0	0	26.362	-6215.3
45611	242.92	0	0	26.362	-6215.3
45612	242.95	0	0	26.362	-6215.3
45613	242.99	0	0	26.362	-6215.3
45614	242.95	0	0	26.362	-6215.3
45615	242.83	0	0	26.362	-6215.3
45616	242.81	0	0	26.362	-6215.3
45617	242.94	0	0	26.362	-6215.3
45618	242.86	0	0	26.362	-6215.3
45619	242.9	0	0	26.362	-6215.3
45620	242.82	0	0	26.362	-6215.3
45621	242.95	0	0	26.362	-6215.3
45622	243.03	0	0	26.362	-6215.3
45623	242.93	0	0	26.362	-6215.3
45624	242.98	0	0	26.362	-6215.3
45625	242.83	0	0	26.362	-6215.3
45626	242.96	0	0	26.362	-6215.3
45627	242.93	0	0	26.362	-6215.3
45628	242.95	0	0	26.362	-6215.3
45629	242.92	0	0	26.362	-6215.3
45630	242.99	0	0	26.362	-6215.3
45631	242.9	0	0	26.362	-6215.3
45632	242.85	0	0	26.362	-6215.3
45633	242.95	0	0	26.362	-6215.3
45634	243.03	0	0	26.362	-6215.3
45635	242.84	0	0	26.362	-6215.3

45636	242.86	0	0	26.362	-6215.3
45637	242.82	0	0	26.362	-6215.3
45638	242.96	0	0	26.362	-6215.3
45639	242.86	0	0	26.362	-6215.3
45640	242.74	0	0	26.362	-6215.3
45641	242.84	0	0	26.362	-6215.3
45642	242.85	0	0	26.362	-6215.3
45643	242.81	0	0	26.362	-6215.3
45644	242.67	0	0	26.362	-6215.3
45645	242.75	0	0	26.362	-6215.3
45646	242.75	0	0	26.362	-6215.3
45647	242.82	0	0	26.362	-6215.3
45648	242.74	0	0	26.362	-6215.3
45649	242.6	0	0	26.362	-6215.3
45650	242.82	0	0	26.362	-6215.3
45651	242.72	0	0	26.362	-6215.3
45652	242.75	0	0	26.362	-6215.3
45653	242.82	0	0	26.362	-6215.3
45654	242.8	0	0	26.362	-6215.3
45655	242.73	0	0	26.362	-6215.3
45656	242.8	0	0	26.362	-6215.3
45657	242.79	0	0	26.362	-6215.3
45658	242.81	0	0	26.362	-6215.3
45659	242.75	0	0	26.362	-6215.3
45660	242.8	0	0	26.362	-6215.3
45661	242.7	0	0	26.362	-6215.3
45662	242.7	0	0	26.362	-6215.3
45663	242.79	0	0	26.362	-6215.3
45664	242.85	0	0	26.362	-6215.3
45665	242.8	0	0	26.362	-6215.3
45666	242.91	0	0	26.362	-6215.3
45667	242.89	0	0	26.362	-6215.3
45668	242.94	0	0	26.362	-6215.3
45669	242.99	0	0	26.362	-6215.3
45670	243.01	0	0	26.362	-6215.3
45671	242.88	0	0	26.362	-6215.3
45672	242.99	0	0	26.362	-6215.3
45673	242.97	0	0	26.362	-6215.3
45674	243.1	0	0	26.362	-6215.3
45675	243.07	0	0	26.362	-6215.3
45676	243.02	0	0	26.362	-6215.3
45677	243.02	0	0	26.362	-6215.3
45678	243	0	0	26.362	-6215.3
45679	243.06	0	0	26.362	-6215.3
45680	243.12	0	0	26.362	-6215.3
45681	243.11	0	0	26.362	-6215.3
45682	243.08	0	0	26.362	-6215.3

45683	243.05	0	0	26.362	-6215.3
45684	243.05	0	0	26.362	-6215.3
45685	243.11	0	0	26.362	-6215.3
45686	243.09	0	0	26.362	-6215.3
45687	243.05	0	0	26.362	-6215.3
45688	242.94	0	0	26.362	-6215.3
45689	242.98	0	0	26.362	-6215.3
45690	242.97	0	0	26.362	-6215.3
45691	242.92	0	0	26.362	-6215.3
45692	242.99	0	0	26.362	-6215.3
45693	242.88	0	0	26.362	-6215.3
45694	242.94	0	0	26.362	-6215.3
45695	242.94	0	0	26.362	-6215.3
45696	242.92	0	0	26.362	-6215.3
45697	242.91	0	0	26.362	-6215.3
45698	242.96	0	0	26.362	-6215.3
45699	242.94	0	0	26.362	-6215.3
45700	242.86	0	0	26.362	-6215.3
45701	242.91	0	0	26.362	-6215.3
45702	242.89	0	0	26.362	-6215.3
45703	242.86	0	0	26.362	-6215.3
45704	242.89	0	0	26.362	-6215.3
45705	242.97	0	0	26.362	-6215.3
45706	242.97	0	0	26.362	-6215.3
45707	243.02	0	0	26.362	-6215.3
45708	242.93	0	0	26.362	-6215.3
45709	242.96	0	0	26.362	-6215.3
45710	242.99	0	0	26.362	-6215.3
45711	243.04	0	0	26.362	-6215.3
45712	243.02	0	0	26.362	-6215.3
45713	242.99	0	0	26.362	-6215.3
45714	242.97	0	0	26.362	-6215.3
45715	243.01	0	0	26.362	-6215.3
45716	243.03	0	0	26.362	-6215.3
45717	242.94	0	0	26.362	-6215.3
45718	242.95	0	0	26.362	-6215.3
45719	242.95	0	0	26.362	-6215.3
45720	243.04	0	0	26.362	-6215.3
45721	242.96	0	0	26.362	-6215.3
45722	243.06	0	0	26.362	-6215.3
45723	242.9	0	0	26.362	-6215.3
45724	242.95	0	0	26.362	-6215.3
45725	243.04	0	0	26.362	-6215.3
45726	242.98	0	0	26.362	-6215.3
45727	243.07	0	0	26.362	-6215.3
45728	243.07	0	0	26.362	-6215.3
45729	242.99	0	0	26.362	-6215.3

45730	243.03	0	0	26.362	-6215.3
45731	243.02	0	0	26.362	-6215.3
45732	242.98	0	0	26.362	-6215.3
45733	243.03	0	0	26.362	-6215.3
45734	242.99	0	0	26.362	-6215.3
45735	243.05	0	0	26.362	-6215.3
45736	243.02	0	0	26.362	-6215.3
45737	243.05	0	0	26.362	-6215.3
45738	242.99	0	0	26.362	-6215.3
45739	243.08	0	0	26.362	-6215.3
45740	243.08	0	0	26.362	-6215.3
45741	243.05	0	0	26.362	-6215.3
45742	243.05	0	0	26.362	-6215.3
45743	243.06	0	0	26.362	-6215.3
45744	243.04	0	0	26.362	-6215.3
45745	243.05	0	0	26.362	-6215.3
45746	243.02	0	0	26.362	-6215.3
45747	243.11	0	0	26.362	-6215.3
45748	243.17	0	0	26.362	-6215.3
45749	243.15	0	0	26.362	-6215.3
45750	243.05	0	0	26.362	-6215.3
45751	243.19	0	0	26.362	-6215.3
45752	243.15	0	0	26.362	-6215.3
45753	243	0	0	26.362	-6215.3
45754	243.19	0	0	26.362	-6215.3
45755	243.32	0	0	26.362	-6215.3
45756	243.27	0	0	26.362	-6215.3
45757	243.25	0	0	26.362	-6215.3
45758	243.27	0	0	26.362	-6215.3
45759	243.32	0	0	26.362	-6215.3
45760	243.13	0	0	26.362	-6215.3
45761	243.16	0	0	26.362	-6215.3
45762	243.24	0	0	26.362	-6215.3
45763	243.14	0	0	26.362	-6215.3
45764	243.13	0	0	26.362	-6215.3
45765	243.06	0	0	26.362	-6215.3
45766	243.11	0	0	26.362	-6215.3
45767	243.03	0	0	26.362	-6215.3
45768	243	0	0	26.362	-6215.3
45769	242.96	0	0	26.362	-6215.3
45770	243.01	0	0	26.362	-6215.3
45771	242.89	0	0	26.362	-6215.3
45772	242.99	0	0	26.362	-6215.3
45773	242.97	0	0	26.362	-6215.3
45774	242.99	0	0	26.362	-6215.3
45775	242.93	0	0	26.362	-6215.3
45776	242.95	0	0	26.362	-6215.3

45777	242.94	0	0	26.362	-6215.3
45778	243.04	0	0	26.362	-6215.3
45779	243.11	0	0	26.362	-6215.3
45780	242.97	0	0	26.362	-6215.3
45781	242.97	0	0	26.362	-6215.3
45782	242.93	0	0	26.362	-6215.3
45783	243.03	0	0	26.362	-6215.3
45784	243.02	0	0	26.362	-6215.3
45785	243.12	0	0	26.362	-6215.3
45786	242.98	0	0	26.362	-6215.3
45787	242.96	0	0	26.362	-6215.3
45788	242.96	0	0	26.362	-6215.3
45789	243	0	0	26.362	-6215.3
45790	242.9	0	0	26.362	-6215.3
45791	242.94	0	0	26.362	-6215.3
45792	242.86	0	0	26.362	-6215.3
45793	242.97	0	0	26.362	-6215.3
45794	242.95	0	0	26.362	-6215.3
45795	242.92	0	0	26.362	-6215.3
45796	242.91	0	0	26.362	-6215.3
45797	243.02	0	0	26.362	-6215.3
45798	242.89	0	0	26.362	-6215.3
45799	242.91	0	0	26.362	-6215.3
45800	242.97	0	0	26.362	-6215.3
45801	242.81	0	0	26.362	-6215.3
45802	242.91	0	0	26.362	-6215.3
45803	242.93	0	0	26.362	-6215.3
45804	242.96	0	0	26.362	-6215.3
45805	242.96	0	0	26.362	-6215.3
45806	242.97	0	0	26.362	-6215.3
45807	243.04	0	0	26.362	-6215.3
45808	243.04	0	0	26.362	-6215.3
45809	243.1	0	0	26.362	-6215.3
45810	243.11	0	0	26.362	-6215.3
45811	242.94	0	0	26.362	-6215.3
45812	243.06	0	0	26.362	-6215.3
45813	243.16	0	0	26.362	-6215.3
45814	243.08	0	0	26.362	-6215.3
45815	243.16	0	0	26.362	-6215.3
45816	243.21	0	0	26.362	-6215.3
45817	243.08	0	0	26.362	-6215.3
45818	243.13	0	0	26.362	-6215.3
45819	243.07	0	0	26.362	-6215.3
45820	243.07	0	0	26.362	-6215.3
45821	243.18	0	0	26.362	-6215.3
45822	243.17	0	0	26.362	-6215.3
45823	243.11	0	0	26.362	-6215.3

45824	243.13	0	0	26.362	-6215.3
45825	243.13	0	0	26.362	-6215.3
45826	243.19	0	0	26.362	-6215.3
45827	243.23	0	0	26.362	-6215.3
45828	243.13	0	0	26.362	-6215.3
45829	243.16	0	0	26.362	-6215.3
45830	243.16	0	0	26.362	-6215.3
45831	243.12	0	0	26.362	-6215.3
45832	243.12	0	0	26.362	-6215.3
45833	243.13	0	0	26.362	-6215.3
45834	243.23	0	0	26.362	-6215.3
45835	243.19	0	0	26.362	-6215.3
45836	243.16	0	0	26.362	-6215.3
45837	243.12	0	0	26.362	-6215.3
45838	243.04	0	0	26.362	-6215.3
45839	243.07	0	0	26.362	-6215.3
45840	243	0	0	26.362	-6215.3
45841	243	0	0	26.362	-6215.3
45842	242.99	0	0	26.362	-6215.3
45843	243.03	0	0	26.362	-6215.3
45844	242.93	0	0	26.362	-6215.3
45845	242.98	0	0	26.362	-6215.3
45846	242.97	0	0	26.362	-6215.3
45847	242.97	0	0	26.362	-6215.3
45848	242.97	0	0	26.362	-6215.3
45849	243.04	0	0	26.362	-6215.3
45850	243.04	0	0	26.362	-6215.3
45851	243.07	0	0	26.362	-6215.3
45852	243.14	0	0	26.362	-6215.3
45853	243.09	0	0	26.362	-6215.3
45854	243.06	0	0	26.362	-6215.3
45855	243.02	0	0	26.362	-6215.3
45856	243.1	0	0	26.362	-6215.3
45857	243.1	0	0	26.362	-6215.3
45858	243.01	0	0	26.362	-6215.3
45859	243.03	0	0	26.362	-6215.3
45860	243.1	0	0	26.362	-6215.3
45861	243.1	0	0	26.362	-6215.3
45862	242.99	0	0	26.362	-6215.3
45863	242.98	0	0	26.362	-6215.3
45864	243.08	0	0	26.362	-6215.3
45865	243.05	0	0	26.362	-6215.3
45866	243.13	0	0	26.362	-6215.3
45867	243.1	0	0	26.362	-6215.3
45868	243.08	0	0	26.362	-6215.3
45869	243.17	0	0	26.362	-6215.3
45870	243.16	0	0	26.362	-6215.3

45871	243.08	0	0	26.362	-6215.3
45872	243.04	0	0	26.362	-6215.3
45873	243.15	0	0	26.362	-6215.3
45874	243.04	0	0	26.362	-6215.3
45875	243.08	0	0	26.362	-6215.3
45876	243.07	0	0	26.362	-6215.3
45877	243.04	0	0	26.362	-6215.3
45878	243.07	0	0	26.362	-6215.3
45879	242.96	0	0	26.362	-6215.3
45880	242.94	0	0	26.362	-6215.3
45881	242.91	0	0	26.362	-6215.3
45882	242.96	0	0	26.362	-6215.3
45883	242.95	0	0	26.362	-6215.3
45884	242.96	0	0	26.362	-6215.3
45885	242.85	0	0	26.362	-6215.3
45886	242.91	0	0	26.362	-6215.3
45887	242.91	0	0	26.362	-6215.3
45888	242.9	0	0	26.362	-6215.3
45889	242.91	0	0	26.362	-6215.3
45890	242.8	0	0	26.362	-6215.3
45891	242.8	0	0	26.362	-6215.3
45892	242.82	0	0	26.362	-6215.3
45893	242.77	0	0	26.362	-6215.3
45894	242.79	0	0	26.362	-6215.3
45895	242.83	0	0	26.362	-6215.3
45896	242.83	0	0	26.362	-6215.3
45897	242.82	0	0	26.362	-6215.3
45898	242.8	0	0	26.362	-6215.3
45899	242.77	0	0	26.362	-6215.3
45900	242.78	0	0	26.362	-6215.3
45901	242.78	0	0	26.362	-6215.3
45902	242.87	0	0	26.362	-6215.3
45903	242.87	0	0	26.362	-6215.3
45904	242.82	0	0	26.362	-6215.3
45905	242.85	0	0	26.362	-6215.3
45906	242.94	0	0	26.362	-6215.3
45907	242.81	0	0	26.362	-6215.3
45908	242.79	0	0	26.362	-6215.3
45909	242.79	0	0	26.362	-6215.3
45910	242.79	0	0	26.362	-6215.3
45911	242.75	0	0	26.362	-6215.3
45912	242.88	0	0	26.362	-6215.3
45913	242.16	0	0	26.362	-6215.3
45914	242.57	0	0	26.362	-6215.3
45915	242.7	0	0	26.362	-6215.3
45916	242.78	0	0	26.362	-6215.3
45917	242.76	0	0	26.362	-6215.3

45918	242.63	0	0	26.362	-6215.3
45919	242.8	0	0	26.362	-6215.3
45920	242.72	0	0	26.362	-6215.3
45921	242.76	0	0	26.362	-6215.3
45922	242.76	0	0	26.362	-6215.3
45923	242.76	0	0	26.362	-6215.3
45924	242.84	0	0	26.362	-6215.3
45925	242.87	0	0	26.362	-6215.3
45926	242.83	0	0	26.362	-6215.3
45927	242.84	0	0	26.362	-6215.3
45928	242.91	0	0	26.362	-6215.3
45929	242.84	0	0	26.362	-6215.3
45930	242.82	0	0	26.362	-6215.3
45931	242.87	0	0	26.362	-6215.3
45932	242.88	0	0	26.362	-6215.3
45933	242.89	0	0	26.362	-6215.3
45934	242.92	0	0	26.362	-6215.3
45935	243.02	0	0	26.362	-6215.3
45936	242.93	0	0	26.362	-6215.3
45937	242.93	0	0	26.362	-6215.3
45938	242.96	0	0	26.362	-6215.3
45939	242.98	0	0	26.362	-6215.3
45940	243.08	0	0	26.362	-6215.3
45941	242.94	0	0	26.362	-6215.3
45942	242.95	0	0	26.362	-6215.3
45943	243.05	0	0	26.362	-6215.3
45944	243.1	0	0	26.362	-6215.3
45945	243.18	0	0	26.362	-6215.3
45946	243.15	0	0	26.362	-6215.3
45947	243.12	0	0	26.362	-6215.3
45948	243.13	0	0	26.362	-6215.3
45949	243.16	0	0	26.362	-6215.3
45950	243.1	0	0	26.362	-6215.3
45951	243.13	0	0	26.362	-6215.3
45952	242.96	0	0	26.362	-6215.3
45953	243.09	0	0	26.362	-6215.3
45954	243.19	0	0	26.362	-6215.3
45955	243.17	0	0	26.362	-6215.3
45956	243.21	0	0	26.362	-6215.3
45957	243.2	0	0	26.362	-6215.3
45958	243.25	0	0	26.362	-6215.3
45959	243.3	0	0	26.362	-6215.3
45960	243.15	0	0	26.362	-6215.3
45961	243.12	0	0	26.362	-6215.3
45962	243.12	0	0	26.362	-6215.3
45963	243.2	0	0	26.362	-6215.3
45964	243.14	0	0	26.362	-6215.3

45965	243.09	0	0	26.362	-6215.3
45966	243.1	0	0	26.362	-6215.3
45967	243.11	0	0	26.362	-6215.3
45968	243	0	0	26.362	-6215.3
45969	243	0	0	26.362	-6215.3
45970	243.17	0	0	26.362	-6215.3
45971	243.18	0	0	26.362	-6215.3
45972	243.03	0	0	26.362	-6215.3
45973	243.14	0	0	26.362	-6215.3
45974	243	0	0	26.362	-6215.3
45975	243.13	0	0	26.362	-6215.3
45976	243.11	0	0	26.362	-6215.3
45977	242.99	0	0	26.362	-6215.3
45978	242.98	0	0	26.362	-6215.3
45979	243	0	0	26.362	-6215.3
45980	243.08	0	0	26.362	-6215.3
45981	243.13	0	0	26.362	-6215.3
45982	243.11	0	0	26.362	-6215.3
45983	243.23	0	0	26.362	-6215.3
45984	242.94	0	0	26.362	-6215.3
45985	243.05	0	0	26.362	-6215.3
45986	243.14	0	0	26.362	-6215.3
45987	243.07	0	0	26.362	-6215.3
45988	242.94	0	0	26.362	-6215.3
45989	243.04	0	0	26.362	-6215.3
45990	242.9	0	0	26.362	-6215.3
45991	242.97	0	0	26.362	-6215.3
45992	242.88	0	0	26.362	-6215.3
45993	242.82	0	0	26.362	-6215.3
45994	242.83	0	0	26.362	-6215.3
45995	242.75	0	0	26.362	-6215.3
45996	242.89	0	0	26.362	-6215.3
45997	242.85	0	0	26.362	-6215.3
45998	242.82	0	0	26.362	-6215.3
45999	242.8	0	0	26.362	-6215.3
46000	242.82	0	0	26.362	-6215.3
46001	242.8	0	0	26.362	-6215.3
46002	242.82	0	0	26.362	-6215.3
46003	242.83	0	0	26.362	-6215.3
46004	242.79	0	0	26.362	-6215.3
46005	242.82	0	0	26.362	-6215.3
46006	242.86	0	0	26.362	-6215.3
46007	242.87	0	0	26.362	-6215.3
46008	242.89	0	0	26.362	-6215.3
46009	242.78	0	0	26.362	-6215.3
46010	242.85	0	0	26.362	-6215.3
46011	242.79	0	0	26.362	-6215.3

46012	242.81	0	0	26.362	-6215.3
46013	242.86	0	0	26.362	-6215.3
46014	242.84	0	0	26.362	-6215.3
46015	242.79	0	0	26.362	-6215.3
46016	242.73	0	0	26.362	-6215.3
46017	242.83	0	0	26.362	-6215.3
46018	242.89	0	0	26.362	-6215.3
46019	242.89	0	0	26.362	-6215.3
46020	242.77	0	0	26.362	-6215.3
46021	242.83	0	0	26.362	-6215.3
46022	242.77	0	0	26.362	-6215.3
46023	242.89	0	0	26.362	-6215.3
46024	242.82	0	0	26.362	-6215.3
46025	242.76	0	0	26.362	-6215.3
46026	242.8	0	0	26.362	-6215.3
46027	242.76	0	0	26.362	-6215.3
46028	242.83	0	0	26.362	-6215.3
46029	242.82	0	0	26.362	-6215.3
46030	242.78	0	0	26.362	-6215.3
46031	242.72	0	0	26.362	-6215.3
46032	242.75	0	0	26.362	-6215.3
46033	242.69	0	0	26.362	-6215.3
46034	242.79	0	0	26.362	-6215.3
46035	242.74	0	0	26.362	-6215.3
46036	242.74	0	0	26.362	-6215.3
46037	242.76	0	0	26.362	-6215.3
46038	242.84	0	0	26.362	-6215.3
46039	242.79	0	0	26.362	-6215.3
46040	242.76	0	0	26.362	-6215.3
46041	242.75	0	0	26.362	-6215.3
46042	242.81	0	0	26.362	-6215.3
46043	242.89	0	0	26.362	-6215.3
46044	242.96	0	0	26.362	-6215.3
46045	242.92	0	0	26.362	-6215.3
46046	242.97	0	0	26.362	-6215.3
46047	242.84	0	0	26.362	-6215.3
46048	243.04	0	0	26.362	-6215.3
46049	242.96	0	0	26.362	-6215.3
46050	243.05	0	0	26.362	-6215.3
46051	243	0	0	26.362	-6215.3
46052	242.93	0	0	26.362	-6215.3
46053	242.93	0	0	26.362	-6215.3
46054	243.03	0	0	26.362	-6215.3
46055	242.92	0	0	26.362	-6215.3
46056	242.91	0	0	26.362	-6215.3
46057	243.04	0	0	26.362	-6215.3
46058	243.01	0	0	26.362	-6215.3

46059	242.96	0	0	26.362	-6215.3
46060	243.05	0	0	26.362	-6215.3
46061	242.91	0	0	26.362	-6215.3
46062	242.99	0	0	26.362	-6215.3
46063	242.99	0	0	26.362	-6215.3
46064	242.96	0	0	26.362	-6215.3
46065	243.01	0	0	26.362	-6215.3
46066	242.89	0	0	26.362	-6215.3
46067	242.84	0	0	26.362	-6215.3
46068	242.84	0	0	26.362	-6215.3
46069	242.84	0	0	26.362	-6215.3
46070	242.78	0	0	26.362	-6215.3
46071	242.85	0	0	26.362	-6215.3
46072	242.83	0	0	26.362	-6215.3
46073	242.84	0	0	26.362	-6215.3
46074	242.91	0	0	26.362	-6215.3
46075	242.93	0	0	26.362	-6215.3
46076	242.86	0	0	26.362	-6215.3
46077	242.82	0	0	26.362	-6215.3
46078	242.81	0	0	26.362	-6215.3
46079	242.85	0	0	26.362	-6215.3
46080	242.85	0	0	26.362	-6215.3
46081	242.78	0	0	26.362	-6215.3
46082	242.82	0	0	26.362	-6215.3
46083	242.87	0	0	26.362	-6215.3
46084	242.84	0	0	26.362	-6215.3
46085	242.89	0	0	26.362	-6215.3
46086	242.89	0	0	26.362	-6215.3
46087	242.87	0	0	26.362	-6215.3
46088	242.92	0	0	26.362	-6215.3
46089	242.83	0	0	26.362	-6215.3
46090	242.83	0	0	26.362	-6215.3
46091	242.72	0	0	26.362	-6215.3
46092	242.74	0	0	26.362	-6215.3
46093	242.79	0	0	26.362	-6215.3
46094	242.81	0	0	26.362	-6215.3
46095	242.8	0	0	26.362	-6215.3
46096	242.81	0	0	26.362	-6215.3
46097	242.99	0	0	26.362	-6215.3
46098	242.96	0	0	26.362	-6215.3
46099	242.98	0	0	26.362	-6215.3
46100	242.85	0	0	26.362	-6215.3
46101	242.83	0	0	26.362	-6215.3
46102	242.95	0	0	26.362	-6215.3
46103	243	0	0	26.362	-6215.3
46104	242.96	0	0	26.362	-6215.3
46105	242.97	0	0	26.362	-6215.3

46106	242.93	0	0	26.362	-6215.3
46107	242.99	0	0	26.362	-6215.3
46108	242.9	0	0	26.362	-6215.3
46109	243.1	0	0	26.362	-6215.3
46110	243.21	0	0	26.362	-6215.3
46111	243.11	0	0	26.362	-6215.3
46112	243.18	0	0	26.362	-6215.3
46113	243.14	0	0	26.362	-6215.3
46114	243.21	0	0	26.362	-6215.3
46115	243.19	0	0	26.362	-6215.3
46116	243.16	0	0	26.362	-6215.3
46117	243.25	0	0	26.362	-6215.3
46118	243.14	0	0	26.362	-6215.3
46119	243.13	0	0	26.362	-6215.3
46120	243.06	0	0	26.362	-6215.3
46121	243.07	0	0	26.362	-6215.3
46122	243.09	0	0	26.362	-6215.3
46123	242.94	0	0	26.362	-6215.3
46124	243.05	0	0	26.362	-6215.3
46125	243.05	0	0	26.362	-6215.3
46126	243.17	0	0	26.362	-6215.3
46127	243.16	0	0	26.362	-6215.3
46128	243.15	0	0	26.362	-6215.3
46129	243.11	0	0	26.362	-6215.3
46130	243.14	0	0	26.362	-6215.3
46131	243.07	0	0	26.362	-6215.3
46132	243.07	0	0	26.362	-6215.3
46133	243.11	0	0	26.362	-6215.3
46134	243.19	0	0	26.362	-6215.3
46135	243.09	0	0	26.362	-6215.3
46136	243.15	0	0	26.362	-6215.3
46137	243.17	0	0	26.362	-6215.3
46138	243.21	0	0	26.362	-6215.3
46139	243.22	0	0	26.362	-6215.3
46140	243.2	0	0	26.362	-6215.3
46141	243.13	0	0	26.362	-6215.3
46142	243.18	0	0	26.362	-6215.3
46143	243.19	0	0	26.362	-6215.3
46144	243.22	0	0	26.362	-6215.3
46145	243.24	0	0	26.362	-6215.3
46146	243.24	0	0	26.362	-6215.3
46147	243.23	0	0	26.362	-6215.3
46148	243.22	0	0	26.362	-6215.3
46149	243.24	0	0	26.362	-6215.3
46150	243.18	0	0	26.362	-6215.3
46151	243.17	0	0	26.362	-6215.3
46152	243.22	0	0	26.362	-6215.3

46153	243.18	0	0	26.362	-6215.3
46154	243.13	0	0	26.362	-6215.3
46155	243.15	0	0	26.362	-6215.3
46156	243.21	0	0	26.362	-6215.3
46157	243.19	0	0	26.362	-6215.3
46158	243.2	0	0	26.362	-6215.3
46159	243.13	0	0	26.362	-6215.3
46160	243.13	0	0	26.362	-6215.3
46161	243.22	0	0	26.362	-6215.3
46162	243.11	0	0	26.362	-6215.3
46163	243.12	0	0	26.362	-6215.3
46164	243.19	0	0	26.362	-6215.3
46165	243.15	0	0	26.362	-6215.3
46166	243.2	0	0	26.362	-6215.3
46167	243.22	0	0	26.362	-6215.3
46168	243.18	0	0	26.362	-6215.3
46169	243.2	0	0	26.362	-6215.3
46170	243.2	0	0	26.362	-6215.3
46171	243.14	0	0	26.362	-6215.3
46172	243.14	0	0	26.362	-6215.3
46173	243.06	0	0	26.362	-6215.3
46174	243.03	0	0	26.362	-6215.3
46175	243	0	0	26.362	-6215.3
46176	243.01	0	0	26.362	-6215.3
46177	243.04	0	0	26.362	-6215.3
46178	243.06	0	0	26.362	-6215.3
46179	242.92	0	0	26.362	-6215.3
46180	242.94	0	0	26.362	-6215.3
46181	242.96	0	0	26.362	-6215.3
46182	242.85	0	0	26.362	-6215.3
46183	242.84	0	0	26.362	-6215.3
46184	242.88	0	0	26.362	-6215.3
46185	242.88	0	0	26.362	-6215.3
46186	242.88	0	0	26.362	-6215.3
46187	242.88	0	0	26.362	-6215.3
46188	242.88	0	0	26.362	-6215.3
46189	243.04	0	0	26.362	-6215.3
46190	242.94	0	0	26.362	-6215.3
46191	242.97	0	0	26.362	-6215.3
46192	242.91	0	0	26.362	-6215.3
46193	242.97	0	0	26.362	-6215.3
46194	242.97	0	0	26.362	-6215.3
46195	243	0	0	26.362	-6215.3
46196	242.96	0	0	26.362	-6215.3
46197	243.04	0	0	26.362	-6215.3
46198	243.02	0	0	26.362	-6215.3
46199	243.09	0	0	26.362	-6215.3

46200	242.97	0	0	26.362	-6215.3
46201	242.99	0	0	26.362	-6215.3
46202	243.03	0	0	26.362	-6215.3
46203	243.02	0	0	26.362	-6215.3
46204	243.01	0	0	26.362	-6215.3
46205	242.97	0	0	26.362	-6215.3
46206	243.04	0	0	26.362	-6215.3
46207	243.1	0	0	26.362	-6215.3
46208	243.02	0	0	26.362	-6215.3
46209	243.07	0	0	26.362	-6215.3
46210	243.01	0	0	26.362	-6215.3
46211	243.08	0	0	26.362	-6215.3
46212	243.03	0	0	26.362	-6215.3
46213	243.08	0	0	26.362	-6215.3
46214	243.06	0	0	26.362	-6215.3
46215	243.03	0	0	26.362	-6215.3
46216	243.05	0	0	26.362	-6215.3
46217	243.04	0	0	26.362	-6215.3
46218	243.13	0	0	26.362	-6215.3
46219	243.05	0	0	26.362	-6215.3
46220	243.03	0	0	26.362	-6215.3
46221	243	0	0	26.362	-6215.3
46222	243.03	0	0	26.362	-6215.3
46223	243.13	0	0	26.362	-6215.3
46224	243.07	0	0	26.362	-6215.3
46225	243.08	0	0	26.362	-6215.3
46226	243.14	0	0	26.362	-6215.3
46227	243.05	0	0	26.362	-6215.3
46228	243.06	0	0	26.362	-6215.3
46229	243.05	0	0	26.362	-6215.3
46230	243.1	0	0	26.362	-6215.3
46231	243.08	0	0	26.362	-6215.3
46232	243.08	0	0	26.362	-6215.3
46233	243.05	0	0	26.362	-6215.3
46234	243.02	0	0	26.362	-6215.3
46235	242.97	0	0	26.362	-6215.3
46236	242.97	0	0	26.362	-6215.3
46237	242.98	0	0	26.362	-6215.3
46238	243.01	0	0	26.362	-6215.3
46239	242.98	0	0	26.362	-6215.3
46240	243.04	0	0	26.362	-6215.3
46241	242.96	0	0	26.362	-6215.3
46242	242.98	0	0	26.362	-6215.3
46243	242.97	0	0	26.362	-6215.3
46244	242.93	0	0	26.362	-6215.3
46245	242.93	0	0	26.362	-6215.3
46246	242.97	0	0	26.362	-6215.3

46247	242.96	0	0	26.362	-6215.3
46248	243.01	0	0	26.362	-6215.3
46249	242.96	0	0	26.362	-6215.3
46250	242.92	0	0	26.362	-6215.3
46251	242.88	0	0	26.362	-6215.3
46252	242.94	0	0	26.362	-6215.3
46253	242.91	0	0	26.362	-6215.3
46254	242.93	0	0	26.362	-6215.3
46255	242.83	0	0	26.362	-6215.3
46256	242.84	0	0	26.362	-6215.3
46257	242.83	0	0	26.362	-6215.3
46258	242.84	0	0	26.362	-6215.3
46259	242.77	0	0	26.362	-6215.3
46260	242.72	0	0	26.362	-6215.3
46261	242.82	0	0	26.362	-6215.3
46262	242.84	0	0	26.362	-6215.3
46263	242.91	0	0	26.362	-6215.3
46264	242.87	0	0	26.362	-6215.3
46265	242.83	0	0	26.362	-6215.3
46266	242.86	0	0	26.362	-6215.3
46267	242.9	0	0	26.362	-6215.3
46268	242.87	0	0	26.362	-6215.3
46269	242.91	0	0	26.362	-6215.3
46270	242.93	0	0	26.362	-6215.3
46271	242.92	0	0	26.362	-6215.3
46272	242.94	0	0	26.362	-6215.3
46273	242.93	0	0	26.362	-6215.3
46274	242.96	0	0	26.362	-6215.3
46275	242.94	0	0	26.362	-6215.3
46276	242.98	0	0	26.362	-6215.3
46277	242.95	0	0	26.362	-6215.3
46278	242.98	0	0	26.362	-6215.3
46279	242.98	0	0	26.362	-6215.3
46280	242.99	0	0	26.362	-6215.3
46281	242.96	0	0	26.362	-6215.3
46282	242.98	0	0	26.362	-6215.3
46283	242.9	0	0	26.362	-6215.3
46284	242.85	0	0	26.362	-6215.3
46285	242.99	0	0	26.362	-6215.3
46286	242.84	0	0	26.362	-6215.3
46287	242.79	0	0	26.362	-6215.3
46288	242.74	0	0	26.362	-6215.3
46289	242.77	0	0	26.362	-6215.3
46290	242.85	0	0	26.362	-6215.3
46291	242.84	0	0	26.362	-6215.3
46292	242.8	0	0	26.362	-6215.3
46293	242.82	0	0	26.362	-6215.3

46294	242.74	0	0	26.362	-6215.3
46295	242.75	0	0	26.362	-6215.3
46296	242.82	0	0	26.362	-6215.3
46297	242.78	0	0	26.362	-6215.3
46298	242.89	0	0	26.362	-6215.3
46299	242.85	0	0	26.362	-6215.3
46300	242.73	0	0	26.362	-6215.3
46301	242.74	0	0	26.362	-6215.3
46302	242.77	0	0	26.362	-6215.3
46303	242.66	0	0	26.362	-6215.3
46304	242.8	0	0	26.362	-6215.3
46305	242.79	0	0	26.362	-6215.3
46306	242.98	0	0	26.362	-6215.3
46307	243.03	0	0	26.362	-6215.3
46308	242.97	0	0	26.362	-6215.3
46309	242.95	0	0	26.362	-6215.3
46310	242.92	0	0	26.362	-6215.3
46311	242.99	0	0	26.362	-6215.3
46312	242.96	0	0	26.362	-6215.3
46313	242.93	0	0	26.362	-6215.3
46314	242.93	0	0	26.362	-6215.3
46315	242.98	0	0	26.362	-6215.3
46316	242.94	0	0	26.362	-6215.3
46317	242.32	0	0	26.362	-6215.3
46318	242.42	0	0	26.362	-6215.3
46319	242.77	0	0	26.362	-6215.3
46320	242.79	0	0	26.362	-6215.3
46321	242.72	0	0	26.362	-6215.3
46322	242.75	0	0	26.362	-6215.3
46323	242.87	0	0	26.362	-6215.3
46324	242.76	0	0	26.362	-6215.3
46325	242.82	0	0	26.362	-6215.3
46326	242.72	0	0	26.362	-6215.3
46327	242.7	0	0	26.362	-6215.3
46328	242.76	0	0	26.362	-6215.3
46329	242.85	0	0	26.362	-6215.3
46330	242.73	0	0	26.362	-6215.3
46331	242.76	0	0	26.362	-6215.3
46332	242.92	0	0	26.362	-6215.3
46333	242.83	0	0	26.362	-6215.3
46334	242.99	0	0	26.362	-6215.3
46335	242.88	0	0	26.362	-6215.3
46336	242.84	0	0	26.362	-6215.3
46337	242.9	0	0	26.362	-6215.3
46338	242.9	0	0	26.362	-6215.3
46339	242.78	0	0	26.362	-6215.3
46340	242.84	0	0	26.362	-6215.3

46341	242.72	0	0	26.362	-6215.3
46342	242.78	0	0	26.362	-6215.3
46343	242.72	0	0	26.362	-6215.3
46344	242.76	0	0	26.362	-6215.3
46345	242.77	0	0	26.362	-6215.3
46346	242.92	0	0	26.362	-6215.3
46347	242.73	0	0	26.362	-6215.3
46348	242.66	0	0	26.362	-6215.3
46349	242.7	0	0	26.362	-6215.3
46350	242.78	0	0	26.362	-6215.3
46351	242.58	0	0	26.362	-6215.3
46352	242.71	0	0	26.362	-6215.3
46353	242.63	0	0	26.362	-6215.3
46354	242.63	0	0	26.362	-6215.3
46355	242.63	0	0	26.362	-6215.3
46356	242.72	0	0	26.362	-6215.3
46357	242.64	0	0	26.362	-6215.3
46358	242.59	0	0	26.362	-6215.3
46359	242.66	0	0	26.362	-6215.3
46360	242.58	0	0	26.362	-6215.3
46361	242.61	0	0	26.362	-6215.3
46362	242.71	0	0	26.362	-6215.3
46363	242.53	0	0	26.362	-6215.3
46364	242.53	0	0	26.362	-6215.3
46365	242.58	0	0	26.362	-6215.3
46366	242.58	0	0	26.362	-6215.3
46367	242.56	0	0	26.362	-6215.3
46368	242.54	0	0	26.362	-6215.3
46369	242.57	0	0	26.362	-6215.3
46370	242.53	0	0	26.362	-6215.3
46371	242.62	0	0	26.362	-6215.3
46372	242.59	0	0	26.362	-6215.3
46373	242.68	0	0	26.362	-6215.3
46374	242.63	0	0	26.362	-6215.3
46375	242.68	0	0	26.362	-6215.3
46376	242.59	0	0	26.362	-6215.3
46377	242.65	0	0	26.362	-6215.3
46378	242.61	0	0	26.362	-6215.3
46379	242.78	0	0	26.362	-6215.3
46380	242.84	0	0	26.362	-6215.3
46381	242.81	0	0	26.362	-6215.3
46382	242.7	0	0	26.362	-6215.3
46383	242.76	0	0	26.362	-6215.3
46384	242.88	0	0	26.362	-6215.3
46385	242.82	0	0	26.362	-6215.3
46386	242.76	0	0	26.362	-6215.3
46387	242.81	0	0	26.362	-6215.3

46388	242.87	0	0	26.362	-6215.3
46389	242.86	0	0	26.362	-6215.3
46390	242.92	0	0	26.362	-6215.3
46391	242.87	0	0	26.362	-6215.3
46392	242.91	0	0	26.362	-6215.3
46393	242.97	0	0	26.362	-6215.3
46394	242.96	0	0	26.362	-6215.3
46395	242.88	0	0	26.362	-6215.3
46396	242.96	0	0	26.362	-6215.3
46397	243.03	0	0	26.362	-6215.3
46398	243.02	0	0	26.362	-6215.3
46399	243.02	0	0	26.362	-6215.3
46400	243.03	0	0	26.362	-6215.3
46401	243.11	0	0	26.362	-6215.3
46402	243.03	0	0	26.362	-6215.3
46403	243.12	0	0	26.362	-6215.3
46404	243.12	0	0	26.362	-6215.3
46405	243.09	0	0	26.362	-6215.3
46406	243.1	0	0	26.362	-6215.3
46407	243.04	0	0	26.362	-6215.3
46408	243.1	0	0	26.362	-6215.3
46409	243.12	0	0	26.362	-6215.3
46410	243.11	0	0	26.362	-6215.3
46411	243.09	0	0	26.362	-6215.3
46412	243.11	0	0	26.362	-6215.3
46413	243.13	0	0	26.362	-6215.3
46414	243.13	0	0	26.362	-6215.3
46415	243.17	0	0	26.362	-6215.3
46416	243.09	0	0	26.362	-6215.3
46417	243.07	0	0	26.362	-6215.3
46418	243.04	0	0	26.362	-6215.3
46419	243.08	0	0	26.362	-6215.3
46420	243.15	0	0	26.362	-6215.3
46421	243.13	0	0	26.362	-6215.3
46422	243.25	0	0	26.362	-6215.3
46423	243.17	0	0	26.362	-6215.3
46424	243.16	0	0	26.362	-6215.3
46425	243.23	0	0	26.362	-6215.3
46426	243.28	0	0	26.362	-6215.3
46427	243.17	0	0	26.362	-6215.3
46428	243.21	0	0	26.362	-6215.3
46429	243.15	0	0	26.362	-6215.3
46430	243.19	0	0	26.362	-6215.3
46431	243.08	0	0	26.362	-6215.3
46432	243.14	0	0	26.362	-6215.3
46433	243.07	0	0	26.362	-6215.3
46434	242.94	0	0	26.362	-6215.3

46435	242.96	0	0	26.362	-6215.3
46436	242.99	0	0	26.362	-6215.3
46437	242.98	0	0	26.362	-6215.3
46438	242.98	0	0	26.362	-6215.3
46439	243.08	0	0	26.362	-6215.3
46440	243.04	0	0	26.362	-6215.3
46441	243.02	0	0	26.362	-6215.3
46442	243.08	0	0	26.362	-6215.3
46443	242.99	0	0	26.362	-6215.3
46444	242.97	0	0	26.362	-6215.3
46445	243.05	0	0	26.362	-6215.3
46446	242.98	0	0	26.362	-6215.3
46447	242.97	0	0	26.362	-6215.3
46448	243.09	0	0	26.362	-6215.3
46449	242.99	0	0	26.362	-6215.3
46450	243	0	0	26.362	-6215.3
46451	242.99	0	0	26.362	-6215.3
46452	243	0	0	26.362	-6215.3
46453	242.92	0	0	26.362	-6215.3
46454	242.88	0	0	26.362	-6215.3
46455	242.87	0	0	26.362	-6215.3
46456	243.04	0	0	26.362	-6215.3
46457	242.93	0	0	26.362	-6215.3
46458	242.94	0	0	26.362	-6215.3
46459	243.01	0	0	26.362	-6215.3
46460	242.91	0	0	26.362	-6215.3
46461	243.02	0	0	26.362	-6215.3
46462	242.9	0	0	26.362	-6215.3
46463	243.09	0	0	26.362	-6215.3
46464	243.02	0	0	26.362	-6215.3
46465	243.05	0	0	26.362	-6215.3
46466	243.02	0	0	26.362	-6215.3
46467	242.95	0	0	26.362	-6215.3
46468	243	0	0	26.362	-6215.3
46469	242.81	0	0	26.362	-6215.3
46470	242.92	0	0	26.362	-6215.3
46471	242.91	0	0	26.362	-6215.3
46472	242.97	0	0	26.362	-6215.3
46473	243	0	0	26.362	-6215.3
46474	242.91	0	0	26.362	-6215.3
46475	242.9	0	0	26.362	-6215.3
46476	242.88	0	0	26.362	-6215.3
46477	242.85	0	0	26.362	-6215.3
46478	242.96	0	0	26.362	-6215.3
46479	242.91	0	0	26.362	-6215.3
46480	242.9	0	0	26.362	-6215.3
46481	243.05	0	0	26.362	-6215.3

46482	243.01	0	0	26.362	-6215.3
46483	243.03	0	0	26.362	-6215.3
46484	242.83	0	0	26.362	-6215.3
46485	242.9	0	0	26.362	-6215.3
46486	243.02	0	0	26.362	-6215.3
46487	242.79	0	0	26.362	-6215.3
46488	242.95	0	0	26.362	-6215.3
46489	242.96	0	0	26.362	-6215.3
46490	242.89	0	0	26.362	-6215.3
46491	243.11	0	0	26.362	-6215.3
46492	243.29	0	0	26.362	-6215.3
46493	243.19	0	0	26.362	-6215.3
46494	243.24	0	0	26.362	-6215.3
46495	243.2	0	0	26.362	-6215.3
46496	243.24	0	0	26.362	-6215.3
46497	243.31	0	0	26.362	-6215.3
46498	243.3	0	0	26.362	-6215.3
46499	243.38	0	0	26.362	-6215.3
46500	243.42	0	0	26.362	-6215.3
46501	243.46	0	0	26.362	-6215.3
46502	243.43	0	0	26.362	-6215.3
46503	243.42	0	0	26.362	-6215.3
46504	243.42	0	0	26.362	-6215.3
46505	243.37	0	0	26.362	-6215.3
46506	243.4	0	0	26.362	-6215.3
46507	243.37	0	0	26.362	-6215.3
46508	243.38	0	0	26.362	-6215.3
46509	243.4	0	0	26.362	-6215.3
46510	243.39	0	0	26.362	-6215.3
46511	243.34	0	0	26.362	-6215.3
46512	243.38	0	0	26.362	-6215.3
46513	243.37	0	0	26.362	-6215.3
46514	243.33	0	0	26.362	-6215.3
46515	243.35	0	0	26.362	-6215.3
46516	243.36	0	0	26.362	-6215.3
46517	243.37	0	0	26.362	-6215.3
46518	243.34	0	0	26.362	-6215.3
46519	243.38	0	0	26.362	-6215.3
46520	243.39	0	0	26.362	-6215.3
46521	243.42	0	0	26.362	-6215.3
46522	243.35	0	0	26.362	-6215.3
46523	243.35	0	0	26.362	-6215.3
46524	243.44	0	0	26.362	-6215.3
46525	243.42	0	0	26.362	-6215.3
46526	243.39	0	0	26.362	-6215.3
46527	243.42	0	0	26.362	-6215.3
46528	243.4	0	0	26.362	-6215.3

46529	243.37	0	0	26.362	-6215.3
46530	243.38	0	0	26.362	-6215.3
46531	243.41	0	0	26.362	-6215.3
46532	243.37	0	0	26.362	-6215.3
46533	243.38	0	0	26.362	-6215.3
46534	243.37	0	0	26.362	-6215.3
46535	243.35	0	0	26.362	-6215.3
46536	243.33	0	0	26.362	-6215.3
46537	243.33	0	0	26.362	-6215.3
46538	243.29	0	0	26.362	-6215.3
46539	243.36	0	0	26.362	-6215.3
46540	243.39	0	0	26.362	-6215.3
46541	243.44	0	0	26.362	-6215.3
46542	243.41	0	0	26.362	-6215.3
46543	243.39	0	0	26.362	-6215.3
46544	243.38	0	0	26.362	-6215.3
46545	243.31	0	0	26.362	-6215.3
46546	243.31	0	0	26.362	-6215.3
46547	243.4	0	0	26.362	-6215.3
46548	243.4	0	0	26.362	-6215.3
46549	243.42	0	0	26.362	-6215.3
46550	243.45	0	0	26.362	-6215.3
46551	243.44	0	0	26.362	-6215.3
46552	243.39	0	0	26.362	-6215.3
46553	243.37	0	0	26.362	-6215.3
46554	243.36	0	0	26.362	-6215.3
46555	243.36	0	0	26.362	-6215.3
46556	243.44	0	0	26.362	-6215.3
46557	243.38	0	0	26.362	-6215.3
46558	243.39	0	0	26.362	-6215.3
46559	243.37	0	0	26.362	-6215.3
46560	243.35	0	0	26.362	-6215.3
46561	243.43	0	0	26.362	-6215.3
46562	243.38	0	0	26.362	-6215.3
46563	243.48	0	0	26.362	-6215.3
46564	243.53	0	0	26.362	-6215.3
46565	243.54	0	0	26.362	-6215.3
46566	243.52	0	0	26.362	-6215.3
46567	243.47	0	0	26.362	-6215.3
46568	243.52	0	0	26.362	-6215.3
46569	243.53	0	0	26.362	-6215.3
46570	243.51	0	0	26.362	-6215.3
46571	243.52	0	0	26.362	-6215.3
46572	243.46	0	0	26.362	-6215.3
46573	243.47	0	0	26.362	-6215.3
46574	243.5	0	0	26.362	-6215.3
46575	243.49	0	0	26.362	-6215.3

46576	243.51	0	0	26.362	-6215.3
46577	243.49	0	0	26.362	-6215.3
46578	243.51	0	0	26.362	-6215.3
46579	243.45	0	0	26.362	-6215.3
46580	243.45	0	0	26.362	-6215.3
46581	243.51	0	0	26.362	-6215.3
46582	243.46	0	0	26.362	-6215.3
46583	243.53	0	0	26.362	-6215.3
46584	243.53	0	0	26.362	-6215.3
46585	243.49	0	0	26.362	-6215.3
46586	243.52	0	0	26.362	-6215.3
46587	243.49	0	0	26.362	-6215.3
46588	243.52	0	0	26.362	-6215.3
46589	243.41	0	0	26.362	-6215.3
46590	243.46	0	0	26.362	-6215.3
46591	243.4	0	0	26.362	-6215.3
46592	243.4	0	0	26.362	-6215.3
46593	243.41	0	0	26.362	-6215.3
46594	243.29	0	0	26.362	-6215.3
46595	243.36	0	0	26.362	-6215.3
46596	243.32	0	0	26.362	-6215.3
46597	243.35	0	0	26.362	-6215.3
46598	243.42	0	0	26.362	-6215.3
46599	243.39	0	0	26.362	-6215.3
46600	243.37	0	0	26.362	-6215.3
46601	243.42	0	0	26.362	-6215.3
46602	243.43	0	0	26.362	-6215.3
46603	243.41	0	0	26.362	-6215.3
46604	243.4	0	0	26.362	-6215.3
46605	243.41	0	0	26.362	-6215.3
46606	243.37	0	0	26.362	-6215.3
46607	243.38	0	0	26.362	-6215.3
46608	243.37	0	0	26.362	-6215.3
46609	243.27	0	0	26.362	-6215.3
46610	243.35	0	0	26.362	-6215.3
46611	243.3	0	0	26.362	-6215.3
46612	243.26	0	0	26.362	-6215.3
46613	243.3	0	0	26.362	-6215.3
46614	243.25	0	0	26.362	-6215.3
46615	243.23	0	0	26.362	-6215.3
46616	243.26	0	0	26.362	-6215.3
46617	243.23	0	0	26.362	-6215.3
46618	243.22	0	0	26.362	-6215.3
46619	243.28	0	0	26.362	-6215.3
46620	243.19	0	0	26.362	-6215.3
46621	243.26	0	0	26.362	-6215.3
46622	243.27	0	0	26.362	-6215.3

46623	243.26	0	0	26.362	-6215.3
46624	243.25	0	0	26.362	-6215.3
46625	243.23	0	0	26.362	-6215.3
46626	243.28	0	0	26.362	-6215.3
46627	243.26	0	0	26.362	-6215.3
46628	243.27	0	0	26.362	-6215.3
46629	243.21	0	0	26.362	-6215.3
46630	243.27	0	0	26.362	-6215.3
46631	243.29	0	0	26.362	-6215.3
46632	243.3	0	0	26.362	-6215.3
46633	243.27	0	0	26.362	-6215.3
46634	243.28	0	0	26.362	-6215.3
46635	243.29	0	0	26.362	-6215.3
46636	243.26	0	0	26.362	-6215.3
46637	243.27	0	0	26.362	-6215.3
46638	243.3	0	0	26.362	-6215.3
46639	243.22	0	0	26.362	-6215.3
46640	243.25	0	0	26.362	-6215.3
46641	243.26	0	0	26.362	-6215.3
46642	243.26	0	0	26.362	-6215.3
46643	243.26	0	0	26.362	-6215.3
46644	243.28	0	0	26.362	-6215.3
46645	243.31	0	0	26.362	-6215.3
46646	243.31	0	0	26.362	-6215.3
46647	243.32	0	0	26.362	-6215.3
46648	243.34	0	0	26.362	-6215.3
46649	243.26	0	0	26.362	-6215.3
46650	243.33	0	0	26.362	-6215.3
46651	243.35	0	0	26.362	-6215.3
46652	243.44	0	0	26.362	-6215.3
46653	243.4	0	0	26.362	-6215.3
46654	243.45	0	0	26.362	-6215.3
46655	243.47	0	0	26.362	-6215.3
46656	243.44	0	0	26.362	-6215.3
46657	243.46	0	0	26.362	-6215.3
46658	243.4	0	0	26.362	-6215.3
46659	243.43	0	0	26.362	-6215.3
46660	243.44	0	0	26.362	-6215.3
46661	243.44	0	0	26.362	-6215.3
46662	243.42	0	0	26.362	-6215.3
46663	243.51	0	0	26.362	-6215.3
46664	243.51	0	0	26.362	-6215.3
46665	243.55	0	0	26.362	-6215.3
46666	243.54	0	0	26.362	-6215.3
46667	243.52	0	0	26.362	-6215.3
46668	243.53	0	0	26.362	-6215.3
46669	243.57	0	0	26.362	-6215.3

46670	243.59	0	0	26.362	-6215.3
46671	243.55	0	0	26.362	-6215.3
46672	243.56	0	0	26.362	-6215.3
46673	243.53	0	0	26.362	-6215.3
46674	243.57	0	0	26.362	-6215.3
46675	243.57	0	0	26.362	-6215.3
46676	243.57	0	0	26.362	-6215.3
46677	243.55	0	0	26.362	-6215.3
46678	243.61	0	0	26.362	-6215.3
46679	243.54	0	0	26.362	-6215.3
46680	243.55	0	0	26.362	-6215.3
46681	243.53	0	0	26.362	-6215.3
46682	243.46	0	0	26.362	-6215.3
46683	243.51	0	0	26.362	-6215.3
46684	243.48	0	0	26.362	-6215.3
46685	243.48	0	0	26.362	-6215.3
46686	243.49	0	0	26.362	-6215.3
46687	243.49	0	0	26.362	-6215.3
46688	243.39	0	0	26.362	-6215.3
46689	243.47	0	0	26.362	-6215.3
46690	243.47	0	0	26.362	-6215.3
46691	243.45	0	0	26.362	-6215.3
46692	243.43	0	0	26.362	-6215.3
46693	243.44	0	0	26.362	-6215.3
46694	243.4	0	0	26.362	-6215.3
46695	243.42	0	0	26.362	-6215.3
46696	243.45	0	0	26.362	-6215.3
46697	243.47	0	0	26.362	-6215.3
46698	243.43	0	0	26.362	-6215.3
46699	243.42	0	0	26.362	-6215.3
46700	243.42	0	0	26.362	-6215.3
46701	243.45	0	0	26.362	-6215.3
46702	243.4	0	0	26.362	-6215.3
46703	243.35	0	0	26.362	-6215.3
46704	243.39	0	0	26.362	-6215.3
46705	243.37	0	0	26.362	-6215.3
46706	243.41	0	0	26.362	-6215.3
46707	243.48	0	0	26.362	-6215.3
46708	243.42	0	0	26.362	-6215.3
46709	243.47	0	0	26.362	-6215.3
46710	243.48	0	0	26.362	-6215.3
46711	243.45	0	0	26.362	-6215.3
46712	243.45	0	0	26.362	-6215.3
46713	243.38	0	0	26.362	-6215.3
46714	243.43	0	0	26.362	-6215.3
46715	243.42	0	0	26.362	-6215.3
46716	243.39	0	0	26.362	-6215.3

46717	243.33	0	0	26.362	-6215.3
46718	243.34	0	0	26.362	-6215.3
46719	243.3	0	0	26.362	-6215.3
46720	243.32	0	0	26.362	-6215.3
46721	243.33	0	0	26.362	-6215.3
46722	243.27	0	0	26.362	-6215.3
46723	243.29	0	0	26.362	-6215.3
46724	243.27	0	0	26.362	-6215.3
46725	243.26	0	0	26.362	-6215.3
46726	243.29	0	0	26.362	-6215.3
46727	243.25	0	0	26.362	-6215.3
46728	243.28	0	0	26.362	-6215.3
46729	243.29	0	0	26.362	-6215.3
46730	243.25	0	0	26.362	-6215.3
46731	243.18	0	0	26.362	-6215.3
46732	243.28	0	0	26.362	-6215.3
46733	243.25	0	0	26.362	-6215.3
46734	242.57	0	0	26.362	-6215.3
46735	243.21	0	0	26.362	-6215.3
46736	243.15	0	0	26.362	-6215.3
46737	243.19	0	0	26.362	-6215.3
46738	243.19	0	0	26.362	-6215.3
46739	243.24	0	0	26.362	-6215.3
46740	243.21	0	0	26.362	-6215.3
46741	243.23	0	0	26.362	-6215.3
46742	243.23	0	0	26.362	-6215.3
46743	243.29	0	0	26.362	-6215.3
46744	243.24	0	0	26.362	-6215.3
46745	243.26	0	0	26.362	-6215.3
46746	243.29	0	0	26.362	-6215.3
46747	243.24	0	0	26.362	-6215.3
46748	243.34	0	0	26.362	-6215.3
46749	243.34	0	0	26.362	-6215.3
46750	243.3	0	0	26.362	-6215.3
46751	243.33	0	0	26.362	-6215.3
46752	243.35	0	0	26.362	-6215.3
46753	243.37	0	0	26.362	-6215.3
46754	243.34	0	0	26.362	-6215.3
46755	243.38	0	0	26.362	-6215.3
46756	243.37	0	0	26.362	-6215.3
46757	243.37	0	0	26.362	-6215.3
46758	243.39	0	0	26.362	-6215.3
46759	243.34	0	0	26.362	-6215.3
46760	243.29	0	0	26.362	-6215.3
46761	243.41	0	0	26.362	-6215.3
46762	243.37	0	0	26.362	-6215.3
46763	243.34	0	0	26.362	-6215.3

46764	243.27	0	0	26.362	-6215.3
46765	243.32	0	0	26.362	-6215.3
46766	243.23	0	0	26.362	-6215.3
46767	243.29	0	0	26.362	-6215.3
46768	243.21	0	0	26.362	-6215.3
46769	243.24	0	0	26.362	-6215.3
46770	243.18	0	0	26.362	-6215.3
46771	243.17	0	0	26.362	-6215.3
46772	243.19	0	0	26.362	-6215.3
46773	243.21	0	0	26.362	-6215.3
46774	243.21	0	0	26.362	-6215.3
46775	243.25	0	0	26.362	-6215.3
46776	243.2	0	0	26.362	-6215.3
46777	243.23	0	0	26.362	-6215.3
46778	243.3	0	0	26.362	-6215.3
46779	243.33	0	0	26.362	-6215.3
46780	243.36	0	0	26.362	-6215.3
46781	243.32	0	0	26.362	-6215.3
46782	243.35	0	0	26.362	-6215.3
46783	243.31	0	0	26.362	-6215.3
46784	243.37	0	0	26.362	-6215.3
46785	243.44	0	0	26.362	-6215.3
46786	243.4	0	0	26.362	-6215.3
46787	243.35	0	0	26.362	-6215.3
46788	243.31	0	0	26.362	-6215.3
46789	243.28	0	0	26.362	-6215.3
46790	243.34	0	0	26.362	-6215.3
46791	243.35	0	0	26.362	-6215.3
46792	243.27	0	0	26.362	-6215.3
46793	243.39	0	0	26.362	-6215.3
46794	243.4	0	0	26.362	-6215.3
46795	243.39	0	0	26.362	-6215.3
46796	243.35	0	0	26.362	-6215.3
46797	243.42	0	0	26.362	-6215.3
46798	243.4	0	0	26.362	-6215.3
46799	243.41	0	0	26.362	-6215.3
46800	243.4	0	0	26.362	-6215.3
46801	243.44	0	0	26.362	-6215.3
46802	243.45	0	0	26.362	-6215.3
46803	243.51	0	0	26.362	-6215.3
46804	243.51	0	0	26.362	-6215.3
46805	243.54	0	0	26.362	-6215.3
46806	243.47	0	0	26.362	-6215.3
46807	243.5	0	0	26.362	-6215.3
46808	243.55	0	0	26.362	-6215.3
46809	243.55	0	0	26.362	-6215.3
46810	243.53	0	0	26.362	-6215.3

46811	243.66	0	0	26.362	-6215.3
46812	243.66	0	0	26.362	-6215.3
46813	243.66	0	0	26.362	-6215.3
46814	243.62	0	0	26.362	-6215.3
46815	243.63	0	0	26.362	-6215.3
46816	243.64	0	0	26.362	-6215.3
46817	243.47	0	0	26.362	-6215.3
46818	243.54	0	0	26.362	-6215.3
46819	243.56	0	0	26.362	-6215.3
46820	243.55	0	0	26.362	-6215.3
46821	243.58	0	0	26.362	-6215.3
46822	243.62	0	0	26.362	-6215.3
46823	243.18	0	0	26.362	-6215.3
46824	243.2	0	0	26.362	-6215.3
46825	243.54	0	0	26.362	-6215.3
46826	243.4	0	0	26.362	-6215.3
46827	243.32	0	0	26.362	-6215.3
46828	243.24	0	0	26.362	-6215.3
46829	243.18	0	0	26.362	-6215.3
46830	243.18	0	0	26.362	-6215.3
46831	243.19	0	0	26.362	-6215.3
46832	243.23	0	0	26.362	-6215.3
46833	243.19	0	0	26.362	-6215.3
46834	243.02	0	0	26.362	-6215.3
46835	243.07	0	0	26.362	-6215.3
46836	243.03	0	0	26.362	-6215.3
46837	243.04	0	0	26.362	-6215.3
46838	243.13	0	0	26.362	-6215.3
46839	243.08	0	0	26.362	-6215.3
46840	243.06	0	0	26.362	-6215.3
46841	243.22	0	0	26.362	-6215.3
46842	243.04	0	0	26.362	-6215.3
46843	243.22	0	0	26.362	-6215.3
46844	243.25	0	0	26.362	-6215.3
46845	243.12	0	0	26.362	-6215.3
46846	243.04	0	0	26.362	-6215.3
46847	243.07	0	0	26.362	-6215.3
46848	243.06	0	0	26.362	-6215.3
46849	242.99	0	0	26.362	-6215.3
46850	243.21	0	0	26.362	-6215.3
46851	243.07	0	0	26.362	-6215.3
46852	243.05	0	0	26.362	-6215.3
46853	243.1	0	0	26.362	-6215.3
46854	243.13	0	0	26.362	-6215.3
46855	243.2	0	0	26.362	-6215.3
46856	243	0	0	26.362	-6215.3
46857	243.06	0	0	26.362	-6215.3

46858	243.31	0	0	26.362	-6215.3
46859	243.04	0	0	26.362	-6215.3
46860	243.04	0	0	26.362	-6215.3
46861	243.19	0	0	26.362	-6215.3
46862	242.92	0	0	26.362	-6215.3
46863	243.02	0	0	26.362	-6215.3
46864	243.21	0	0	26.362	-6215.3
46865	243.01	0	0	26.362	-6215.3
46866	242.95	0	0	26.362	-6215.3
46867	243.02	0	0	26.362	-6215.3
46868	243.1	0	0	26.362	-6215.3
46869	242.81	0	0	26.362	-6215.3
46870	243.17	0	0	26.362	-6215.3
46871	243.05	0	0	26.362	-6215.3
46872	242.9	0	0	26.362	-6215.3
46873	242.93	0	0	26.362	-6215.3
46874	242.99	0	0	26.362	-6215.3
46875	242.91	0	0	26.362	-6215.3
46876	243.06	0	0	26.362	-6215.3
46877	242.98	0	0	26.362	-6215.3
46878	243.02	0	0	26.362	-6215.3
46879	242.9	0	0	26.362	-6215.3
46880	242.98	0	0	26.362	-6215.3
46881	242.86	0	0	26.362	-6215.3
46882	242.96	0	0	26.362	-6215.3
46883	242.98	0	0	26.362	-6215.3
46884	243.13	0	0	26.362	-6215.3
46885	243.09	0	0	26.362	-6215.3
46886	243.15	0	0	26.362	-6215.3
46887	242.97	0	0	26.362	-6215.3
46888	243.06	0	0	26.362	-6215.3
46889	243.19	0	0	26.362	-6215.3
46890	242.79	0	0	26.362	-6215.3
46891	243.03	0	0	26.362	-6215.3
46892	242.93	0	0	26.362	-6215.3
46893	243.2	0	0	26.362	-6215.3
46894	243.06	0	0	26.362	-6215.3
46895	243	0	0	26.362	-6215.3
46896	242.89	0	0	26.362	-6215.3
46897	243.23	0	0	26.362	-6215.3
46898	242.97	0	0	26.362	-6215.3
46899	243.14	0	0	26.362	-6215.3
46900	243	0	0	26.362	-6215.3
46901	242.92	0	0	26.362	-6215.3
46902	243.05	0	0	26.362	-6215.3
46903	243.08	0	0	26.362	-6215.3
46904	243.09	0	0	26.362	-6215.3

46905	243.04	0	0	26.362	-6215.3
46906	243.08	0	0	26.362	-6215.3
46907	243.07	0	0	26.362	-6215.3
46908	243.2	0	0	26.362	-6215.3
46909	242.95	0	0	26.362	-6215.3
46910	243.01	0	0	26.362	-6215.3
46911	243.07	0	0	26.362	-6215.3
46912	243.09	0	0	26.362	-6215.3
46913	243.3	0	0	26.362	-6215.3
46914	243.26	0	0	26.362	-6215.3
46915	243.03	0	0	26.362	-6215.3
46916	243.11	0	0	26.362	-6215.3
46917	243.14	0	0	26.362	-6215.3
46918	243.11	0	0	26.362	-6215.3
46919	243.08	0	0	26.362	-6215.3
46920	243.2	0	0	26.362	-6215.3
46921	243.08	0	0	26.362	-6215.3
46922	243.17	0	0	26.362	-6215.3
46923	243.09	0	0	26.362	-6215.3
46924	243.19	0	0	26.362	-6215.3
46925	242.9	0	0	26.362	-6215.3
46926	243.09	0	0	26.362	-6215.3
46927	243.11	0	0	26.362	-6215.3
46928	243.13	0	0	26.362	-6215.3
46929	243.23	0	0	26.362	-6215.3
46930	243.14	0	0	26.362	-6215.3
46931	243.22	0	0	26.362	-6215.3
46932	243.15	0	0	26.362	-6215.3
46933	243.09	0	0	26.362	-6215.3
46934	243.15	0	0	26.362	-6215.3
46935	243.04	0	0	26.362	-6215.3
46936	243.01	0	0	26.362	-6215.3
46937	243.27	0	0	26.362	-6215.3
46938	243.1	0	0	26.362	-6215.3
46939	243.14	0	0	26.362	-6215.3
46940	243.05	0	0	26.362	-6215.3
46941	243.05	0	0	26.362	-6215.3
46942	243.15	0	0	26.362	-6215.3
46943	243.07	0	0	26.362	-6215.3
46944	243.07	0	0	26.362	-6215.3
46945	243.27	0	0	26.362	-6215.3
46946	243.07	0	0	26.362	-6215.3
46947	243.02	0	0	26.362	-6215.3
46948	243.11	0	0	26.362	-6215.3
46949	242.94	0	0	26.362	-6215.3
46950	243.02	0	0	26.362	-6215.3
46951	243.01	0	0	26.362	-6215.3

46952	242.91	0	0	26.362	-6215.3
46953	242.9	0	0	26.362	-6215.3
46954	243.05	0	0	26.362	-6215.3
46955	242.88	0	0	26.362	-6215.3
46956	242.94	0	0	26.362	-6215.3
46957	243.08	0	0	26.362	-6215.3
46958	242.96	0	0	26.362	-6215.3
46959	243	0	0	26.362	-6215.3
46960	243.23	0	0	26.362	-6215.3
46961	243.22	0	0	26.362	-6215.3
46962	243.55	0	0	26.362	-6215.3
46963	243.5	0	0	26.362	-6215.3
46964	243.49	0	0	26.362	-6215.3
46965	243.5	0	0	26.362	-6215.3
46966	243.47	0	0	26.362	-6215.3
46967	243.47	0	0	26.362	-6215.3
46968	243.45	0	0	26.362	-6215.3
46969	243.39	0	0	26.362	-6215.3
46970	243.35	0	0	26.362	-6215.3
46971	243.39	0	0	26.362	-6215.3
46972	243.32	0	0	26.362	-6215.3
46973	243.4	0	0	26.362	-6215.3
46974	243.39	0	0	26.362	-6215.3
46975	243.4	0	0	26.362	-6215.3
46976	243.34	0	0	26.362	-6215.3
46977	243.36	0	0	26.362	-6215.3
46978	243.44	0	0	26.362	-6215.3
46979	243.36	0	0	26.362	-6215.3
46980	243.38	0	0	26.362	-6215.3
46981	243.38	0	0	26.362	-6215.3
46982	243.41	0	0	26.362	-6215.3
46983	243.43	0	0	26.362	-6215.3
46984	243.48	0	0	26.362	-6215.3
46985	243.41	0	0	26.362	-6215.3
46986	243.44	0	0	26.362	-6215.3
46987	243.48	0	0	26.362	-6215.3
46988	243.46	0	0	26.362	-6215.3
46989	243.49	0	0	26.362	-6215.3
46990	243.48	0	0	26.362	-6215.3
46991	243.49	0	0	26.362	-6215.3
46992	243.54	0	0	26.362	-6215.3
46993	243.57	0	0	26.362	-6215.3
46994	243.56	0	0	26.362	-6215.3
46995	243.56	0	0	26.362	-6215.3
46996	243.55	0	0	26.362	-6215.3
46997	243.51	0	0	26.362	-6215.3
46998	243.54	0	0	26.362	-6215.3

46999	243.58	0	0	26.362	-6215.3
47000	243.56	0	0	26.362	-6215.3
47001	243.56	0	0	26.362	-6215.3
47002	243.58	0	0	26.362	-6215.3
47003	243.61	0	0	26.362	-6215.3
47004	243.57	0	0	26.362	-6215.3
47005	243.6	0	0	26.362	-6215.3
47006	243.55	0	0	26.362	-6215.3
47007	243.59	0	0	26.362	-6215.3
47008	243.64	0	0	26.362	-6215.3
47009	243.57	0	0	26.362	-6215.3
47010	243.62	0	0	26.362	-6215.3
47011	243.56	0	0	26.362	-6215.3
47012	243.63	0	0	26.362	-6215.3
47013	243.59	0	0	26.362	-6215.3
47014	243.61	0	0	26.362	-6215.3
47015	243.62	0	0	26.362	-6215.3
47016	243.65	0	0	26.362	-6215.3
47017	243.58	0	0	26.362	-6215.3
47018	243.57	0	0	26.362	-6215.3
47019	243.57	0	0	26.362	-6215.3
47020	243.66	0	0	26.362	-6215.3
47021	243.63	0	0	26.362	-6215.3
47022	243.6	0	0	26.362	-6215.3
47023	243.59	0	0	26.362	-6215.3
47024	243.67	0	0	26.362	-6215.3
47025	243.68	0	0	26.362	-6215.3
47026	243.69	0	0	26.362	-6215.3
47027	243.66	0	0	26.362	-6215.3
47028	243.65	0	0	26.362	-6215.3
47029	243.6	0	0	26.362	-6215.3
47030	243.66	0	0	26.362	-6215.3
47031	243.71	0	0	26.362	-6215.3
47032	243.67	0	0	26.362	-6215.3
47033	243.68	0	0	26.362	-6215.3
47034	243.69	0	0	26.362	-6215.3
47035	243.67	0	0	26.362	-6215.3
47036	243.69	0	0	26.362	-6215.3
47037	243.68	0	0	26.362	-6215.3
47038	243.67	0	0	26.362	-6215.3
47039	243.7	0	0	26.362	-6215.3
47040	243.65	0	0	26.362	-6215.3
47041	243.74	0	0	26.362	-6215.3
47042	243.74	0	0	26.362	-6215.3
47043	243.8	0	0	26.362	-6215.3
47044	243.82	0	0	26.362	-6215.3
47045	243.82	0	0	26.362	-6215.3

47046	243.77	0	0	26.362	-6215.3
47047	243.82	0	0	26.362	-6215.3
47048	243.79	0	0	26.362	-6215.3
47049	243.79	0	0	26.362	-6215.3
47050	243.8	0	0	26.362	-6215.3
47051	243.74	0	0	26.362	-6215.3
47052	243.69	0	0	26.362	-6215.3
47053	243.72	0	0	26.362	-6215.3
47054	243.74	0	0	26.362	-6215.3
47055	243.74	0	0	26.362	-6215.3
47056	243.65	0	0	26.362	-6215.3
47057	243.69	0	0	26.362	-6215.3
47058	243.62	0	0	26.362	-6215.3
47059	243.56	0	0	26.362	-6215.3
47060	243.59	0	0	26.362	-6215.3
47061	243.54	0	0	26.362	-6215.3
47062	243.58	0	0	26.362	-6215.3
47063	243.58	0	0	26.362	-6215.3
47064	243.55	0	0	26.362	-6215.3
47065	243.55	0	0	26.362	-6215.3
47066	243.56	0	0	26.362	-6215.3
47067	243.56	0	0	26.362	-6215.3
47068	243.63	0	0	26.362	-6215.3
47069	243.64	0	0	26.362	-6215.3
47070	243.61	0	0	26.362	-6215.3
47071	243.63	0	0	26.362	-6215.3
47072	243.65	0	0	26.362	-6215.3
47073	243.64	0	0	26.362	-6215.3
47074	242.74	0	0	26.362	-6215.3
47075	243.53	0	0	26.362	-6215.3
47076	243.5	0	0	26.362	-6215.3
47077	243.54	0	0	26.362	-6215.3
47078	243.54	0	0	26.362	-6215.3
47079	243.49	0	0	26.362	-6215.3
47080	243.51	0	0	26.362	-6215.3
47081	243.42	0	0	26.362	-6215.3
47082	243.45	0	0	26.362	-6215.3
47083	243.51	0	0	26.362	-6215.3
47084	243.49	0	0	26.362	-6215.3
47085	243.53	0	0	26.362	-6215.3
47086	243.39	0	0	26.362	-6215.3
47087	243.48	0	0	26.362	-6215.3
47088	243.47	0	0	26.362	-6215.3
47089	243.52	0	0	26.362	-6215.3
47090	243.43	0	0	26.362	-6215.3
47091	243.45	0	0	26.362	-6215.3
47092	243.47	0	0	26.362	-6215.3

47093	243.54	0	0	26.362	-6215.3
47094	243.46	0	0	26.362	-6215.3
47095	243.44	0	0	26.362	-6215.3
47096	243.4	0	0	26.362	-6215.3
47097	243.37	0	0	26.362	-6215.3
47098	243.37	0	0	26.362	-6215.3
47099	243.43	0	0	26.362	-6215.3
47100	243.33	0	0	26.362	-6215.3
47101	243.34	0	0	26.362	-6215.3
47102	243.34	0	0	26.362	-6215.3
47103	243.35	0	0	26.362	-6215.3
47104	243.36	0	0	26.362	-6215.3
47105	243.37	0	0	26.362	-6215.3
47106	243.34	0	0	26.362	-6215.3
47107	243.41	0	0	26.362	-6215.3
47108	243.37	0	0	26.362	-6215.3
47109	243.35	0	0	26.362	-6215.3
47110	243.34	0	0	26.362	-6215.3
47111	243.32	0	0	26.362	-6215.3
47112	243.35	0	0	26.362	-6215.3
47113	243.34	0	0	26.362	-6215.3
47114	243.28	0	0	26.362	-6215.3
47115	243.27	0	0	26.362	-6215.3
47116	243.32	0	0	26.362	-6215.3
47117	243.31	0	0	26.362	-6215.3
47118	243.25	0	0	26.362	-6215.3
47119	243.26	0	0	26.362	-6215.3
47120	243.29	0	0	26.362	-6215.3
47121	243.28	0	0	26.362	-6215.3
47122	243.28	0	0	26.362	-6215.3
47123	243.29	0	0	26.362	-6215.3
47124	243.25	0	0	26.362	-6215.3
47125	243.31	0	0	26.362	-6215.3
47126	243.28	0	0	26.362	-6215.3
47127	243.29	0	0	26.362	-6215.3
47128	243.26	0	0	26.362	-6215.3
47129	243.31	0	0	26.362	-6215.3
47130	243.31	0	0	26.362	-6215.3
47131	243.31	0	0	26.362	-6215.3
47132	243.27	0	0	26.362	-6215.3
47133	243.27	0	0	26.362	-6215.3
47134	243.26	0	0	26.362	-6215.3
47135	243.3	0	0	26.362	-6215.3
47136	243.28	0	0	26.362	-6215.3
47137	243.32	0	0	26.362	-6215.3
47138	243.3	0	0	26.362	-6215.3
47139	243.3	0	0	26.362	-6215.3

47140	243.36	0	0	26.362	-6215.3
47141	243.4	0	0	26.362	-6215.3
47142	243.38	0	0	26.362	-6215.3
47143	243.44	0	0	26.362	-6215.3
47144	243.36	0	0	26.362	-6215.3
47145	243.45	0	0	26.362	-6215.3
47146	243.48	0	0	26.362	-6215.3
47147	243.43	0	0	26.362	-6215.3
47148	243.45	0	0	26.362	-6215.3
47149	243.59	0	0	26.362	-6215.3
47150	243.54	0	0	26.362	-6215.3
47151	243.6	0	0	26.362	-6215.3
47152	243.6	0	0	26.362	-6215.3
47153	243.62	0	0	26.362	-6215.3
47154	243.63	0	0	26.362	-6215.3
47155	243.58	0	0	26.362	-6215.3
47156	243.57	0	0	26.362	-6215.3
47157	243.57	0	0	26.362	-6215.3
47158	243.55	0	0	26.362	-6215.3
47159	243.54	0	0	26.362	-6215.3
47160	243.5	0	0	26.362	-6215.3
47161	243.53	0	0	26.362	-6215.3
47162	243.51	0	0	26.362	-6215.3
47163	243.51	0	0	26.362	-6215.3
47164	242.84	0	0	26.362	-6215.3
47165	243.41	0	0	26.362	-6215.3
47166	243.42	0	0	26.362	-6215.3
47167	243.48	0	0	26.362	-6215.3
47168	243.47	0	0	26.362	-6215.3
47169	243.48	0	0	26.362	-6215.3
47170	243.42	0	0	26.362	-6215.3
47171	243.43	0	0	26.362	-6215.3
47172	243.43	0	0	26.362	-6215.3
47173	243.5	0	0	26.362	-6215.3
47174	243.5	0	0	26.362	-6215.3
47175	243.48	0	0	26.362	-6215.3
47176	243.49	0	0	26.362	-6215.3
47177	243.49	0	0	26.362	-6215.3
47178	243.49	0	0	26.362	-6215.3
47179	243.46	0	0	26.362	-6215.3
47180	243.48	0	0	26.362	-6215.3
47181	243.49	0	0	26.362	-6215.3
47182	243.46	0	0	26.362	-6215.3
47183	243.53	0	0	26.362	-6215.3
47184	243.54	0	0	26.362	-6215.3
47185	243.53	0	0	26.362	-6215.3
47186	243.48	0	0	26.362	-6215.3

47187	243.52	0	0	26.362	-6215.3
47188	243.48	0	0	26.362	-6215.3
47189	243.47	0	0	26.362	-6215.3
47190	243.5	0	0	26.362	-6215.3
47191	243.5	0	0	26.362	-6215.3
47192	243.49	0	0	26.362	-6215.3
47193	243.48	0	0	26.362	-6215.3
47194	243.47	0	0	26.362	-6215.3
47195	243.48	0	0	26.362	-6215.3
47196	243.44	0	0	26.362	-6215.3
47197	243.43	0	0	26.362	-6215.3
47198	243.47	0	0	26.362	-6215.3
47199	243.45	0	0	26.362	-6215.3
47200	243.34	0	0	26.362	-6215.3
47201	243.04	0	0	26.362	-6215.3
47202	243.04	0	0	26.362	-6215.3
47203	243.06	0	0	26.362	-6215.3
47204	243.08	0	0	26.362	-6215.3
47205	243.09	0	0	26.362	-6215.3
47206	243.04	0	0	26.362	-6215.3
47207	243.02	0	0	26.362	-6215.3
47208	243.04	0	0	26.362	-6215.3
47209	243	0	0	26.362	-6215.3
47210	242.97	0	0	26.362	-6215.3
47211	243.02	0	0	26.362	-6215.3
47212	242.94	0	0	26.362	-6215.3
47213	242.93	0	0	26.362	-6215.3
47214	242.88	0	0	26.362	-6215.3
47215	242.87	0	0	26.362	-6215.3
47216	242.75	0	0	26.362	-6215.3
47217	242.75	0	0	26.362	-6215.3
47218	242.75	0	0	26.362	-6215.3
47219	242.78	0	0	26.362	-6215.3
47220	242.82	0	0	26.362	-6215.3
47221	242.81	0	0	26.362	-6215.3
47222	242.75	0	0	26.362	-6215.3
47223	242.66	0	0	26.362	-6215.3
47224	242.73	0	0	26.362	-6215.3
47225	242.71	0	0	26.362	-6215.3
47226	242.69	0	0	26.362	-6215.3
47227	242.63	0	0	26.362	-6215.3
47228	242.65	0	0	26.362	-6215.3
47229	242.69	0	0	26.362	-6215.3
47230	242.7	0	0	26.362	-6215.3
47231	242.63	0	0	26.362	-6215.3
47232	242.69	0	0	26.362	-6215.3
47233	242.67	0	0	26.362	-6215.3

47234	242.7	0	0	26.362	-6215.3
47235	242.7	0	0	26.362	-6215.3
47236	242.69	0	0	26.362	-6215.3
47237	242.7	0	0	26.362	-6215.3
47238	242.74	0	0	26.362	-6215.3
47239	242.72	0	0	26.362	-6215.3
47240	242.76	0	0	26.362	-6215.3
47241	242.72	0	0	26.362	-6215.3
47242	242.73	0	0	26.362	-6215.3
47243	242.68	0	0	26.362	-6215.3
47244	242.74	0	0	26.362	-6215.3
47245	242.73	0	0	26.362	-6215.3
47246	242.67	0	0	26.362	-6215.3
47247	242.62	0	0	26.362	-6215.3
47248	242.63	0	0	26.362	-6215.3
47249	242.57	0	0	26.362	-6215.3
47250	242.64	0	0	26.362	-6215.3
47251	242.63	0	0	26.362	-6215.3
47252	242.64	0	0	26.362	-6215.3
47253	242.64	0	0	26.362	-6215.3
47254	242.65	0	0	26.362	-6215.3
47255	242.64	0	0	26.362	-6215.3
47256	242.66	0	0	26.362	-6215.3
47257	242.64	0	0	26.362	-6215.3
47258	242.7	0	0	26.362	-6215.3
47259	242.67	0	0	26.362	-6215.3
47260	242.68	0	0	26.362	-6215.3
47261	242.69	0	0	26.362	-6215.3
47262	242.65	0	0	26.362	-6215.3
47263	242.69	0	0	26.362	-6215.3
47264	242.6	0	0	26.362	-6215.3
47265	242.6	0	0	26.362	-6215.3
47266	242.65	0	0	26.362	-6215.3
47267	242.63	0	0	26.362	-6215.3
47268	242.63	0	0	26.362	-6215.3
47269	242.69	0	0	26.362	-6215.3
47270	242.56	0	0	26.362	-6215.3
47271	242.66	0	0	26.362	-6215.3
47272	242.56	0	0	26.362	-6215.3
47273	242.6	0	0	26.362	-6215.3
47274	242.62	0	0	26.362	-6215.3
47275	242.61	0	0	26.362	-6215.3
47276	242.58	0	0	26.362	-6215.3
47277	242.59	0	0	26.362	-6215.3
47278	242.65	0	0	26.362	-6215.3
47279	242.67	0	0	26.362	-6215.3
47280	242.63	0	0	26.362	-6215.3

47281	242.7	0	0	26.362	-6215.3
47282	242.72	0	0	26.362	-6215.3
47283	242.68	0	0	26.362	-6215.3
47284	242.64	0	0	26.362	-6215.3
47285	242.66	0	0	26.362	-6215.3
47286	242.65	0	0	26.362	-6215.3
47287	242.68	0	0	26.362	-6215.3
47288	242.62	0	0	26.362	-6215.3
47289	242.61	0	0	26.362	-6215.3
47290	242.67	0	0	26.362	-6215.3
47291	242.72	0	0	26.362	-6215.3
47292	242.67	0	0	26.362	-6215.3
47293	242.73	0	0	26.362	-6215.3
47294	242.77	0	0	26.362	-6215.3
47295	242.84	0	0	26.362	-6215.3
47296	242.87	0	0	26.362	-6215.3
47297	242.79	0	0	26.362	-6215.3
47298	242.84	0	0	26.362	-6215.3
47299	242.86	0	0	26.362	-6215.3
47300	242.8	0	0	26.362	-6215.3
47301	242.85	0	0	26.362	-6215.3
47302	242.87	0	0	26.362	-6215.3
47303	242.85	0	0	26.362	-6215.3
47304	242.87	0	0	26.362	-6215.3
47305	242.84	0	0	26.362	-6215.3
47306	242.89	0	0	26.362	-6215.3
47307	242.87	0	0	26.362	-6215.3
47308	242.85	0	0	26.362	-6215.3
47309	242.88	0	0	26.362	-6215.3
47310	242.87	0	0	26.362	-6215.3
47311	242.88	0	0	26.362	-6215.3
47312	242.88	0	0	26.362	-6215.3
47313	242.9	0	0	26.362	-6215.3
47314	242.92	0	0	26.362	-6215.3
47315	242.89	0	0	26.362	-6215.3
47316	242.97	0	0	26.362	-6215.3
47317	242.9	0	0	26.362	-6215.3
47318	242.95	0	0	26.362	-6215.3
47319	242.96	0	0	26.362	-6215.3
47320	242.95	0	0	26.362	-6215.3
47321	242.93	0	0	26.362	-6215.3
47322	242.94	0	0	26.362	-6215.3
47323	242.94	0	0	26.362	-6215.3
47324	242.89	0	0	26.362	-6215.3
47325	242.86	0	0	26.362	-6215.3
47326	242.75	0	0	26.362	-6215.3
47327	242.86	0	0	26.362	-6215.3

47328	242.86	0	0	26.362	-6215.3
47329	242.77	0	0	26.362	-6215.3
47330	242.83	0	0	26.362	-6215.3
47331	242.79	0	0	26.362	-6215.3
47332	242.77	0	0	26.362	-6215.3
47333	242.82	0	0	26.362	-6215.3
47334	242.77	0	0	26.362	-6215.3
47335	242.77	0	0	26.362	-6215.3
47336	242.81	0	0	26.362	-6215.3
47337	242.77	0	0	26.362	-6215.3
47338	242.79	0	0	26.362	-6215.3
47339	242.87	0	0	26.362	-6215.3
47340	242.68	0	0	26.362	-6215.3
47341	242.78	0	0	26.362	-6215.3
47342	242.67	0	0	26.362	-6215.3
47343	242.71	0	0	26.362	-6215.3
47344	242.72	0	0	26.362	-6215.3
47345	242.67	0	0	26.362	-6215.3
47346	242.71	0	0	26.362	-6215.3
47347	242.7	0	0	26.362	-6215.3
47348	242.67	0	0	26.362	-6215.3
47349	242.68	0	0	26.362	-6215.3
47350	242.67	0	0	26.362	-6215.3
47351	242.64	0	0	26.362	-6215.3
47352	242.67	0	0	26.362	-6215.3
47353	242.81	0	0	26.362	-6215.3
47354	242.85	0	0	26.362	-6215.3
47355	242.86	0	0	26.362	-6215.3
47356	242.81	0	0	26.362	-6215.3
47357	242.82	0	0	26.362	-6215.3
47358	242.88	0	0	26.362	-6215.3
47359	242.79	0	0	26.362	-6215.3
47360	242.81	0	0	26.362	-6215.3
47361	242.75	0	0	26.362	-6215.3
47362	242.76	0	0	26.362	-6215.3
47363	242.81	0	0	26.362	-6215.3
47364	242.76	0	0	26.362	-6215.3
47365	242.77	0	0	26.362	-6215.3
47366	242.79	0	0	26.362	-6215.3
47367	242.74	0	0	26.362	-6215.3
47368	242.8	0	0	26.362	-6215.3
47369	242.72	0	0	26.362	-6215.3
47370	242.87	0	0	26.362	-6215.3
47371	242.8	0	0	26.362	-6215.3
47372	242.86	0	0	26.362	-6215.3
47373	242.87	0	0	26.362	-6215.3
47374	242.81	0	0	26.362	-6215.3

47375	242.88	0	0	26.362	-6215.3
47376	242.84	0	0	26.362	-6215.3
47377	242.83	0	0	26.362	-6215.3
47378	242.83	0	0	26.362	-6215.3
47379	242.86	0	0	26.362	-6215.3
47380	242.83	0	0	26.362	-6215.3
47381	242.81	0	0	26.362	-6215.3
47382	242.86	0	0	26.362	-6215.3
47383	242.82	0	0	26.362	-6215.3
47384	242.84	0	0	26.362	-6215.3
47385	242.91	0	0	26.362	-6215.3
47386	242.94	0	0	26.362	-6215.3
47387	243.01	0	0	26.362	-6215.3
47388	242.96	0	0	26.362	-6215.3
47389	243.01	0	0	26.362	-6215.3
47390	243.05	0	0	26.362	-6215.3
47391	243.04	0	0	26.362	-6215.3
47392	243.08	0	0	26.362	-6215.3
47393	243.06	0	0	26.362	-6215.3
47394	243.05	0	0	26.362	-6215.3
47395	243.05	0	0	26.362	-6215.3
47396	243.12	0	0	26.362	-6215.3
47397	243.05	0	0	26.362	-6215.3
47398	243.11	0	0	26.362	-6215.3
47399	243.06	0	0	26.362	-6215.3
47400	243.06	0	0	26.362	-6215.3
47401	243.08	0	0	26.362	-6215.3
47402	243.08	0	0	26.362	-6215.3
47403	243.1	0	0	26.362	-6215.3
47404	243.06	0	0	26.362	-6215.3
47405	243.03	0	0	26.362	-6215.3
47406	243.05	0	0	26.362	-6215.3
47407	243.03	0	0	26.362	-6215.3
47408	243.07	0	0	26.362	-6215.3
47409	243.06	0	0	26.362	-6215.3
47410	243.05	0	0	26.362	-6215.3
47411	243.06	0	0	26.362	-6215.3
47412	243.08	0	0	26.362	-6215.3
47413	243.11	0	0	26.362	-6215.3
47414	243.09	0	0	26.362	-6215.3
47415	243.12	0	0	26.362	-6215.3
47416	243.16	0	0	26.362	-6215.3
47417	243.18	0	0	26.362	-6215.3
47418	243.19	0	0	26.362	-6215.3
47419	243.15	0	0	26.362	-6215.3
47420	243.18	0	0	26.362	-6215.3
47421	243.2	0	0	26.362	-6215.3

47422	243.19	0	0	26.362	-6215.3
47423	243.18	0	0	26.362	-6215.3
47424	243.16	0	0	26.362	-6215.3
47425	243.14	0	0	26.362	-6215.3
47426	243.14	0	0	26.362	-6215.3
47427	243.11	0	0	26.362	-6215.3
47428	243.02	0	0	26.362	-6215.3
47429	243.06	0	0	26.362	-6215.3
47430	243.11	0	0	26.362	-6215.3
47431	243.1	0	0	26.362	-6215.3
47432	243.09	0	0	26.362	-6215.3
47433	243.03	0	0	26.362	-6215.3
47434	243.05	0	0	26.362	-6215.3
47435	243.06	0	0	26.362	-6215.3
47436	243.02	0	0	26.362	-6215.3
47437	243.02	0	0	26.362	-6215.3
47438	243.08	0	0	26.362	-6215.3
47439	243.07	0	0	26.362	-6215.3
47440	243.05	0	0	26.362	-6215.3
47441	243.1	0	0	26.362	-6215.3
47442	243.13	0	0	26.362	-6215.3
47443	243.02	0	0	26.362	-6215.3
47444	243.08	0	0	26.362	-6215.3
47445	243.12	0	0	26.362	-6215.3
47446	243.11	0	0	26.362	-6215.3
47447	243.09	0	0	26.362	-6215.3
47448	243.08	0	0	26.362	-6215.3
47449	243	0	0	26.362	-6215.3
47450	243.02	0	0	26.362	-6215.3
47451	243.05	0	0	26.362	-6215.3
47452	242.97	0	0	26.362	-6215.3
47453	243.01	0	0	26.362	-6215.3
47454	243.06	0	0	26.362	-6215.3
47455	243.01	0	0	26.362	-6215.3
47456	242.99	0	0	26.362	-6215.3
47457	243.01	0	0	26.362	-6215.3
47458	242.99	0	0	26.362	-6215.3
47459	243.02	0	0	26.362	-6215.3
47460	243.1	0	0	26.362	-6215.3
47461	243.07	0	0	26.362	-6215.3
47462	243.06	0	0	26.362	-6215.3
47463	243.03	0	0	26.362	-6215.3
47464	243.01	0	0	26.362	-6215.3
47465	242.97	0	0	26.362	-6215.3
47466	243.03	0	0	26.362	-6215.3
47467	243.06	0	0	26.362	-6215.3
47468	243.01	0	0	26.362	-6215.3

47469	243.01	0	0	26.362	-6215.3
47470	243.08	0	0	26.362	-6215.3
47471	242.99	0	0	26.362	-6215.3
47472	243	0	0	26.362	-6215.3
47473	242.97	0	0	26.362	-6215.3
47474	242.97	0	0	26.362	-6215.3
47475	242.95	0	0	26.362	-6215.3
47476	242.97	0	0	26.362	-6215.3
47477	243.11	0	0	26.362	-6215.3
47478	243.14	0	0	26.362	-6215.3
47479	243.2	0	0	26.362	-6215.3
47480	243.16	0	0	26.362	-6215.3
47481	243.16	0	0	26.362	-6215.3
47482	243.15	0	0	26.362	-6215.3
47483	243.13	0	0	26.362	-6215.3
47484	243.14	0	0	26.362	-6215.3
47485	243.16	0	0	26.362	-6215.3
47486	243.11	0	0	26.362	-6215.3
47487	243.03	0	0	26.362	-6215.3
47488	243.12	0	0	26.362	-6215.3
47489	243.09	0	0	26.362	-6215.3
47490	243.04	0	0	26.362	-6215.3
47491	243	0	0	26.362	-6215.3
47492	243.08	0	0	26.362	-6215.3
47493	243.07	0	0	26.362	-6215.3
47494	243.07	0	0	26.362	-6215.3
47495	243.04	0	0	26.362	-6215.3
47496	243.03	0	0	26.362	-6215.3
47497	243	0	0	26.362	-6215.3
47498	243.02	0	0	26.362	-6215.3
47499	242.95	0	0	26.362	-6215.3
47500	243.04	0	0	26.362	-6215.3
47501	243	0	0	26.362	-6215.3
47502	242.96	0	0	26.362	-6215.3
47503	242.98	0	0	26.362	-6215.3
47504	242.96	0	0	26.362	-6215.3
47505	242.93	0	0	26.362	-6215.3
47506	242.97	0	0	26.362	-6215.3
47507	242.99	0	0	26.362	-6215.3
47508	243.05	0	0	26.362	-6215.3
47509	243.01	0	0	26.362	-6215.3
47510	243.02	0	0	26.362	-6215.3
47511	243.02	0	0	26.362	-6215.3
47512	243.05	0	0	26.362	-6215.3
47513	243.03	0	0	26.362	-6215.3
47514	243.08	0	0	26.362	-6215.3
47515	243.1	0	0	26.362	-6215.3

47516	243.1	0	0	26.362	-6215.3
47517	243.05	0	0	26.362	-6215.3
47518	243.01	0	0	26.362	-6215.3
47519	242.98	0	0	26.362	-6215.3
47520	242.95	0	0	26.362	-6215.3
47521	243	0	0	26.362	-6215.3
47522	243.03	0	0	26.362	-6215.3
47523	243.01	0	0	26.362	-6215.3
47524	243.06	0	0	26.362	-6215.3
47525	243.02	0	0	26.362	-6215.3
47526	243.05	0	0	26.362	-6215.3
47527	243.01	0	0	26.362	-6215.3
47528	243.08	0	0	26.362	-6215.3
47529	243.16	0	0	26.362	-6215.3
47530	243.16	0	0	26.362	-6215.3
47531	243.15	0	0	26.362	-6215.3
47532	243.2	0	0	26.362	-6215.3
47533	243.27	0	0	26.362	-6215.3
47534	243.25	0	0	26.362	-6215.3
47535	243.25	0	0	26.362	-6215.3
47536	243.27	0	0	26.362	-6215.3
47537	243.24	0	0	26.362	-6215.3
47538	243.24	0	0	26.362	-6215.3
47539	243.19	0	0	26.362	-6215.3
47540	243.22	0	0	26.362	-6215.3
47541	243.24	0	0	26.362	-6215.3
47542	243.28	0	0	26.362	-6215.3
47543	243.27	0	0	26.362	-6215.3
47544	243.26	0	0	26.362	-6215.3
47545	243.27	0	0	26.362	-6215.3
47546	243.32	0	0	26.362	-6215.3
47547	243.31	0	0	26.362	-6215.3
47548	243.34	0	0	26.362	-6215.3
47549	243.31	0	0	26.362	-6215.3
47550	243.4	0	0	26.362	-6215.3
47551	243.43	0	0	26.362	-6215.3
47552	243.37	0	0	26.362	-6215.3
47553	243.32	0	0	26.362	-6215.3
47554	243.32	0	0	26.362	-6215.3
47555	243.3	0	0	26.362	-6215.3
47556	243.26	0	0	26.362	-6215.3
47557	243.28	0	0	26.362	-6215.3
47558	243.33	0	0	26.362	-6215.3
47559	243.29	0	0	26.362	-6215.3
47560	243.32	0	0	26.362	-6215.3
47561	243.28	0	0	26.362	-6215.3
47562	243.31	0	0	26.362	-6215.3

47563	243.36	0	0	26.362	-6215.3
47564	243.34	0	0	26.362	-6215.3
47565	242.63	0	0	26.362	-6215.3
47566	243.27	0	0	26.362	-6215.3
47567	243.22	0	0	26.362	-6215.3
47568	243.26	0	0	26.362	-6215.3
47569	243.28	0	0	26.362	-6215.3
47570	243.25	0	0	26.362	-6215.3
47571	243.29	0	0	26.362	-6215.3
47572	243.23	0	0	26.362	-6215.3
47573	243.21	0	0	26.362	-6215.3
47574	243.24	0	0	26.362	-6215.3
47575	243.25	0	0	26.362	-6215.3
47576	243.16	0	0	26.362	-6215.3
47577	243.19	0	0	26.362	-6215.3
47578	243.19	0	0	26.362	-6215.3
47579	243.13	0	0	26.362	-6215.3
47580	243.12	0	0	26.362	-6215.3
47581	243.11	0	0	26.362	-6215.3
47582	243.14	0	0	26.362	-6215.3
47583	243.15	0	0	26.362	-6215.3
47584	243.17	0	0	26.362	-6215.3
47585	243.16	0	0	26.362	-6215.3
47586	243.16	0	0	26.362	-6215.3
47587	243.17	0	0	26.362	-6215.3
47588	243.2	0	0	26.362	-6215.3
47589	243.18	0	0	26.362	-6215.3
47590	243.16	0	0	26.362	-6215.3
47591	243.15	0	0	26.362	-6215.3
47592	243.16	0	0	26.362	-6215.3
47593	243.13	0	0	26.362	-6215.3
47594	243.2	0	0	26.362	-6215.3
47595	243.19	0	0	26.362	-6215.3
47596	243.23	0	0	26.362	-6215.3
47597	243.18	0	0	26.362	-6215.3
47598	243.16	0	0	26.362	-6215.3
47599	243.12	0	0	26.362	-6215.3
47600	243.15	0	0	26.362	-6215.3
47601	243.14	0	0	26.362	-6215.3
47602	243.17	0	0	26.362	-6215.3
47603	243.1	0	0	26.362	-6215.3
47604	243.22	0	0	26.362	-6215.3
47605	243.24	0	0	26.362	-6215.3
47606	243.21	0	0	26.362	-6215.3
47607	243.22	0	0	26.362	-6215.3
47608	243.23	0	0	26.362	-6215.3
47609	243.32	0	0	26.362	-6215.3

47610	243.3	0	0	26.362	-6215.3
47611	243.24	0	0	26.362	-6215.3
47612	243.3	0	0	26.362	-6215.3
47613	243.28	0	0	26.362	-6215.3
47614	243.29	0	0	26.362	-6215.3
47615	243.25	0	0	26.362	-6215.3
47616	243.24	0	0	26.362	-6215.3
47617	243.24	0	0	26.362	-6215.3
47618	243.29	0	0	26.362	-6215.3
47619	243.23	0	0	26.362	-6215.3
47620	243.31	0	0	26.362	-6215.3
47621	243.27	0	0	26.362	-6215.3
47622	243.3	0	0	26.362	-6215.3
47623	243.35	0	0	26.362	-6215.3
47624	243.3	0	0	26.362	-6215.3
47625	243.33	0	0	26.362	-6215.3
47626	243.37	0	0	26.362	-6215.3
47627	243.34	0	0	26.362	-6215.3
47628	243.29	0	0	26.362	-6215.3
47629	243.27	0	0	26.362	-6215.3
47630	243.31	0	0	26.362	-6215.3
47631	243.33	0	0	26.362	-6215.3
47632	243.34	0	0	26.362	-6215.3
47633	243.38	0	0	26.362	-6215.3
47634	243.33	0	0	26.362	-6215.3
47635	243.25	0	0	26.362	-6215.3
47636	243.33	0	0	26.362	-6215.3
47637	243.29	0	0	26.362	-6215.3
47638	243.31	0	0	26.362	-6215.3
47639	243.38	0	0	26.362	-6215.3
47640	243.34	0	0	26.362	-6215.3
47641	243.36	0	0	26.362	-6215.3
47642	243.33	0	0	26.362	-6215.3
47643	243.29	0	0	26.362	-6215.3
47644	243.3	0	0	26.362	-6215.3
47645	243.26	0	0	26.362	-6215.3
47646	243.36	0	0	26.362	-6215.3
47647	243.32	0	0	26.362	-6215.3
47648	243.36	0	0	26.362	-6215.3
47649	243.39	0	0	26.362	-6215.3
47650	243.3	0	0	26.362	-6215.3
47651	243.35	0	0	26.362	-6215.3
47652	243.41	0	0	26.362	-6215.3
47653	243.36	0	0	26.362	-6215.3
47654	243.37	0	0	26.362	-6215.3
47655	243.35	0	0	26.362	-6215.3
47656	243.34	0	0	26.362	-6215.3

47657	243.36	0	0	26.362	-6215.3
47658	243.3	0	0	26.362	-6215.3
47659	243.33	0	0	26.362	-6215.3
47660	243.31	0	0	26.362	-6215.3
47661	243.33	0	0	26.362	-6215.3
47662	243.35	0	0	26.362	-6215.3
47663	243.33	0	0	26.362	-6215.3
47664	243.29	0	0	26.362	-6215.3
47665	243.21	0	0	26.362	-6215.3
47666	243.28	0	0	26.362	-6215.3
47667	243.32	0	0	26.362	-6215.3
47668	243.27	0	0	26.362	-6215.3
47669	243.25	0	0	26.362	-6215.3
47670	243.26	0	0	26.362	-6215.3
47671	243.23	0	0	26.362	-6215.3
47672	243.25	0	0	26.362	-6215.3
47673	243.26	0	0	26.362	-6215.3
47674	243.25	0	0	26.362	-6215.3
47675	243.27	0	0	26.362	-6215.3
47676	243.27	0	0	26.362	-6215.3
47677	243.23	0	0	26.362	-6215.3
47678	243.24	0	0	26.362	-6215.3
47679	243.31	0	0	26.362	-6215.3
47680	243.32	0	0	26.362	-6215.3
47681	243.35	0	0	26.362	-6215.3
47682	243.29	0	0	26.362	-6215.3
47683	243.3	0	0	26.362	-6215.3
47684	243.35	0	0	26.362	-6215.3
47685	243.32	0	0	26.362	-6215.3
47686	243.34	0	0	26.362	-6215.3
47687	243.31	0	0	26.362	-6215.3
47688	243.3	0	0	26.362	-6215.3
47689	243.3	0	0	26.362	-6215.3
47690	243.28	0	0	26.362	-6215.3
47691	243.32	0	0	26.362	-6215.3
47692	243.28	0	0	26.362	-6215.3
47693	243.27	0	0	26.362	-6215.3
47694	243.29	0	0	26.362	-6215.3
47695	243.22	0	0	26.362	-6215.3
47696	243.25	0	0	26.362	-6215.3
47697	243.22	0	0	26.362	-6215.3
47698	243.25	0	0	26.362	-6215.3
47699	243.26	0	0	26.362	-6215.3
47700	243.21	0	0	26.362	-6215.3
47701	243.19	0	0	26.362	-6215.3
47702	243.25	0	0	26.362	-6215.3
47703	243.23	0	0	26.362	-6215.3

47704	243.19	0	0	26.362	-6215.3
47705	243.18	0	0	26.362	-6215.3
47706	243.16	0	0	26.362	-6215.3
47707	243.15	0	0	26.362	-6215.3
47708	243.13	0	0	26.362	-6215.3
47709	243.19	0	0	26.362	-6215.3
47710	243.15	0	0	26.362	-6215.3
47711	243.19	0	0	26.362	-6215.3
47712	243.19	0	0	26.362	-6215.3
47713	243.13	0	0	26.362	-6215.3
47714	243.17	0	0	26.362	-6215.3
47715	243.19	0	0	26.362	-6215.3
47716	243.17	0	0	26.362	-6215.3
47717	243.16	0	0	26.362	-6215.3
47718	243.1	0	0	26.362	-6215.3
47719	243.17	0	0	26.362	-6215.3
47720	243.13	0	0	26.362	-6215.3
47721	243.13	0	0	26.362	-6215.3
47722	243.08	0	0	26.362	-6215.3
47723	243.1	0	0	26.362	-6215.3
47724	243.14	0	0	26.362	-6215.3
47725	243.09	0	0	26.362	-6215.3
47726	243.11	0	0	26.362	-6215.3
47727	243.02	0	0	26.362	-6215.3
47728	243.07	0	0	26.362	-6215.3
47729	243.02	0	0	26.362	-6215.3
47730	243.06	0	0	26.362	-6215.3
47731	243.03	0	0	26.362	-6215.3
47732	243.09	0	0	26.362	-6215.3
47733	243.05	0	0	26.362	-6215.3
47734	243.07	0	0	26.362	-6215.3
47735	243.07	0	0	26.362	-6215.3
47736	243.03	0	0	26.362	-6215.3
47737	243.05	0	0	26.362	-6215.3
47738	243.08	0	0	26.362	-6215.3
47739	243.05	0	0	26.362	-6215.3
47740	243.05	0	0	26.362	-6215.3
47741	243.06	0	0	26.362	-6215.3
47742	243.03	0	0	26.362	-6215.3
47743	243.1	0	0	26.362	-6215.3
47744	243.11	0	0	26.362	-6215.3
47745	243.07	0	0	26.362	-6215.3
47746	243.12	0	0	26.362	-6215.3
47747	243.05	0	0	26.362	-6215.3
47748	243.03	0	0	26.362	-6215.3
47749	243.05	0	0	26.362	-6215.3
47750	243.03	0	0	26.362	-6215.3

47751	243.05	0	0	26.362	-6215.3
47752	243.05	0	0	26.362	-6215.3
47753	243.1	0	0	26.362	-6215.3
47754	243.09	0	0	26.362	-6215.3
47755	243.14	0	0	26.362	-6215.3
47756	243.09	0	0	26.362	-6215.3
47757	243.11	0	0	26.362	-6215.3
47758	243.18	0	0	26.362	-6215.3
47759	243.21	0	0	26.362	-6215.3
47760	243.18	0	0	26.362	-6215.3
47761	243.2	0	0	26.362	-6215.3
47762	243.26	0	0	26.362	-6215.3
47763	243.29	0	0	26.362	-6215.3
47764	243.31	0	0	26.362	-6215.3
47765	243.29	0	0	26.362	-6215.3
47766	243.35	0	0	26.362	-6215.3
47767	243.33	0	0	26.362	-6215.3
47768	243.31	0	0	26.362	-6215.3
47769	243.31	0	0	26.362	-6215.3
47770	243.36	0	0	26.362	-6215.3
47771	243.39	0	0	26.362	-6215.3
47772	243.39	0	0	26.362	-6215.3
47773	243.41	0	0	26.362	-6215.3
47774	243.45	0	0	26.362	-6215.3
47775	243.46	0	0	26.362	-6215.3
47776	243.44	0	0	26.362	-6215.3
47777	243.43	0	0	26.362	-6215.3
47778	243.43	0	0	26.362	-6215.3
47779	243.44	0	0	26.362	-6215.3
47780	243.44	0	0	26.362	-6215.3
47781	243.45	0	0	26.362	-6215.3
47782	243.45	0	0	26.362	-6215.3
47783	243.45	0	0	26.362	-6215.3
47784	243.44	0	0	26.362	-6215.3
47785	243.41	0	0	26.362	-6215.3
47786	243.41	0	0	26.362	-6215.3
47787	243.41	0	0	26.362	-6215.3
47788	243.43	0	0	26.362	-6215.3
47789	243.44	0	0	26.362	-6215.3
47790	243.4	0	0	26.362	-6215.3
47791	243.43	0	0	26.362	-6215.3
47792	243.45	0	0	26.362	-6215.3
47793	243.47	0	0	26.362	-6215.3
47794	243.46	0	0	26.362	-6215.3
47795	243.42	0	0	26.362	-6215.3
47796	243.44	0	0	26.362	-6215.3
47797	243.41	0	0	26.362	-6215.3

47798	243.38	0	0	26.362	-6215.3
47799	243.41	0	0	26.362	-6215.3
47800	243.4	0	0	26.362	-6215.3
47801	243.4	0	0	26.362	-6215.3
47802	243.47	0	0	26.362	-6215.3
47803	243.45	0	0	26.362	-6215.3
47804	243.39	0	0	26.362	-6215.3
47805	243.41	0	0	26.362	-6215.3
47806	243.44	0	0	26.362	-6215.3
47807	243.32	0	0	26.362	-6215.3
47808	243.36	0	0	26.362	-6215.3
47809	243.27	0	0	26.362	-6215.3
47810	243.29	0	0	26.362	-6215.3
47811	243.36	0	0	26.362	-6215.3
47812	243.34	0	0	26.362	-6215.3
47813	243.34	0	0	26.362	-6215.3
47814	243.34	0	0	26.362	-6215.3
47815	243.34	0	0	26.362	-6215.3
47816	243.35	0	0	26.362	-6215.3
47817	243.36	0	0	26.362	-6215.3
47818	243.36	0	0	26.362	-6215.3
47819	243.36	0	0	26.362	-6215.3
47820	243.36	0	0	26.362	-6215.3
47821	243.36	0	0	26.362	-6215.3
47822	243.38	0	0	26.362	-6215.3
47823	243.39	0	0	26.362	-6215.3
47824	243.33	0	0	26.362	-6215.3
47825	243.27	0	0	26.362	-6215.3
47826	243.3	0	0	26.362	-6215.3
47827	243.28	0	0	26.362	-6215.3
47828	243.25	0	0	26.362	-6215.3
47829	243.3	0	0	26.362	-6215.3
47830	243.27	0	0	26.362	-6215.3
47831	243.24	0	0	26.362	-6215.3
47832	243.26	0	0	26.362	-6215.3
47833	243.23	0	0	26.362	-6215.3
47834	243.28	0	0	26.362	-6215.3
47835	243.25	0	0	26.362	-6215.3
47836	243.25	0	0	26.362	-6215.3
47837	243.27	0	0	26.362	-6215.3
47838	243.27	0	0	26.362	-6215.3
47839	243.31	0	0	26.362	-6215.3
47840	243.27	0	0	26.362	-6215.3
47841	243.32	0	0	26.362	-6215.3
47842	243.35	0	0	26.362	-6215.3
47843	243.31	0	0	26.362	-6215.3
47844	243.37	0	0	26.362	-6215.3

47845	243.36	0	0	26.362	-6215.3
47846	243.33	0	0	26.362	-6215.3
47847	243.34	0	0	26.362	-6215.3
47848	243.34	0	0	26.362	-6215.3
47849	243.28	0	0	26.362	-6215.3
47850	243.26	0	0	26.362	-6215.3
47851	243.29	0	0	26.362	-6215.3
47852	243.23	0	0	26.362	-6215.3
47853	243.27	0	0	26.362	-6215.3
47854	243.28	0	0	26.362	-6215.3
47855	243.28	0	0	26.362	-6215.3
47856	243.35	0	0	26.362	-6215.3
47857	243.34	0	0	26.362	-6215.3
47858	243.35	0	0	26.362	-6215.3
47859	243.39	0	0	26.362	-6215.3
47860	243.3	0	0	26.362	-6215.3
47861	243.37	0	0	26.362	-6215.3
47862	243.34	0	0	26.362	-6215.3
47863	243.31	0	0	26.362	-6215.3
47864	243.34	0	0	26.362	-6215.3
47865	243.33	0	0	26.362	-6215.3
47866	243.32	0	0	26.362	-6215.3
47867	243.36	0	0	26.362	-6215.3
47868	243.3	0	0	26.362	-6215.3
47869	243.26	0	0	26.362	-6215.3
47870	243.25	0	0	26.362	-6215.3
47871	243.27	0	0	26.362	-6215.3
47872	243.21	0	0	26.362	-6215.3
47873	243.23	0	0	26.362	-6215.3
47874	243.28	0	0	26.362	-6215.3
47875	243.24	0	0	26.362	-6215.3
47876	243.29	0	0	26.362	-6215.3
47877	243.27	0	0	26.362	-6215.3
47878	243.27	0	0	26.362	-6215.3
47879	243.27	0	0	26.362	-6215.3
47880	243.27	0	0	26.362	-6215.3
47881	243.27	0	0	26.362	-6215.3
47882	243.28	0	0	26.362	-6215.3
47883	243.33	0	0	26.362	-6215.3
47884	243.29	0	0	26.362	-6215.3
47885	243.3	0	0	26.362	-6215.3
47886	243.32	0	0	26.362	-6215.3
47887	243.23	0	0	26.362	-6215.3
47888	243.23	0	0	26.362	-6215.3
47889	243.22	0	0	26.362	-6215.3
47890	243.21	0	0	26.362	-6215.3
47891	243.23	0	0	26.362	-6215.3

47892	243.14	0	0	26.362	-6215.3
47893	243.15	0	0	26.362	-6215.3
47894	243.14	0	0	26.362	-6215.3
47895	243.16	0	0	26.362	-6215.3
47896	243.16	0	0	26.362	-6215.3
47897	243.22	0	0	26.362	-6215.3
47898	243.21	0	0	26.362	-6215.3
47899	243.21	0	0	26.362	-6215.3
47900	243.12	0	0	26.362	-6215.3
47901	243.21	0	0	26.362	-6215.3
47902	243.13	0	0	26.362	-6215.3
47903	243.2	0	0	26.362	-6215.3
47904	243.17	0	0	26.362	-6215.3
47905	243.12	0	0	26.362	-6215.3
47906	243.11	0	0	26.362	-6215.3
47907	243.09	0	0	26.362	-6215.3
47908	243.12	0	0	26.362	-6215.3
47909	243.07	0	0	26.362	-6215.3
47910	243.11	0	0	26.362	-6215.3
47911	243.1	0	0	26.362	-6215.3
47912	243.11	0	0	26.362	-6215.3
47913	243.1	0	0	26.362	-6215.3
47914	243.15	0	0	26.362	-6215.3
47915	243.15	0	0	26.362	-6215.3
47916	243.13	0	0	26.362	-6215.3
47917	243.16	0	0	26.362	-6215.3
47918	243.17	0	0	26.362	-6215.3
47919	243.19	0	0	26.362	-6215.3
47920	243.2	0	0	26.362	-6215.3
47921	243.21	0	0	26.362	-6215.3
47922	243.2	0	0	26.362	-6215.3
47923	243.18	0	0	26.362	-6215.3
47924	243.23	0	0	26.362	-6215.3
47925	243.19	0	0	26.362	-6215.3
47926	243.23	0	0	26.362	-6215.3
47927	243.28	0	0	26.362	-6215.3
47928	243.33	0	0	26.362	-6215.3
47929	243.21	0	0	26.362	-6215.3
47930	243.34	0	0	26.362	-6215.3
47931	243.27	0	0	26.362	-6215.3
47932	243.32	0	0	26.362	-6215.3
47933	243.31	0	0	26.362	-6215.3
47934	243.31	0	0	26.362	-6215.3
47935	243.31	0	0	26.362	-6215.3
47936	243.28	0	0	26.362	-6215.3
47937	243.21	0	0	26.362	-6215.3
47938	243.32	0	0	26.362	-6215.3

47939	243.32	0	0	26.362	-6215.3
47940	243.3	0	0	26.362	-6215.3
47941	243.32	0	0	26.362	-6215.3
47942	243.35	0	0	26.362	-6215.3
47943	243.29	0	0	26.362	-6215.3
47944	243.3	0	0	26.362	-6215.3
47945	243.3	0	0	26.362	-6215.3
47946	243.3	0	0	26.362	-6215.3
47947	243.3	0	0	26.362	-6215.3
47948	243.29	0	0	26.362	-6215.3
47949	243.24	0	0	26.362	-6215.3
47950	243.26	0	0	26.362	-6215.3
47951	243.25	0	0	26.362	-6215.3
47952	243.21	0	0	26.362	-6215.3
47953	243.19	0	0	26.362	-6215.3
47954	243.19	0	0	26.362	-6215.3
47955	243.21	0	0	26.362	-6215.3
47956	243.18	0	0	26.362	-6215.3
47957	243.23	0	0	26.362	-6215.3
47958	243.2	0	0	26.362	-6215.3
47959	243.3	0	0	26.362	-6215.3
47960	243.25	0	0	26.362	-6215.3
47961	243.32	0	0	26.362	-6215.3
47962	243.29	0	0	26.362	-6215.3
47963	243.23	0	0	26.362	-6215.3
47964	243.17	0	0	26.362	-6215.3
47965	243.12	0	0	26.362	-6215.3
47966	243.16	0	0	26.362	-6215.3
47967	243.16	0	0	26.362	-6215.3
47968	243.17	0	0	26.362	-6215.3
47969	243.13	0	0	26.362	-6215.3
47970	243.14	0	0	26.362	-6215.3
47971	243.09	0	0	26.362	-6215.3
47972	243.16	0	0	26.362	-6215.3
47973	243.12	0	0	26.362	-6215.3
47974	243.11	0	0	26.362	-6215.3
47975	243.16	0	0	26.362	-6215.3
47976	243.1	0	0	26.362	-6215.3
47977	243.08	0	0	26.362	-6215.3
47978	243.11	0	0	26.362	-6215.3
47979	242.37	0	0	26.362	-6215.3
47980	243.07	0	0	26.362	-6215.3
47981	243.08	0	0	26.362	-6215.3
47982	243.07	0	0	26.362	-6215.3
47983	243.06	0	0	26.362	-6215.3
47984	243.06	0	0	26.362	-6215.3
47985	243.06	0	0	26.362	-6215.3

47986	243	0	0	26.362	-6215.3
47987	243.01	0	0	26.362	-6215.3
47988	243.05	0	0	26.362	-6215.3
47989	242.89	0	0	26.362	-6215.3
47990	242.95	0	0	26.362	-6215.3
47991	242.91	0	0	26.362	-6215.3
47992	242.95	0	0	26.362	-6215.3
47993	242.92	0	0	26.362	-6215.3
47994	242.92	0	0	26.362	-6215.3
47995	242.92	0	0	26.362	-6215.3
47996	242.87	0	0	26.362	-6215.3
47997	242.85	0	0	26.362	-6215.3
47998	242.93	0	0	26.362	-6215.3
47999	242.93	0	0	26.362	-6215.3
48000	243.01	0	0	26.362	-6215.3
48001	242.99	0	0	26.362	-6215.3
48002	242.94	0	0	26.362	-6215.3
48003	242.93	0	0	26.362	-6215.3
48004	242.97	0	0	26.362	-6215.3
48005	242.96	0	0	26.362	-6215.3
48006	242.97	0	0	26.362	-6215.3
48007	243	0	0	26.362	-6215.3
48008	242.93	0	0	26.362	-6215.3
48009	242.99	0	0	26.362	-6215.3
48010	243.03	0	0	26.362	-6215.3
48011	243.02	0	0	26.362	-6215.3
48012	242.98	0	0	26.362	-6215.3
48013	242.99	0	0	26.362	-6215.3
48014	243.01	0	0	26.362	-6215.3
48015	243.03	0	0	26.362	-6215.3
48016	243.04	0	0	26.362	-6215.3
48017	243.01	0	0	26.362	-6215.3
48018	242.96	0	0	26.362	-6215.3
48019	242.93	0	0	26.362	-6215.3
48020	243	0	0	26.362	-6215.3
48021	243.09	0	0	26.362	-6215.3
48022	243.13	0	0	26.362	-6215.3
48023	243.12	0	0	26.362	-6215.3
48024	243.15	0	0	26.362	-6215.3
48025	243.16	0	0	26.362	-6215.3
48026	243.09	0	0	26.362	-6215.3
48027	243.13	0	0	26.362	-6215.3
48028	243.14	0	0	26.362	-6215.3
48029	243.15	0	0	26.362	-6215.3
48030	243.11	0	0	26.362	-6215.3
48031	243.11	0	0	26.362	-6215.3
48032	243.16	0	0	26.362	-6215.3

48033	243.17	0	0	26.362	-6215.3
48034	243.09	0	0	26.362	-6215.3
48035	243.11	0	0	26.362	-6215.3
48036	243.08	0	0	26.362	-6215.3
48037	243.09	0	0	26.362	-6215.3
48038	243.17	0	0	26.362	-6215.3
48039	243.18	0	0	26.362	-6215.3
48040	243.11	0	0	26.362	-6215.3
48041	243.11	0	0	26.362	-6215.3
48042	243.12	0	0	26.362	-6215.3
48043	243.16	0	0	26.362	-6215.3
48044	243.16	0	0	26.362	-6215.3
48045	243.15	0	0	26.362	-6215.3
48046	243.13	0	0	26.362	-6215.3
48047	243.12	0	0	26.362	-6215.3
48048	243.1	0	0	26.362	-6215.3
48049	243.11	0	0	26.362	-6215.3
48050	243.13	0	0	26.362	-6215.3
48051	243.05	0	0	26.362	-6215.3
48052	243.16	0	0	26.362	-6215.3
48053	243.18	0	0	26.362	-6215.3
48054	243.17	0	0	26.362	-6215.3
48055	243.18	0	0	26.362	-6215.3
48056	243.07	0	0	26.362	-6215.3
48057	243.19	0	0	26.362	-6215.3
48058	243.23	0	0	26.362	-6215.3
48059	243.16	0	0	26.362	-6215.3
48060	243.14	0	0	26.362	-6215.3
48061	243.2	0	0	26.362	-6215.3
48062	243.12	0	0	26.362	-6215.3
48063	243.16	0	0	26.362	-6215.3
48064	243.19	0	0	26.362	-6215.3
48065	243.21	0	0	26.362	-6215.3
48066	243.2	0	0	26.362	-6215.3
48067	243.21	0	0	26.362	-6215.3
48068	243.25	0	0	26.362	-6215.3
48069	243.19	0	0	26.362	-6215.3
48070	243.26	0	0	26.362	-6215.3
48071	243.22	0	0	26.362	-6215.3
48072	243.13	0	0	26.362	-6215.3
48073	243.21	0	0	26.362	-6215.3
48074	243.19	0	0	26.362	-6215.3
48075	243.22	0	0	26.362	-6215.3
48076	243.17	0	0	26.362	-6215.3
48077	243.17	0	0	26.362	-6215.3
48078	243.16	0	0	26.362	-6215.3
48079	243.19	0	0	26.362	-6215.3

48080	243.13	0	0	26.362	-6215.3
48081	243.17	0	0	26.362	-6215.3
48082	243.23	0	0	26.362	-6215.3
48083	243.24	0	0	26.362	-6215.3
48084	243.2	0	0	26.362	-6215.3
48085	243.17	0	0	26.362	-6215.3
48086	243.19	0	0	26.362	-6215.3
48087	243.23	0	0	26.362	-6215.3
48088	243.18	0	0	26.362	-6215.3
48089	243.22	0	0	26.362	-6215.3
48090	243.26	0	0	26.362	-6215.3
48091	243.16	0	0	26.362	-6215.3
48092	243.19	0	0	26.362	-6215.3
48093	243.18	0	0	26.362	-6215.3
48094	243	0	0	26.362	-6215.3
48095	243.1	0	0	26.362	-6215.3
48096	243.04	0	0	26.362	-6215.3
48097	243.1	0	0	26.362	-6215.3
48098	243.11	0	0	26.362	-6215.3
48099	243.13	0	0	26.362	-6215.3
48100	243.08	0	0	26.362	-6215.3
48101	242.93	0	0	26.362	-6215.3
48102	242.89	0	0	26.362	-6215.3
48103	242.93	0	0	26.362	-6215.3
48104	242.95	0	0	26.362	-6215.3
48105	243	0	0	26.362	-6215.3
48106	243.02	0	0	26.362	-6215.3
48107	243.06	0	0	26.362	-6215.3
48108	243.06	0	0	26.362	-6215.3
48109	243	0	0	26.362	-6215.3
48110	243.09	0	0	26.362	-6215.3
48111	243.15	0	0	26.362	-6215.3
48112	243.12	0	0	26.362	-6215.3
48113	243.07	0	0	26.362	-6215.3
48114	243.12	0	0	26.362	-6215.3
48115	243.08	0	0	26.362	-6215.3
48116	243.15	0	0	26.362	-6215.3
48117	243.07	0	0	26.362	-6215.3
48118	243.11	0	0	26.362	-6215.3
48119	243.13	0	0	26.362	-6215.3
48120	243.1	0	0	26.362	-6215.3
48121	243.06	0	0	26.362	-6215.3
48122	243.09	0	0	26.362	-6215.3
48123	243.13	0	0	26.362	-6215.3
48124	243.06	0	0	26.362	-6215.3
48125	243.03	0	0	26.362	-6215.3
48126	243.08	0	0	26.362	-6215.3

48127	243.12	0	0	26.362	-6215.3
48128	243.02	0	0	26.362	-6215.3
48129	243.06	0	0	26.362	-6215.3
48130	242.99	0	0	26.362	-6215.3
48131	243.03	0	0	26.362	-6215.3
48132	243.03	0	0	26.362	-6215.3
48133	243.01	0	0	26.362	-6215.3
48134	242.95	0	0	26.362	-6215.3
48135	243	0	0	26.362	-6215.3
48136	242.98	0	0	26.362	-6215.3
48137	243.08	0	0	26.362	-6215.3
48138	243.03	0	0	26.362	-6215.3
48139	243.05	0	0	26.362	-6215.3
48140	243.03	0	0	26.362	-6215.3
48141	243.05	0	0	26.362	-6215.3
48142	243.08	0	0	26.362	-6215.3
48143	243.05	0	0	26.362	-6215.3
48144	243.03	0	0	26.362	-6215.3
48145	243.04	0	0	26.362	-6215.3
48146	242.94	0	0	26.362	-6215.3
48147	243.05	0	0	26.362	-6215.3
48148	242.98	0	0	26.362	-6215.3
48149	243.05	0	0	26.362	-6215.3
48150	243.02	0	0	26.362	-6215.3
48151	243.05	0	0	26.362	-6215.3
48152	243.05	0	0	26.362	-6215.3
48153	243.08	0	0	26.362	-6215.3
48154	243.1	0	0	26.362	-6215.3
48155	243.02	0	0	26.362	-6215.3
48156	242.95	0	0	26.362	-6215.3
48157	242.99	0	0	26.362	-6215.3
48158	242.95	0	0	26.362	-6215.3
48159	243	0	0	26.362	-6215.3
48160	242.96	0	0	26.362	-6215.3
48161	242.93	0	0	26.362	-6215.3
48162	242.98	0	0	26.362	-6215.3
48163	242.91	0	0	26.362	-6215.3
48164	243	0	0	26.362	-6215.3
48165	242.92	0	0	26.362	-6215.3
48166	242.96	0	0	26.362	-6215.3
48167	242.91	0	0	26.362	-6215.3
48168	242.93	0	0	26.362	-6215.3
48169	242.85	0	0	26.362	-6215.3
48170	242.8	0	0	26.362	-6215.3
48171	242.85	0	0	26.362	-6215.3
48172	242.92	0	0	26.362	-6215.3
48173	242.87	0	0	26.362	-6215.3

48174	242.89	0	0	26.362	-6215.3
48175	242.85	0	0	26.362	-6215.3
48176	242.81	0	0	26.362	-6215.3
48177	242.83	0	0	26.362	-6215.3
48178	242.79	0	0	26.362	-6215.3
48179	242.86	0	0	26.362	-6215.3
48180	242.77	0	0	26.362	-6215.3
48181	242.87	0	0	26.362	-6215.3
48182	242.88	0	0	26.362	-6215.3
48183	242.86	0	0	26.362	-6215.3
48184	242.87	0	0	26.362	-6215.3
48185	242.82	0	0	26.362	-6215.3
48186	242.84	0	0	26.362	-6215.3
48187	242.78	0	0	26.362	-6215.3
48188	242.8	0	0	26.362	-6215.3
48189	242.92	0	0	26.362	-6215.3
48190	242.91	0	0	26.362	-6215.3
48191	242.86	0	0	26.362	-6215.3
48192	242.88	0	0	26.362	-6215.3
48193	242.91	0	0	26.362	-6215.3
48194	242.88	0	0	26.362	-6215.3
48195	242.82	0	0	26.362	-6215.3
48196	242.89	0	0	26.362	-6215.3
48197	242.84	0	0	26.362	-6215.3
48198	242.89	0	0	26.362	-6215.3
48199	242.85	0	0	26.362	-6215.3
48200	242.85	0	0	26.362	-6215.3
48201	242.88	0	0	26.362	-6215.3
48202	242.82	0	0	26.362	-6215.3
48203	242.76	0	0	26.362	-6215.3
48204	242.76	0	0	26.362	-6215.3
48205	242.73	0	0	26.362	-6215.3
48206	242.79	0	0	26.362	-6215.3
48207	242.71	0	0	26.362	-6215.3
48208	242.64	0	0	26.362	-6215.3
48209	242.61	0	0	26.362	-6215.3
48210	242.63	0	0	26.362	-6215.3
48211	242.72	0	0	26.362	-6215.3
48212	242.76	0	0	26.362	-6215.3
48213	242.75	0	0	26.362	-6215.3
48214	242.79	0	0	26.362	-6215.3
48215	242.72	0	0	26.362	-6215.3
48216	242.65	0	0	26.362	-6215.3
48217	242.73	0	0	26.362	-6215.3
48218	242.69	0	0	26.362	-6215.3
48219	242.76	0	0	26.362	-6215.3
48220	242.72	0	0	26.362	-6215.3

48221	242.69	0	0	26.362	-6215.3
48222	242.82	0	0	26.362	-6215.3
48223	242.78	0	0	26.362	-6215.3
48224	242.78	0	0	26.362	-6215.3
48225	242.74	0	0	26.362	-6215.3
48226	242.81	0	0	26.362	-6215.3
48227	242.77	0	0	26.362	-6215.3
48228	242.73	0	0	26.362	-6215.3
48229	242.76	0	0	26.362	-6215.3
48230	242.72	0	0	26.362	-6215.3
48231	242.8	0	0	26.362	-6215.3
48232	242.78	0	0	26.362	-6215.3
48233	242.8	0	0	26.362	-6215.3
48234	242.8	0	0	26.362	-6215.3
48235	242.82	0	0	26.362	-6215.3
48236	242.78	0	0	26.362	-6215.3
48237	242.75	0	0	26.362	-6215.3
48238	242.89	0	0	26.362	-6215.3
48239	241.07	0	0	26.362	-6215.3
48240	242.59	0	0	26.362	-6215.3
48241	242.55	0	0	26.362	-6215.3
48242	242.57	0	0	26.362	-6215.3
48243	242.54	0	0	26.362	-6215.3
48244	242.57	0	0	26.362	-6215.3
48245	242.42	0	0	26.362	-6215.3
48246	242.43	0	0	26.362	-6215.3
48247	242.49	0	0	26.362	-6215.3
48248	242.47	0	0	26.362	-6215.3
48249	242.5	0	0	26.362	-6215.3
48250	242.48	0	0	26.362	-6215.3
48251	242.57	0	0	26.362	-6215.3
48252	242.53	0	0	26.362	-6215.3
48253	242.5	0	0	26.362	-6215.3
48254	242.69	0	0	26.362	-6215.3
48255	242.65	0	0	26.362	-6215.3
48256	242.76	0	0	26.362	-6215.3
48257	242.68	0	0	26.362	-6215.3
48258	242.73	0	0	26.362	-6215.3
48259	242.68	0	0	26.362	-6215.3
48260	242.69	0	0	26.362	-6215.3
48261	242.75	0	0	26.362	-6215.3
48262	242.78	0	0	26.362	-6215.3
48263	242.7	0	0	26.362	-6215.3
48264	242.74	0	0	26.362	-6215.3
48265	242.74	0	0	26.362	-6215.3
48266	242.69	0	0	26.362	-6215.3
48267	242.73	0	0	26.362	-6215.3

48268	242.7	0	0	26.362	-6215.3
48269	242.68	0	0	26.362	-6215.3
48270	242.66	0	0	26.362	-6215.3
48271	242.63	0	0	26.362	-6215.3
48272	242.58	0	0	26.362	-6215.3
48273	242.7	0	0	26.362	-6215.3
48274	242.6	0	0	26.362	-6215.3
48275	242.61	0	0	26.362	-6215.3
48276	242.55	0	0	26.362	-6215.3
48277	242.62	0	0	26.362	-6215.3
48278	242.6	0	0	26.362	-6215.3
48279	242.59	0	0	26.362	-6215.3
48280	242.64	0	0	26.362	-6215.3
48281	242.62	0	0	26.362	-6215.3
48282	242.58	0	0	26.362	-6215.3
48283	242.63	0	0	26.362	-6215.3
48284	242.58	0	0	26.362	-6215.3
48285	242.61	0	0	26.362	-6215.3
48286	242.63	0	0	26.362	-6215.3
48287	242.68	0	0	26.362	-6215.3
48288	242.53	0	0	26.362	-6215.3
48289	242.27	0	0	26.362	-6215.3
48290	242.33	0	0	26.362	-6215.3
48291	242.47	0	0	26.362	-6215.3
48292	242.18	0	0	26.362	-6215.3
48293	242.39	0	0	26.362	-6215.3
48294	242.47	0	0	26.362	-6215.3
48295	242.29	0	0	26.362	-6215.3
48296	242.2	0	0	26.362	-6215.3
48297	242.35	0	0	26.362	-6215.3
48298	242.24	0	0	26.362	-6215.3
48299	242.26	0	0	26.362	-6215.3
48300	242.49	0	0	26.362	-6215.3
48301	242.29	0	0	26.362	-6215.3
48302	242.21	0	0	26.362	-6215.3
48303	242.31	0	0	26.362	-6215.3
48304	242.28	0	0	26.362	-6215.3
48305	242.14	0	0	26.362	-6215.3
48306	242.34	0	0	26.362	-6215.3
48307	242.37	0	0	26.362	-6215.3
48308	242.2	0	0	26.362	-6215.3
48309	242.19	0	0	26.362	-6215.3
48310	242.14	0	0	26.362	-6215.3
48311	242.25	0	0	26.362	-6215.3
48312	242.21	0	0	26.362	-6215.3
48313	242.26	0	0	26.362	-6215.3
48314	242.16	0	0	26.362	-6215.3

48315	242.26	0	0	26.362	-6215.3
48316	242.13	0	0	26.362	-6215.3
48317	242.38	0	0	26.362	-6215.3
48318	242.2	0	0	26.362	-6215.3
48319	242.22	0	0	26.362	-6215.3
48320	242.31	0	0	26.362	-6215.3
48321	242.24	0	0	26.362	-6215.3
48322	242.32	0	0	26.362	-6215.3
48323	242.18	0	0	26.362	-6215.3
48324	242.35	0	0	26.362	-6215.3
48325	242.27	0	0	26.362	-6215.3
48326	242.35	0	0	26.362	-6215.3
48327	242.48	0	0	26.362	-6215.3
48328	242.31	0	0	26.362	-6215.3
48329	242.22	0	0	26.362	-6215.3
48330	242.42	0	0	26.362	-6215.3
48331	242.35	0	0	26.362	-6215.3
48332	242.26	0	0	26.362	-6215.3
48333	242.3	0	0	26.362	-6215.3
48334	242.25	0	0	26.362	-6215.3
48335	242.39	0	0	26.362	-6215.3
48336	242.39	0	0	26.362	-6215.3
48337	242.29	0	0	26.362	-6215.3
48338	242.36	0	0	26.362	-6215.3
48339	242.16	0	0	26.362	-6215.3
48340	242.21	0	0	26.362	-6215.3
48341	242.3	0	0	26.362	-6215.3
48342	242.24	0	0	26.362	-6215.3
48343	241.98	0	0	26.362	-6215.3
48344	242.15	0	0	26.362	-6215.3
48345	242.28	0	0	26.362	-6215.3
48346	242.44	0	0	26.362	-6215.3
48347	242.41	0	0	26.362	-6215.3
48348	242.52	0	0	26.362	-6215.3
48349	242.32	0	0	26.362	-6215.3
48350	242.47	0	0	26.362	-6215.3
48351	242.24	0	0	26.362	-6215.3
48352	242.08	0	0	26.362	-6215.3
48353	242.13	0	0	26.362	-6215.3
48354	242.41	0	0	26.362	-6215.3
48355	242.32	0	0	26.362	-6215.3
48356	242.39	0	0	26.362	-6215.3
48357	242.41	0	0	26.362	-6215.3
48358	242.44	0	0	26.362	-6215.3
48359	242.4	0	0	26.362	-6215.3
48360	242.48	0	0	26.362	-6215.3
48361	242.28	0	0	26.362	-6215.3

48362	242.46	0	0	26.362	-6215.3
48363	242.5	0	0	26.362	-6215.3
48364	242.49	0	0	26.362	-6215.3
48365	242.45	0	0	26.362	-6215.3
48366	242.65	0	0	26.362	-6215.3
48367	242.42	0	0	26.362	-6215.3
48368	242.4	0	0	26.362	-6215.3
48369	242.47	0	0	26.362	-6215.3
48370	242.44	0	0	26.362	-6215.3
48371	242.42	0	0	26.362	-6215.3
48372	242.14	0	0	26.362	-6215.3
48373	242.57	0	0	26.362	-6215.3
48374	242.49	0	0	26.362	-6215.3
48375	242.66	0	0	26.362	-6215.3
48376	242.61	0	0	26.362	-6215.3
48377	242.71	0	0	26.362	-6215.3
48378	242.55	0	0	26.362	-6215.3
48379	242.38	0	0	26.362	-6215.3
48380	242.4	0	0	26.362	-6215.3
48381	242.5	0	0	26.362	-6215.3
48382	242.47	0	0	26.362	-6215.3
48383	242.41	0	0	26.362	-6215.3
48384	242.4	0	0	26.362	-6215.3
48385	242.44	0	0	26.362	-6215.3
48386	242.38	0	0	26.362	-6215.3
48387	242.27	0	0	26.362	-6215.3
48388	242.55	0	0	26.362	-6215.3
48389	242.15	0	0	26.362	-6215.3
48390	242.29	0	0	26.362	-6215.3
48391	242.23	0	0	26.362	-6215.3
48392	241.57	0	0	26.362	-6215.3
48393	241.78	0	0	26.362	-6215.3
48394	242.07	0	0	26.362	-6215.3
48395	242.47	0	0	26.362	-6215.3
48396	242.32	0	0	26.362	-6215.3
48397	242.15	0	0	26.362	-6215.3
48398	242.7	0	0	26.362	-6215.3
48399	242.44	0	0	26.362	-6215.3
48400	242.34	0	0	26.362	-6215.3
48401	242.43	0	0	26.362	-6215.3
48402	242.53	0	0	26.362	-6215.3
48403	242.14	0	0	26.362	-6215.3
48404	242.48	0	0	26.362	-6215.3
48405	242.1	0	0	26.362	-6215.3
48406	242.43	0	0	26.362	-6215.3
48407	242.42	0	0	26.362	-6215.3
48408	242.25	0	0	26.362	-6215.3

48409	242.1	0	0	26.362	-6215.3
48410	242.36	0	0	26.362	-6215.3
48411	242.17	0	0	26.362	-6215.3
48412	242.54	0	0	26.362	-6215.3
48413	242.14	0	0	26.362	-6215.3
48414	242.4	0	0	26.362	-6215.3
48415	242.13	0	0	26.362	-6215.3
48416	242.51	0	0	26.362	-6215.3
48417	242.19	0	0	26.362	-6215.3
48418	242.54	0	0	26.362	-6215.3
48419	242.16	0	0	26.362	-6215.3
48420	242.59	0	0	26.362	-6215.3
48421	242.01	0	0	26.362	-6215.3
48422	242.29	0	0	26.362	-6215.3
48423	242.16	0	0	26.362	-6215.3
48424	242.34	0	0	26.362	-6215.3
48425	242.24	0	0	26.362	-6215.3
48426	242.33	0	0	26.362	-6215.3
48427	242.25	0	0	26.362	-6215.3
48428	242.36	0	0	26.362	-6215.3
48429	242.07	0	0	26.362	-6215.3
48430	242.28	0	0	26.362	-6215.3
48431	242.32	0	0	26.362	-6215.3
48432	242.19	0	0	26.362	-6215.3
48433	242.38	0	0	26.362	-6215.3
48434	242.27	0	0	26.362	-6215.3
48435	242.02	0	0	26.362	-6215.3
48436	242.29	0	0	26.362	-6215.3
48437	242.36	0	0	26.362	-6215.3
48438	242.35	0	0	26.362	-6215.3
48439	242.27	0	0	26.362	-6215.3
48440	242.32	0	0	26.362	-6215.3
48441	242.2	0	0	26.362	-6215.3
48442	242.2	0	0	26.362	-6215.3
48443	242.31	0	0	26.362	-6215.3
48444	242.28	0	0	26.362	-6215.3
48445	242.07	0	0	26.362	-6215.3
48446	242.31	0	0	26.362	-6215.3
48447	241.78	0	0	26.362	-6215.3
48448	242.31	0	0	26.362	-6215.3
48449	242.31	0	0	26.362	-6215.3
48450	241.87	0	0	26.362	-6215.3
48451	242.22	0	0	26.362	-6215.3
48452	242.15	0	0	26.362	-6215.3
48453	242.14	0	0	26.362	-6215.3
48454	242.03	0	0	26.362	-6215.3
48455	242.29	0	0	26.362	-6215.3

48456	242.04	0	0	26.362	-6215.3
48457	241.79	0	0	26.362	-6215.3
48458	242.25	0	0	26.362	-6215.3
48459	241.86	0	0	26.362	-6215.3
48460	242.26	0	0	26.362	-6215.3
48461	241.9	0	0	26.362	-6215.3
48462	242.24	0	0	26.362	-6215.3
48463	242.1	0	0	26.362	-6215.3
48464	241.61	0	0	26.362	-6215.3
48465	242.3	0	0	26.362	-6215.3
48466	241.91	0	0	26.362	-6215.3
48467	242.29	0	0	26.362	-6215.3
48468	241.74	0	0	26.362	-6215.3
48469	242.18	0	0	26.362	-6215.3
48470	242.26	0	0	26.362	-6215.3
48471	241.87	0	0	26.362	-6215.3
48472	242.42	0	0	26.362	-6215.3
48473	241.96	0	0	26.362	-6215.3
48474	242.31	0	0	26.362	-6215.3
48475	241.9	0	0	26.362	-6215.3
48476	242.27	0	0	26.362	-6215.3
48477	242.03	0	0	26.362	-6215.3
48478	241.99	0	0	26.362	-6215.3
48479	242.39	0	0	26.362	-6215.3
48480	242	0	0	26.362	-6215.3
48481	242.31	0	0	26.362	-6215.3
48482	242.08	0	0	26.362	-6215.3
48483	242.4	0	0	26.362	-6215.3
48484	242.26	0	0	26.362	-6215.3
48485	242.25	0	0	26.362	-6215.3
48486	242.31	0	0	26.362	-6215.3
48487	242.23	0	0	26.362	-6215.3
48488	242.29	0	0	26.362	-6215.3
48489	242.19	0	0	26.362	-6215.3
48490	242.04	0	0	26.362	-6215.3
48491	242.27	0	0	26.362	-6215.3
48492	242.29	0	0	26.362	-6215.3
48493	241.87	0	0	26.362	-6215.3
48494	242.34	0	0	26.362	-6215.3
48495	241.87	0	0	26.362	-6215.3
48496	242.33	0	0	26.362	-6215.3
48497	242.35	0	0	26.362	-6215.3
48498	242.1	0	0	26.362	-6215.3
48499	242.4	0	0	26.362	-6215.3
48500	242.03	0	0	26.362	-6215.3
48501	242.42	0	0	26.362	-6215.3
48502	242.4	0	0	26.362	-6215.3

48503	242.36	0	0	26.362	-6215.3
48504	242.27	0	0	26.362	-6215.3
48505	242.53	0	0	26.362	-6215.3
48506	242.24	0	0	26.362	-6215.3
48507	242.57	0	0	26.362	-6215.3
48508	242.18	0	0	26.362	-6215.3
48509	242.7	0	0	26.362	-6215.3
48510	242.27	0	0	26.362	-6215.3
48511	242.62	0	0	26.362	-6215.3
48512	242.1	0	0	26.362	-6215.3
48513	242.49	0	0	26.362	-6215.3
48514	242.53	0	0	26.362	-6215.3
48515	242.28	0	0	26.362	-6215.3
48516	242.62	0	0	26.362	-6215.3
48517	242.38	0	0	26.362	-6215.3
48518	242.52	0	0	26.362	-6215.3
48519	242.77	0	0	26.362	-6215.3
48520	242.65	0	0	26.362	-6215.3
48521	242.26	0	0	26.362	-6215.3
48522	242.79	0	0	26.362	-6215.3
48523	242.53	0	0	26.362	-6215.3
48524	242.68	0	0	26.362	-6215.3
48525	242.78	0	0	26.362	-6215.3
48526	242.66	0	0	26.362	-6215.3
48527	242.58	0	0	26.362	-6215.3
48528	242.73	0	0	26.362	-6215.3
48529	242.73	0	0	26.362	-6215.3
48530	242.69	0	0	26.362	-6215.3
48531	242.63	0	0	26.362	-6215.3
48532	242.77	0	0	26.362	-6215.3
48533	242.65	0	0	26.362	-6215.3
48534	242.61	0	0	26.362	-6215.3
48535	242.7	0	0	26.362	-6215.3
48536	242.64	0	0	26.362	-6215.3
48537	242.63	0	0	26.362	-6215.3
48538	242.62	0	0	26.362	-6215.3
48539	242.44	0	0	26.362	-6215.3
48540	242.6	0	0	26.362	-6215.3
48541	242.55	0	0	26.362	-6215.3
48542	242.52	0	0	26.362	-6215.3
48543	242.34	0	0	26.362	-6215.3
48544	242.48	0	0	26.362	-6215.3
48545	242.49	0	0	26.362	-6215.3
48546	242.54	0	0	26.362	-6215.3
48547	242.6	0	0	26.362	-6215.3
48548	242.57	0	0	26.362	-6215.3
48549	242.54	0	0	26.362	-6215.3

48550	242.54	0	0	26.362	-6215.3
48551	242.52	0	0	26.362	-6215.3
48552	242.41	0	0	26.362	-6215.3
48553	242.43	0	0	26.362	-6215.3
48554	242.54	0	0	26.362	-6215.3
48555	242.37	0	0	26.362	-6215.3
48556	242.49	0	0	26.362	-6215.3
48557	242.6	0	0	26.362	-6215.3
48558	242.69	0	0	26.362	-6215.3
48559	242.17	0	0	26.362	-6215.3
48560	242.51	0	0	26.362	-6215.3
48561	242.46	0	0	26.362	-6215.3
48562	242.65	0	0	26.362	-6215.3
48563	242.67	0	0	26.362	-6215.3
48564	242.45	0	0	26.362	-6215.3
48565	242.64	0	0	26.362	-6215.3
48566	242.72	0	0	26.362	-6215.3
48567	242.62	0	0	26.362	-6215.3
48568	242.57	0	0	26.362	-6215.3
48569	242.5	0	0	26.362	-6215.3
48570	242.51	0	0	26.362	-6215.3
48571	242.53	0	0	26.362	-6215.3
48572	242.46	0	0	26.362	-6215.3
48573	242.56	0	0	26.362	-6215.3
48574	242.47	0	0	26.362	-6215.3
48575	242.48	0	0	26.362	-6215.3
48576	242.21	0	0	26.362	-6215.3
48577	242.45	0	0	26.362	-6215.3
48578	242.64	0	0	26.362	-6215.3
48579	242.59	0	0	26.362	-6215.3
48580	242.45	0	0	26.362	-6215.3
48581	242.63	0	0	26.362	-6215.3
48582	242.75	0	0	26.362	-6215.3
48583	242.73	0	0	26.362	-6215.3
48584	242.61	0	0	26.362	-6215.3
48585	242.35	0	0	26.362	-6215.3
48586	242.65	0	0	26.362	-6215.3
48587	242.67	0	0	26.362	-6215.3
48588	242.86	0	0	26.362	-6215.3
48589	242.75	0	0	26.362	-6215.3
48590	242.48	0	0	26.362	-6215.3
48591	242.69	0	0	26.362	-6215.3
48592	242.69	0	0	26.362	-6215.3
48593	242.79	0	0	26.362	-6215.3
48594	242.72	0	0	26.362	-6215.3
48595	242.87	0	0	26.362	-6215.3
48596	242.53	0	0	26.362	-6215.3

48597	242.73	0	0	26.362	-6215.3
48598	242.65	0	0	26.362	-6215.3
48599	242.8	0	0	26.362	-6215.3
48600	242.28	0	0	26.362	-6215.3
48601	242.66	0	0	26.362	-6215.3
48602	242.67	0	0	26.362	-6215.3
48603	242.74	0	0	26.362	-6215.3
48604	242.74	0	0	26.362	-6215.3
48605	242.46	0	0	26.362	-6215.3
48606	242.76	0	0	26.362	-6215.3
48607	242.69	0	0	26.362	-6215.3
48608	242.56	0	0	26.362	-6215.3
48609	242.64	0	0	26.362	-6215.3
48610	242.54	0	0	26.362	-6215.3
48611	242.57	0	0	26.362	-6215.3
48612	242.44	0	0	26.362	-6215.3
48613	242.76	0	0	26.362	-6215.3
48614	242.28	0	0	26.362	-6215.3
48615	242.56	0	0	26.362	-6215.3
48616	242.66	0	0	26.362	-6215.3
48617	242.72	0	0	26.362	-6215.3
48618	242.69	0	0	26.362	-6215.3
48619	242.66	0	0	26.362	-6215.3
48620	242.7	0	0	26.362	-6215.3
48621	242.74	0	0	26.362	-6215.3
48622	242.8	0	0	26.362	-6215.3
48623	242.89	0	0	26.362	-6215.3
48624	242.76	0	0	26.362	-6215.3
48625	242.75	0	0	26.362	-6215.3
48626	242.54	0	0	26.362	-6215.3
48627	242.81	0	0	26.362	-6215.3
48628	242.56	0	0	26.362	-6215.3
48629	242.85	0	0	26.362	-6215.3
48630	242.77	0	0	26.362	-6215.3
48631	242.87	0	0	26.362	-6215.3
48632	242.71	0	0	26.362	-6215.3
48633	242.5	0	0	26.362	-6215.3
48634	242.68	0	0	26.362	-6215.3
48635	242.62	0	0	26.362	-6215.3
48636	242.75	0	0	26.362	-6215.3
48637	242.57	0	0	26.362	-6215.3
48638	242.76	0	0	26.362	-6215.3
48639	242.64	0	0	26.362	-6215.3
48640	242.83	0	0	26.362	-6215.3
48641	242.81	0	0	26.362	-6215.3
48642	242.56	0	0	26.362	-6215.3
48643	242.58	0	0	26.362	-6215.3

48644	242.67	0	0	26.362	-6215.3
48645	242.66	0	0	26.362	-6215.3
48646	242.75	0	0	26.362	-6215.3
48647	242.25	0	0	26.362	-6215.3
48648	242.81	0	0	26.362	-6215.3
48649	242.84	0	0	26.362	-6215.3
48650	242.8	0	0	26.362	-6215.3
48651	242.71	0	0	26.362	-6215.3
48652	242.72	0	0	26.362	-6215.3
48653	242.93	0	0	26.362	-6215.3
48654	242.72	0	0	26.362	-6215.3
48655	242.8	0	0	26.362	-6215.3
48656	242.86	0	0	26.362	-6215.3
48657	242.84	0	0	26.362	-6215.3
48658	242.69	0	0	26.362	-6215.3
48659	242.78	0	0	26.362	-6215.3
48660	242.73	0	0	26.362	-6215.3
48661	242.71	0	0	26.362	-6215.3
48662	242.92	0	0	26.362	-6215.3
48663	242.7	0	0	26.362	-6215.3
48664	242.64	0	0	26.362	-6215.3
48665	242.78	0	0	26.362	-6215.3
48666	242.71	0	0	26.362	-6215.3
48667	242.73	0	0	26.362	-6215.3
48668	242.73	0	0	26.362	-6215.3
48669	242.83	0	0	26.362	-6215.3
48670	242.67	0	0	26.362	-6215.3
48671	242.77	0	0	26.362	-6215.3
48672	242.69	0	0	26.362	-6215.3
48673	242.62	0	0	26.362	-6215.3
48674	242.89	0	0	26.362	-6215.3
48675	242.83	0	0	26.362	-6215.3
48676	242.75	0	0	26.362	-6215.3
48677	242.92	0	0	26.362	-6215.3
48678	242.91	0	0	26.362	-6215.3
48679	242.77	0	0	26.362	-6215.3
48680	242.71	0	0	26.362	-6215.3
48681	242.65	0	0	26.362	-6215.3
48682	242.62	0	0	26.362	-6215.3
48683	242.64	0	0	26.362	-6215.3
48684	242.57	0	0	26.362	-6215.3
48685	242.58	0	0	26.362	-6215.3
48686	242.65	0	0	26.362	-6215.3
48687	242.42	0	0	26.362	-6215.3
48688	242.52	0	0	26.362	-6215.3
48689	242.68	0	0	26.362	-6215.3
48690	242.71	0	0	26.362	-6215.3

48691	242.54	0	0	26.362	-6215.3
48692	242.74	0	0	26.362	-6215.3
48693	242.4	0	0	26.362	-6215.3
48694	242.64	0	0	26.362	-6215.3
48695	242.62	0	0	26.362	-6215.3
48696	242.54	0	0	26.362	-6215.3
48697	243.13	0	0	26.362	-6215.3
48698	243.18	0	0	26.362	-6215.3
48699	243.2	0	0	26.362	-6215.3
48700	243.18	0	0	26.362	-6215.3
48701	243.11	0	0	26.362	-6215.3
48702	243.02	0	0	26.362	-6215.3
48703	243.03	0	0	26.362	-6215.3
48704	243.06	0	0	26.362	-6215.3
48705	243.03	0	0	26.362	-6215.3
48706	243.12	0	0	26.362	-6215.3
48707	243.13	0	0	26.362	-6215.3
48708	243.13	0	0	26.362	-6215.3
48709	243.09	0	0	26.362	-6215.3
48710	243.07	0	0	26.362	-6215.3
48711	243.1	0	0	26.362	-6215.3
48712	243.08	0	0	26.362	-6215.3
48713	243.17	0	0	26.362	-6215.3
48714	243.09	0	0	26.362	-6215.3
48715	242.98	0	0	26.362	-6215.3
48716	242.98	0	0	26.362	-6215.3
48717	242.9	0	0	26.362	-6215.3
48718	243.09	0	0	26.362	-6215.3
48719	242.99	0	0	26.362	-6215.3
48720	243.05	0	0	26.362	-6215.3
48721	243.08	0	0	26.362	-6215.3
48722	242.99	0	0	26.362	-6215.3
48723	243.05	0	0	26.362	-6215.3
48724	243.09	0	0	26.362	-6215.3
48725	242.81	0	0	26.362	-6215.3
48726	243.01	0	0	26.362	-6215.3
48727	242.98	0	0	26.362	-6215.3
48728	243.1	0	0	26.362	-6215.3
48729	242.83	0	0	26.362	-6215.3
48730	243.02	0	0	26.362	-6215.3
48731	242.92	0	0	26.362	-6215.3
48732	243.2	0	0	26.362	-6215.3
48733	242.99	0	0	26.362	-6215.3
48734	243.12	0	0	26.362	-6215.3
48735	243.12	0	0	26.362	-6215.3
48736	243.16	0	0	26.362	-6215.3
48737	243.07	0	0	26.362	-6215.3

48738	242.98	0	0	26.362	-6215.3
48739	243.16	0	0	26.362	-6215.3
48740	243.14	0	0	26.362	-6215.3
48741	243.3	0	0	26.362	-6215.3
48742	242.84	0	0	26.362	-6215.3
48743	243.12	0	0	26.362	-6215.3
48744	243.25	0	0	26.362	-6215.3
48745	243.09	0	0	26.362	-6215.3
48746	243.08	0	0	26.362	-6215.3
48747	243.1	0	0	26.362	-6215.3
48748	243.05	0	0	26.362	-6215.3
48749	243.11	0	0	26.362	-6215.3
48750	243.09	0	0	26.362	-6215.3
48751	243.04	0	0	26.362	-6215.3
48752	243.02	0	0	26.362	-6215.3
48753	243	0	0	26.362	-6215.3
48754	243.17	0	0	26.362	-6215.3
48755	243.15	0	0	26.362	-6215.3
48756	242.89	0	0	26.362	-6215.3
48757	243.08	0	0	26.362	-6215.3
48758	243.05	0	0	26.362	-6215.3
48759	243.15	0	0	26.362	-6215.3
48760	242.95	0	0	26.362	-6215.3
48761	243.14	0	0	26.362	-6215.3
48762	243.2	0	0	26.362	-6215.3
48763	243.15	0	0	26.362	-6215.3
48764	243.02	0	0	26.362	-6215.3
48765	243.06	0	0	26.362	-6215.3
48766	242.86	0	0	26.362	-6215.3
48767	243.07	0	0	26.362	-6215.3
48768	243.13	0	0	26.362	-6215.3
48769	243.02	0	0	26.362	-6215.3
48770	243.08	0	0	26.362	-6215.3
48771	243.1	0	0	26.362	-6215.3
48772	243.07	0	0	26.362	-6215.3
48773	243.06	0	0	26.362	-6215.3
48774	243.1	0	0	26.362	-6215.3
48775	243.05	0	0	26.362	-6215.3
48776	243.2	0	0	26.362	-6215.3
48777	243.09	0	0	26.362	-6215.3
48778	243.21	0	0	26.362	-6215.3
48779	243.21	0	0	26.362	-6215.3
48780	243.16	0	0	26.362	-6215.3
48781	243.18	0	0	26.362	-6215.3
48782	243.22	0	0	26.362	-6215.3
48783	243.25	0	0	26.362	-6215.3
48784	243.25	0	0	26.362	-6215.3

48785	243.33	0	0	26.362	-6215.3
48786	243.29	0	0	26.362	-6215.3
48787	243.23	0	0	26.362	-6215.3
48788	243.22	0	0	26.362	-6215.3
48789	243.38	0	0	26.362	-6215.3
48790	243.26	0	0	26.362	-6215.3
48791	243.31	0	0	26.362	-6215.3
48792	243.32	0	0	26.362	-6215.3
48793	243.23	0	0	26.362	-6215.3
48794	243.22	0	0	26.362	-6215.3
48795	243.31	0	0	26.362	-6215.3
48796	243.29	0	0	26.362	-6215.3
48797	243.3	0	0	26.362	-6215.3
48798	243.27	0	0	26.362	-6215.3
48799	243.32	0	0	26.362	-6215.3
48800	243.06	0	0	26.362	-6215.3
48801	243.33	0	0	26.362	-6215.3
48802	243.22	0	0	26.362	-6215.3
48803	243.33	0	0	26.362	-6215.3
48804	242.56	0	0	26.362	-6215.3
48805	242.85	0	0	26.362	-6215.3
48806	243.17	0	0	26.362	-6215.3
48807	243.22	0	0	26.362	-6215.3
48808	243.13	0	0	26.362	-6215.3
48809	243.19	0	0	26.362	-6215.3
48810	243.16	0	0	26.362	-6215.3
48811	243.24	0	0	26.362	-6215.3
48812	243.19	0	0	26.362	-6215.3
48813	243.31	0	0	26.362	-6215.3
48814	243.33	0	0	26.362	-6215.3
48815	243.2	0	0	26.362	-6215.3
48816	243.18	0	0	26.362	-6215.3
48817	243.2	0	0	26.362	-6215.3
48818	243.19	0	0	26.362	-6215.3
48819	243.1	0	0	26.362	-6215.3
48820	243.1	0	0	26.362	-6215.3
48821	243.11	0	0	26.362	-6215.3
48822	242.99	0	0	26.362	-6215.3
48823	243.12	0	0	26.362	-6215.3
48824	243.13	0	0	26.362	-6215.3
48825	242.93	0	0	26.362	-6215.3
48826	243.14	0	0	26.362	-6215.3
48827	243.13	0	0	26.362	-6215.3
48828	243.25	0	0	26.362	-6215.3
48829	243.21	0	0	26.362	-6215.3
48830	243.23	0	0	26.362	-6215.3
48831	243.23	0	0	26.362	-6215.3

48832	243.16	0	0	26.362	-6215.3
48833	243.17	0	0	26.362	-6215.3
48834	243.17	0	0	26.362	-6215.3
48835	243.1	0	0	26.362	-6215.3
48836	243.21	0	0	26.362	-6215.3
48837	243.2	0	0	26.362	-6215.3
48838	243.2	0	0	26.362	-6215.3
48839	243.06	0	0	26.362	-6215.3
48840	243.22	0	0	26.362	-6215.3
48841	243.26	0	0	26.362	-6215.3
48842	243.07	0	0	26.362	-6215.3
48843	243.21	0	0	26.362	-6215.3
48844	243.25	0	0	26.362	-6215.3
48845	243.14	0	0	26.362	-6215.3
48846	243.17	0	0	26.362	-6215.3
48847	243.2	0	0	26.362	-6215.3
48848	243.14	0	0	26.362	-6215.3
48849	243.22	0	0	26.362	-6215.3
48850	243.23	0	0	26.362	-6215.3
48851	243.18	0	0	26.362	-6215.3
48852	243.08	0	0	26.362	-6215.3
48853	243.15	0	0	26.362	-6215.3
48854	243.19	0	0	26.362	-6215.3
48855	242.99	0	0	26.362	-6215.3
48856	243.11	0	0	26.362	-6215.3
48857	243.35	0	0	26.362	-6215.3
48858	243.02	0	0	26.362	-6215.3
48859	243.37	0	0	26.362	-6215.3
48860	243.47	0	0	26.362	-6215.3
48861	243.43	0	0	26.362	-6215.3
48862	243.24	0	0	26.362	-6215.3
48863	243.25	0	0	26.362	-6215.3
48864	243.38	0	0	26.362	-6215.3
48865	243.35	0	0	26.362	-6215.3
48866	243.17	0	0	26.362	-6215.3
48867	243.34	0	0	26.362	-6215.3
48868	243.58	0	0	26.362	-6215.3
48869	243.28	0	0	26.362	-6215.3
48870	243.17	0	0	26.362	-6215.3
48871	243.42	0	0	26.362	-6215.3
48872	243.43	0	0	26.362	-6215.3
48873	243.57	0	0	26.362	-6215.3
48874	243.37	0	0	26.362	-6215.3
48875	243.5	0	0	26.362	-6215.3
48876	243.49	0	0	26.362	-6215.3
48877	243.45	0	0	26.362	-6215.3
48878	243.66	0	0	26.362	-6215.3

48879	243.61	0	0	26.362	-6215.3
48880	243.57	0	0	26.362	-6215.3
48881	243.63	0	0	26.362	-6215.3
48882	243.55	0	0	26.362	-6215.3
48883	243.63	0	0	26.362	-6215.3
48884	243.64	0	0	26.362	-6215.3
48885	243.5	0	0	26.362	-6215.3
48886	243.53	0	0	26.362	-6215.3
48887	243.47	0	0	26.362	-6215.3
48888	243.52	0	0	26.362	-6215.3
48889	243.44	0	0	26.362	-6215.3
48890	243.46	0	0	26.362	-6215.3
48891	243.4	0	0	26.362	-6215.3
48892	243.24	0	0	26.362	-6215.3
48893	243.41	0	0	26.362	-6215.3
48894	243.38	0	0	26.362	-6215.3
48895	243.28	0	0	26.362	-6215.3
48896	243.39	0	0	26.362	-6215.3
48897	243.41	0	0	26.362	-6215.3
48898	243.42	0	0	26.362	-6215.3
48899	243.38	0	0	26.362	-6215.3
48900	243.35	0	0	26.362	-6215.3
48901	243.41	0	0	26.362	-6215.3
48902	243.39	0	0	26.362	-6215.3
48903	243.36	0	0	26.362	-6215.3
48904	243.34	0	0	26.362	-6215.3
48905	243.4	0	0	26.362	-6215.3
48906	243.44	0	0	26.362	-6215.3
48907	243.42	0	0	26.362	-6215.3
48908	243.43	0	0	26.362	-6215.3
48909	243.43	0	0	26.362	-6215.3
48910	243.39	0	0	26.362	-6215.3
48911	243.41	0	0	26.362	-6215.3
48912	243.35	0	0	26.362	-6215.3
48913	243.39	0	0	26.362	-6215.3
48914	243.3	0	0	26.362	-6215.3
48915	243.54	0	0	26.362	-6215.3
48916	243.57	0	0	26.362	-6215.3
48917	243.46	0	0	26.362	-6215.3
48918	243.5	0	0	26.362	-6215.3
48919	243.52	0	0	26.362	-6215.3
48920	243.54	0	0	26.362	-6215.3
48921	243.38	0	0	26.362	-6215.3
48922	243.45	0	0	26.362	-6215.3
48923	243.56	0	0	26.362	-6215.3
48924	243.5	0	0	26.362	-6215.3
48925	243.36	0	0	26.362	-6215.3

48926	243.39	0	0	26.362	-6215.3
48927	243.43	0	0	26.362	-6215.3
48928	243.36	0	0	26.362	-6215.3
48929	243.36	0	0	26.362	-6215.3
48930	243.43	0	0	26.362	-6215.3
48931	243.41	0	0	26.362	-6215.3
48932	243.08	0	0	26.362	-6215.3
48933	243.28	0	0	26.362	-6215.3
48934	243.13	0	0	26.362	-6215.3
48935	243.4	0	0	26.362	-6215.3
48936	243.31	0	0	26.362	-6215.3
48937	243.43	0	0	26.362	-6215.3
48938	243.31	0	0	26.362	-6215.3
48939	243.29	0	0	26.362	-6215.3
48940	243.08	0	0	26.362	-6215.3
48941	243.33	0	0	26.362	-6215.3
48942	243.32	0	0	26.362	-6215.3
48943	243.39	0	0	26.362	-6215.3
48944	243.18	0	0	26.362	-6215.3
48945	243.32	0	0	26.362	-6215.3
48946	243.23	0	0	26.362	-6215.3
48947	243.36	0	0	26.362	-6215.3
48948	243.26	0	0	26.362	-6215.3
48949	243.2	0	0	26.362	-6215.3
48950	243.02	0	0	26.362	-6215.3
48951	243.12	0	0	26.362	-6215.3
48952	243.16	0	0	26.362	-6215.3
48953	243.11	0	0	26.362	-6215.3
48954	243.17	0	0	26.362	-6215.3
48955	243.04	0	0	26.362	-6215.3
48956	243.24	0	0	26.362	-6215.3
48957	243.21	0	0	26.362	-6215.3
48958	243.04	0	0	26.362	-6215.3
48959	243.13	0	0	26.362	-6215.3
48960	243.12	0	0	26.362	-6215.3
48961	243.25	0	0	26.362	-6215.3
48962	243.25	0	0	26.362	-6215.3
48963	243.28	0	0	26.362	-6215.3
48964	243.33	0	0	26.362	-6215.3
48965	243.35	0	0	26.362	-6215.3
48966	243.13	0	0	26.362	-6215.3
48967	243.26	0	0	26.362	-6215.3
48968	243.3	0	0	26.362	-6215.3
48969	243.19	0	0	26.362	-6215.3
48970	243.21	0	0	26.362	-6215.3
48971	243.21	0	0	26.362	-6215.3
48972	243.18	0	0	26.362	-6215.3

48973	243.22	0	0	26.362	-6215.3
48974	243.13	0	0	26.362	-6215.3
48975	243.15	0	0	26.362	-6215.3
48976	242.92	0	0	26.362	-6215.3
48977	243.06	0	0	26.362	-6215.3
48978	243.05	0	0	26.362	-6215.3
48979	243.07	0	0	26.362	-6215.3
48980	243.06	0	0	26.362	-6215.3
48981	243.14	0	0	26.362	-6215.3
48982	243.04	0	0	26.362	-6215.3
48983	243.18	0	0	26.362	-6215.3
48984	243.1	0	0	26.362	-6215.3
48985	243.07	0	0	26.362	-6215.3
48986	243	0	0	26.362	-6215.3
48987	243.05	0	0	26.362	-6215.3
48988	243.08	0	0	26.362	-6215.3
48989	243.02	0	0	26.362	-6215.3
48990	243.06	0	0	26.362	-6215.3
48991	242.99	0	0	26.362	-6215.3
48992	242.98	0	0	26.362	-6215.3
48993	242.96	0	0	26.362	-6215.3
48994	243.02	0	0	26.362	-6215.3
48995	243	0	0	26.362	-6215.3
48996	243.09	0	0	26.362	-6215.3
48997	242.98	0	0	26.362	-6215.3
48998	243.01	0	0	26.362	-6215.3
48999	242.99	0	0	26.362	-6215.3
49000	242.89	0	0	26.362	-6215.3
49001	242.33	0	0	26.362	-6215.3
49002	242.34	0	0	26.362	-6215.3
49003	242.44	0	0	26.362	-6215.3
49004	242.39	0	0	26.362	-6215.3
49005	242.45	0	0	26.362	-6215.3
49006	242.3	0	0	26.362	-6215.3
49007	242.46	0	0	26.362	-6215.3
49008	242.39	0	0	26.362	-6215.3
49009	242.35	0	0	26.362	-6215.3
49010	242.48	0	0	26.362	-6215.3
49011	242.44	0	0	26.362	-6215.3
49012	242.38	0	0	26.362	-6215.3
49013	242.45	0	0	26.362	-6215.3
49014	242.5	0	0	26.362	-6215.3
49015	242.36	0	0	26.362	-6215.3
49016	242.38	0	0	26.362	-6215.3
49017	242.24	0	0	26.362	-6215.3
49018	242.36	0	0	26.362	-6215.3
49019	242.34	0	0	26.362	-6215.3

49020	242.39	0	0	26.362	-6215.3
49021	242.38	0	0	26.362	-6215.3
49022	242.44	0	0	26.362	-6215.3
49023	242.43	0	0	26.362	-6215.3
49024	242.41	0	0	26.362	-6215.3
49025	242.46	0	0	26.362	-6215.3
49026	242.44	0	0	26.362	-6215.3
49027	242.4	0	0	26.362	-6215.3
49028	242.4	0	0	26.362	-6215.3
49029	242.43	0	0	26.362	-6215.3
49030	242.43	0	0	26.362	-6215.3
49031	242.42	0	0	26.362	-6215.3
49032	242.44	0	0	26.362	-6215.3
49033	242.42	0	0	26.362	-6215.3
49034	242.43	0	0	26.362	-6215.3
49035	242.42	0	0	26.362	-6215.3
49036	242.41	0	0	26.362	-6215.3
49037	242.45	0	0	26.362	-6215.3
49038	242.4	0	0	26.362	-6215.3
49039	242.41	0	0	26.362	-6215.3
49040	242.22	0	0	26.362	-6215.3
49041	242.42	0	0	26.362	-6215.3
49042	242.36	0	0	26.362	-6215.3
49043	242.34	0	0	26.362	-6215.3
49044	242.21	0	0	26.362	-6215.3
49045	242.41	0	0	26.362	-6215.3
49046	242.45	0	0	26.362	-6215.3
49047	242.29	0	0	26.362	-6215.3
49048	242.43	0	0	26.362	-6215.3
49049	242.49	0	0	26.362	-6215.3
49050	242.35	0	0	26.362	-6215.3
49051	242.53	0	0	26.362	-6215.3
49052	242.36	0	0	26.362	-6215.3
49053	242.45	0	0	26.362	-6215.3
49054	242.57	0	0	26.362	-6215.3
49055	242.6	0	0	26.362	-6215.3
49056	242.55	0	0	26.362	-6215.3
49057	242.54	0	0	26.362	-6215.3
49058	242.56	0	0	26.362	-6215.3
49059	242.45	0	0	26.362	-6215.3
49060	242.53	0	0	26.362	-6215.3
49061	242.41	0	0	26.362	-6215.3
49062	242.47	0	0	26.362	-6215.3
49063	242.59	0	0	26.362	-6215.3
49064	242.3	0	0	26.362	-6215.3
49065	242.55	0	0	26.362	-6215.3
49066	242.52	0	0	26.362	-6215.3

49067	242.61	0	0	26.362	-6215.3
49068	242.53	0	0	26.362	-6215.3
49069	242.55	0	0	26.362	-6215.3
49070	242.5	0	0	26.362	-6215.3
49071	242.4	0	0	26.362	-6215.3
49072	242.63	0	0	26.362	-6215.3
49073	242.51	0	0	26.362	-6215.3
49074	242.47	0	0	26.362	-6215.3
49075	242.41	0	0	26.362	-6215.3
49076	242.65	0	0	26.362	-6215.3
49077	242.72	0	0	26.362	-6215.3
49078	242.6	0	0	26.362	-6215.3
49079	242.6	0	0	26.362	-6215.3
49080	242.72	0	0	26.362	-6215.3
49081	242.46	0	0	26.362	-6215.3
49082	242.64	0	0	26.362	-6215.3
49083	242.6	0	0	26.362	-6215.3
49084	242.56	0	0	26.362	-6215.3
49085	242.64	0	0	26.362	-6215.3
49086	242.54	0	0	26.362	-6215.3
49087	242.52	0	0	26.362	-6215.3
49088	242.67	0	0	26.362	-6215.3
49089	242.67	0	0	26.362	-6215.3
49090	242.61	0	0	26.362	-6215.3
49091	242.61	0	0	26.362	-6215.3
49092	242.7	0	0	26.362	-6215.3
49093	242.61	0	0	26.362	-6215.3
49094	242.52	0	0	26.362	-6215.3
49095	242.75	0	0	26.362	-6215.3
49096	242.74	0	0	26.362	-6215.3
49097	242.51	0	0	26.362	-6215.3
49098	242.54	0	0	26.362	-6215.3
49099	242.7	0	0	26.362	-6215.3
49100	242.57	0	0	26.362	-6215.3
49101	242.71	0	0	26.362	-6215.3
49102	242.53	0	0	26.362	-6215.3
49103	242.65	0	0	26.362	-6215.3
49104	242.58	0	0	26.362	-6215.3
49105	242.62	0	0	26.362	-6215.3
49106	242.66	0	0	26.362	-6215.3
49107	242.35	0	0	26.362	-6215.3
49108	242.54	0	0	26.362	-6215.3
49109	242.47	0	0	26.362	-6215.3
49110	242.51	0	0	26.362	-6215.3
49111	242.49	0	0	26.362	-6215.3
49112	242.45	0	0	26.362	-6215.3
49113	242.54	0	0	26.362	-6215.3

49114	242.66	0	0	26.362	-6215.3
49115	242.56	0	0	26.362	-6215.3
49116	242.53	0	0	26.362	-6215.3
49117	242.6	0	0	26.362	-6215.3
49118	242.46	0	0	26.362	-6215.3
49119	242.59	0	0	26.362	-6215.3
49120	242.62	0	0	26.362	-6215.3
49121	242.66	0	0	26.362	-6215.3
49122	242.55	0	0	26.362	-6215.3
49123	242.44	0	0	26.362	-6215.3
49124	242.45	0	0	26.362	-6215.3
49125	242.45	0	0	26.362	-6215.3
49126	242.44	0	0	26.362	-6215.3
49127	242.41	0	0	26.362	-6215.3
49128	242.63	0	0	26.362	-6215.3
49129	242.4	0	0	26.362	-6215.3
49130	242.46	0	0	26.362	-6215.3
49131	242.45	0	0	26.362	-6215.3
49132	242.46	0	0	26.362	-6215.3
49133	242.32	0	0	26.362	-6215.3
49134	242.33	0	0	26.362	-6215.3
49135	242.36	0	0	26.362	-6215.3
49136	242.21	0	0	26.362	-6215.3
49137	242.37	0	0	26.362	-6215.3
49138	242.33	0	0	26.362	-6215.3
49139	242.3	0	0	26.362	-6215.3
49140	242.44	0	0	26.362	-6215.3
49141	242.6	0	0	26.362	-6215.3
49142	242.54	0	0	26.362	-6215.3
49143	242.44	0	0	26.362	-6215.3
49144	242.52	0	0	26.362	-6215.3
49145	242.52	0	0	26.362	-6215.3
49146	242.46	0	0	26.362	-6215.3
49147	242.46	0	0	26.362	-6215.3
49148	242.53	0	0	26.362	-6215.3
49149	242.54	0	0	26.362	-6215.3
49150	242.5	0	0	26.362	-6215.3
49151	242.51	0	0	26.362	-6215.3
49152	242.56	0	0	26.362	-6215.3
49153	242.47	0	0	26.362	-6215.3
49154	242.53	0	0	26.362	-6215.3
49155	242.3	0	0	26.362	-6215.3
49156	242.5	0	0	26.362	-6215.3
49157	242.63	0	0	26.362	-6215.3
49158	242.49	0	0	26.362	-6215.3
49159	242.56	0	0	26.362	-6215.3
49160	242.64	0	0	26.362	-6215.3

49161	242.44	0	0	26.362	-6215.3
49162	242.48	0	0	26.362	-6215.3
49163	242.43	0	0	26.362	-6215.3
49164	242.49	0	0	26.362	-6215.3
49165	242.54	0	0	26.362	-6215.3
49166	242.4	0	0	26.362	-6215.3
49167	242.38	0	0	26.362	-6215.3
49168	242.51	0	0	26.362	-6215.3
49169	242.36	0	0	26.362	-6215.3
49170	242.39	0	0	26.362	-6215.3
49171	242.44	0	0	26.362	-6215.3
49172	242.35	0	0	26.362	-6215.3
49173	242.3	0	0	26.362	-6215.3
49174	242.23	0	0	26.362	-6215.3
49175	242.25	0	0	26.362	-6215.3
49176	242.24	0	0	26.362	-6215.3
49177	242.16	0	0	26.362	-6215.3
49178	242.29	0	0	26.362	-6215.3
49179	242.28	0	0	26.362	-6215.3
49180	242.24	0	0	26.362	-6215.3
49181	242.24	0	0	26.362	-6215.3
49182	242.3	0	0	26.362	-6215.3
49183	242.39	0	0	26.362	-6215.3
49184	242.37	0	0	26.362	-6215.3
49185	242.3	0	0	26.362	-6215.3
49186	242.3	0	0	26.362	-6215.3
49187	242.28	0	0	26.362	-6215.3
49188	242.26	0	0	26.362	-6215.3
49189	242.48	0	0	26.362	-6215.3
49190	242.3	0	0	26.362	-6215.3
49191	242.38	0	0	26.362	-6215.3
49192	242.46	0	0	26.362	-6215.3
49193	242.43	0	0	26.362	-6215.3
49194	242.43	0	0	26.362	-6215.3
49195	242.44	0	0	26.362	-6215.3
49196	242.31	0	0	26.362	-6215.3
49197	242.43	0	0	26.362	-6215.3
49198	242.37	0	0	26.362	-6215.3
49199	242.34	0	0	26.362	-6215.3
49200	242.37	0	0	26.362	-6215.3
49201	242.36	0	0	26.362	-6215.3
49202	242.41	0	0	26.362	-6215.3
49203	242.44	0	0	26.362	-6215.3
49204	242.53	0	0	26.362	-6215.3
49205	242.33	0	0	26.362	-6215.3
49206	242.24	0	0	26.362	-6215.3
49207	242.38	0	0	26.362	-6215.3

49208	242.4	0	0	26.362	-6215.3
49209	241.85	0	0	26.362	-6215.3
49210	242.35	0	0	26.362	-6215.3
49211	242.39	0	0	26.362	-6215.3
49212	242.47	0	0	26.362	-6215.3
49213	242.33	0	0	26.362	-6215.3
49214	242.28	0	0	26.362	-6215.3
49215	242.35	0	0	26.362	-6215.3
49216	242.39	0	0	26.362	-6215.3
49217	242.4	0	0	26.362	-6215.3
49218	242.16	0	0	26.362	-6215.3
49219	242.4	0	0	26.362	-6215.3
49220	242.38	0	0	26.362	-6215.3
49221	242.33	0	0	26.362	-6215.3
49222	242.43	0	0	26.362	-6215.3
49223	242.31	0	0	26.362	-6215.3
49224	242.45	0	0	26.362	-6215.3
49225	242.33	0	0	26.362	-6215.3
49226	242.33	0	0	26.362	-6215.3
49227	242.35	0	0	26.362	-6215.3
49228	242.4	0	0	26.362	-6215.3
49229	242.37	0	0	26.362	-6215.3
49230	242.33	0	0	26.362	-6215.3
49231	242.44	0	0	26.362	-6215.3
49232	242.5	0	0	26.362	-6215.3
49233	242.46	0	0	26.362	-6215.3
49234	242.56	0	0	26.362	-6215.3
49235	242.45	0	0	26.362	-6215.3
49236	242.63	0	0	26.362	-6215.3
49237	242.59	0	0	26.362	-6215.3
49238	242.59	0	0	26.362	-6215.3
49239	242.68	0	0	26.362	-6215.3
49240	242.58	0	0	26.362	-6215.3
49241	242.5	0	0	26.362	-6215.3
49242	242.5	0	0	26.362	-6215.3
49243	242.4	0	0	26.362	-6215.3
49244	242.65	0	0	26.362	-6215.3
49245	242.47	0	0	26.362	-6215.3
49246	242.58	0	0	26.362	-6215.3
49247	242.5	0	0	26.362	-6215.3
49248	242.47	0	0	26.362	-6215.3
49249	242.43	0	0	26.362	-6215.3
49250	242.49	0	0	26.362	-6215.3
49251	242.54	0	0	26.362	-6215.3
49252	242.57	0	0	26.362	-6215.3
49253	242.58	0	0	26.362	-6215.3
49254	242.64	0	0	26.362	-6215.3

49255	242.59	0	0	26.362	-6215.3
49256	242.52	0	0	26.362	-6215.3
49257	242.51	0	0	26.362	-6215.3
49258	242.45	0	0	26.362	-6215.3
49259	242.52	0	0	26.362	-6215.3
49260	242.61	0	0	26.362	-6215.3
49261	242.47	0	0	26.362	-6215.3
49262	242.52	0	0	26.362	-6215.3
49263	242.68	0	0	26.362	-6215.3
49264	242.66	0	0	26.362	-6215.3
49265	242.4	0	0	26.362	-6215.3
49266	242.49	0	0	26.362	-6215.3
49267	242.5	0	0	26.362	-6215.3
49268	242.46	0	0	26.362	-6215.3
49269	242.43	0	0	26.362	-6215.3
49270	242.44	0	0	26.362	-6215.3
49271	242.49	0	0	26.362	-6215.3
49272	242.53	0	0	26.362	-6215.3
49273	242.53	0	0	26.362	-6215.3
49274	242.51	0	0	26.362	-6215.3
49275	242.51	0	0	26.362	-6215.3
49276	242.56	0	0	26.362	-6215.3
49277	242.49	0	0	26.362	-6215.3
49278	242.48	0	0	26.362	-6215.3
49279	242.45	0	0	26.362	-6215.3
49280	242.57	0	0	26.362	-6215.3
49281	242.54	0	0	26.362	-6215.3
49282	242.56	0	0	26.362	-6215.3
49283	242.32	0	0	26.362	-6215.3
49284	242.47	0	0	26.362	-6215.3
49285	242.42	0	0	26.362	-6215.3
49286	242.46	0	0	26.362	-6215.3
49287	242.43	0	0	26.362	-6215.3
49288	242.45	0	0	26.362	-6215.3
49289	242.37	0	0	26.362	-6215.3
49290	242.39	0	0	26.362	-6215.3
49291	242.46	0	0	26.362	-6215.3
49292	242.43	0	0	26.362	-6215.3
49293	242.39	0	0	26.362	-6215.3
49294	241.37	0	0	26.362	-6215.3
49295	242.31	0	0	26.362	-6215.3
49296	242.32	0	0	26.362	-6215.3
49297	242.31	0	0	26.362	-6215.3
49298	242.33	0	0	26.362	-6215.3
49299	242.34	0	0	26.362	-6215.3
49300	242.32	0	0	26.362	-6215.3
49301	242.25	0	0	26.362	-6215.3

49302	242.29	0	0	26.362	-6215.3
49303	242.35	0	0	26.362	-6215.3
49304	242.31	0	0	26.362	-6215.3
49305	242.33	0	0	26.362	-6215.3
49306	242.27	0	0	26.362	-6215.3
49307	242.43	0	0	26.362	-6215.3
49308	242.03	0	0	26.362	-6215.3
49309	242.4	0	0	26.362	-6215.3
49310	242.33	0	0	26.362	-6215.3
49311	242.16	0	0	26.362	-6215.3
49312	242.19	0	0	26.362	-6215.3
49313	242.4	0	0	26.362	-6215.3
49314	242.34	0	0	26.362	-6215.3
49315	242.56	0	0	26.362	-6215.3
49316	242.56	0	0	26.362	-6215.3
49317	242.49	0	0	26.362	-6215.3
49318	242.54	0	0	26.362	-6215.3
49319	242.53	0	0	26.362	-6215.3
49320	242.39	0	0	26.362	-6215.3
49321	242.33	0	0	26.362	-6215.3
49322	242.55	0	0	26.362	-6215.3
49323	242.44	0	0	26.362	-6215.3
49324	242.5	0	0	26.362	-6215.3
49325	242.48	0	0	26.362	-6215.3
49326	242.48	0	0	26.362	-6215.3
49327	242.39	0	0	26.362	-6215.3
49328	242.45	0	0	26.362	-6215.3
49329	242.43	0	0	26.362	-6215.3
49330	242.42	0	0	26.362	-6215.3
49331	242.44	0	0	26.362	-6215.3
49332	242.43	0	0	26.362	-6215.3
49333	242.44	0	0	26.362	-6215.3
49334	242.39	0	0	26.362	-6215.3
49335	242.45	0	0	26.362	-6215.3
49336	242.48	0	0	26.362	-6215.3
49337	242.57	0	0	26.362	-6215.3
49338	242.53	0	0	26.362	-6215.3
49339	242.47	0	0	26.362	-6215.3
49340	242.5	0	0	26.362	-6215.3
49341	242.54	0	0	26.362	-6215.3
49342	242.68	0	0	26.362	-6215.3
49343	242.61	0	0	26.362	-6215.3
49344	242.61	0	0	26.362	-6215.3
49345	242.57	0	0	26.362	-6215.3
49346	242.71	0	0	26.362	-6215.3
49347	242.6	0	0	26.362	-6215.3
49348	242.66	0	0	26.362	-6215.3

49349	242.59	0	0	26.362	-6215.3
49350	242.67	0	0	26.362	-6215.3
49351	242.58	0	0	26.362	-6215.3
49352	242.68	0	0	26.362	-6215.3
49353	242.48	0	0	26.362	-6215.3
49354	242.49	0	0	26.362	-6215.3
49355	242.64	0	0	26.362	-6215.3
49356	242.67	0	0	26.362	-6215.3
49357	242.68	0	0	26.362	-6215.3
49358	242.73	0	0	26.362	-6215.3
49359	242.69	0	0	26.362	-6215.3
49360	242.57	0	0	26.362	-6215.3
49361	242.59	0	0	26.362	-6215.3
49362	242.42	0	0	26.362	-6215.3
49363	242.63	0	0	26.362	-6215.3
49364	242.59	0	0	26.362	-6215.3
49365	242.49	0	0	26.362	-6215.3
49366	242.57	0	0	26.362	-6215.3
49367	242.51	0	0	26.362	-6215.3
49368	242.58	0	0	26.362	-6215.3
49369	242.53	0	0	26.362	-6215.3
49370	242.86	0	0	26.362	-6215.3
49371	242.84	0	0	26.362	-6215.3
49372	242.9	0	0	26.362	-6215.3
49373	242.8	0	0	26.362	-6215.3
49374	242.85	0	0	26.362	-6215.3
49375	242.8	0	0	26.362	-6215.3
49376	242.82	0	0	26.362	-6215.3
49377	242.8	0	0	26.362	-6215.3
49378	242.78	0	0	26.362	-6215.3
49379	242.82	0	0	26.362	-6215.3
49380	242.78	0	0	26.362	-6215.3
49381	242.84	0	0	26.362	-6215.3
49382	242.73	0	0	26.362	-6215.3
49383	242.71	0	0	26.362	-6215.3
49384	242.59	0	0	26.362	-6215.3
49385	242.56	0	0	26.362	-6215.3
49386	242.63	0	0	26.362	-6215.3
49387	242.67	0	0	26.362	-6215.3
49388	242.7	0	0	26.362	-6215.3
49389	242.63	0	0	26.362	-6215.3
49390	242.61	0	0	26.362	-6215.3
49391	242.64	0	0	26.362	-6215.3
49392	242.65	0	0	26.362	-6215.3
49393	242.7	0	0	26.362	-6215.3
49394	242.64	0	0	26.362	-6215.3
49395	242.6	0	0	26.362	-6215.3

49396	242.66	0	0	26.362	-6215.3
49397	242.67	0	0	26.362	-6215.3
49398	242.62	0	0	26.362	-6215.3
49399	242.55	0	0	26.362	-6215.3
49400	242.6	0	0	26.362	-6215.3
49401	242.57	0	0	26.362	-6215.3
49402	242.74	0	0	26.362	-6215.3
49403	242.63	0	0	26.362	-6215.3
49404	242.6	0	0	26.362	-6215.3
49405	242.52	0	0	26.362	-6215.3
49406	242.57	0	0	26.362	-6215.3
49407	242.55	0	0	26.362	-6215.3
49408	242.63	0	0	26.362	-6215.3
49409	242.6	0	0	26.362	-6215.3
49410	242.71	0	0	26.362	-6215.3
49411	242.65	0	0	26.362	-6215.3
49412	242.68	0	0	26.362	-6215.3
49413	242.75	0	0	26.362	-6215.3
49414	242.68	0	0	26.362	-6215.3
49415	242.54	0	0	26.362	-6215.3
49416	242.5	0	0	26.362	-6215.3
49417	242.52	0	0	26.362	-6215.3
49418	242.55	0	0	26.362	-6215.3
49419	242.37	0	0	26.362	-6215.3
49420	242.45	0	0	26.362	-6215.3
49421	242.5	0	0	26.362	-6215.3
49422	242.57	0	0	26.362	-6215.3
49423	242.66	0	0	26.362	-6215.3
49424	242.53	0	0	26.362	-6215.3
49425	242.52	0	0	26.362	-6215.3
49426	242.54	0	0	26.362	-6215.3
49427	242.59	0	0	26.362	-6215.3
49428	242.59	0	0	26.362	-6215.3
49429	242.61	0	0	26.362	-6215.3
49430	242.69	0	0	26.362	-6215.3
49431	242.59	0	0	26.362	-6215.3
49432	242.66	0	0	26.362	-6215.3
49433	242.66	0	0	26.362	-6215.3
49434	242.47	0	0	26.362	-6215.3
49435	242.5	0	0	26.362	-6215.3
49436	242.65	0	0	26.362	-6215.3
49437	242.71	0	0	26.362	-6215.3
49438	242.67	0	0	26.362	-6215.3
49439	242.69	0	0	26.362	-6215.3
49440	242.66	0	0	26.362	-6215.3
49441	242.59	0	0	26.362	-6215.3
49442	242.66	0	0	26.362	-6215.3

49443	242.62	0	0	26.362	-6215.3
49444	242.74	0	0	26.362	-6215.3
49445	242.75	0	0	26.362	-6215.3
49446	242.76	0	0	26.362	-6215.3
49447	242.68	0	0	26.362	-6215.3
49448	242.71	0	0	26.362	-6215.3
49449	242.73	0	0	26.362	-6215.3
49450	242.7	0	0	26.362	-6215.3
49451	242.75	0	0	26.362	-6215.3
49452	242.81	0	0	26.362	-6215.3
49453	242.72	0	0	26.362	-6215.3
49454	242.78	0	0	26.362	-6215.3
49455	242.84	0	0	26.362	-6215.3
49456	242.68	0	0	26.362	-6215.3
49457	242.71	0	0	26.362	-6215.3
49458	242.69	0	0	26.362	-6215.3
49459	242.72	0	0	26.362	-6215.3
49460	242.73	0	0	26.362	-6215.3
49461	242.74	0	0	26.362	-6215.3
49462	242.76	0	0	26.362	-6215.3
49463	242.85	0	0	26.362	-6215.3
49464	242.78	0	0	26.362	-6215.3
49465	242.87	0	0	26.362	-6215.3
49466	242.67	0	0	26.362	-6215.3
49467	242.71	0	0	26.362	-6215.3
49468	242.76	0	0	26.362	-6215.3
49469	242.72	0	0	26.362	-6215.3
49470	242.73	0	0	26.362	-6215.3
49471	242.73	0	0	26.362	-6215.3
49472	242.68	0	0	26.362	-6215.3
49473	242.72	0	0	26.362	-6215.3
49474	242.59	0	0	26.362	-6215.3
49475	242.73	0	0	26.362	-6215.3
49476	242.71	0	0	26.362	-6215.3
49477	242.69	0	0	26.362	-6215.3
49478	242.73	0	0	26.362	-6215.3
49479	242.6	0	0	26.362	-6215.3
49480	242.71	0	0	26.362	-6215.3
49481	242.74	0	0	26.362	-6215.3
49482	242.61	0	0	26.362	-6215.3
49483	242.56	0	0	26.362	-6215.3
49484	242.6	0	0	26.362	-6215.3
49485	242.55	0	0	26.362	-6215.3
49486	242.61	0	0	26.362	-6215.3
49487	242.61	0	0	26.362	-6215.3
49488	242.51	0	0	26.362	-6215.3
49489	242.52	0	0	26.362	-6215.3

49490	242.53	0	0	26.362	-6215.3
49491	242.56	0	0	26.362	-6215.3
49492	242.5	0	0	26.362	-6215.3
49493	242.48	0	0	26.362	-6215.3
49494	242.49	0	0	26.362	-6215.3
49495	242.47	0	0	26.362	-6215.3
49496	242.41	0	0	26.362	-6215.3
49497	242.42	0	0	26.362	-6215.3
49498	242.48	0	0	26.362	-6215.3
49499	242.43	0	0	26.362	-6215.3
49500	242.41	0	0	26.362	-6215.3
49501	242.41	0	0	26.362	-6215.3
49502	242.5	0	0	26.362	-6215.3
49503	242.38	0	0	26.362	-6215.3
49504	242.47	0	0	26.362	-6215.3
49505	242.42	0	0	26.362	-6215.3
49506	242.46	0	0	26.362	-6215.3
49507	242.4	0	0	26.362	-6215.3
49508	242.46	0	0	26.362	-6215.3
49509	242.44	0	0	26.362	-6215.3
49510	242.47	0	0	26.362	-6215.3
49511	242.53	0	0	26.362	-6215.3
49512	242.41	0	0	26.362	-6215.3
49513	242.34	0	0	26.362	-6215.3
49514	242.44	0	0	26.362	-6215.3
49515	242.41	0	0	26.362	-6215.3
49516	242.38	0	0	26.362	-6215.3
49517	242.38	0	0	26.362	-6215.3
49518	242.38	0	0	26.362	-6215.3
49519	242.44	0	0	26.362	-6215.3
49520	242.38	0	0	26.362	-6215.3
49521	242.37	0	0	26.362	-6215.3
49522	242.39	0	0	26.362	-6215.3
49523	242.37	0	0	26.362	-6215.3
49524	242.37	0	0	26.362	-6215.3
49525	242.35	0	0	26.362	-6215.3
49526	242.35	0	0	26.362	-6215.3
49527	242.35	0	0	26.362	-6215.3
49528	242.46	0	0	26.362	-6215.3
49529	242.3	0	0	26.362	-6215.3
49530	242.38	0	0	26.362	-6215.3
49531	242.38	0	0	26.362	-6215.3
49532	242.49	0	0	26.362	-6215.3
49533	242.43	0	0	26.362	-6215.3
49534	242.31	0	0	26.362	-6215.3
49535	242.34	0	0	26.362	-6215.3
49536	242.29	0	0	26.362	-6215.3

49537	242.39	0	0	26.362	-6215.3
49538	242.44	0	0	26.362	-6215.3
49539	242.36	0	0	26.362	-6215.3
49540	242.44	0	0	26.362	-6215.3
49541	242.49	0	0	26.362	-6215.3
49542	242.44	0	0	26.362	-6215.3
49543	242.48	0	0	26.362	-6215.3
49544	242.64	0	0	26.362	-6215.3
49545	242.65	0	0	26.362	-6215.3
49546	242.64	0	0	26.362	-6215.3
49547	242.76	0	0	26.362	-6215.3
49548	242.56	0	0	26.362	-6215.3
49549	242.64	0	0	26.362	-6215.3
49550	242.65	0	0	26.362	-6215.3
49551	242.56	0	0	26.362	-6215.3
49552	242.55	0	0	26.362	-6215.3
49553	242.85	0	0	26.362	-6215.3
49554	242.7	0	0	26.362	-6215.3
49555	242.82	0	0	26.362	-6215.3
49556	242.7	0	0	26.362	-6215.3
49557	242.64	0	0	26.362	-6215.3
49558	242.67	0	0	26.362	-6215.3
49559	242.71	0	0	26.362	-6215.3
49560	242.68	0	0	26.362	-6215.3
49561	242.73	0	0	26.362	-6215.3
49562	242.7	0	0	26.362	-6215.3
49563	242.64	0	0	26.362	-6215.3
49564	242.7	0	0	26.362	-6215.3
49565	242.77	0	0	26.362	-6215.3
49566	242.62	0	0	26.362	-6215.3
49567	242.79	0	0	26.362	-6215.3
49568	242.75	0	0	26.362	-6215.3
49569	242.79	0	0	26.362	-6215.3
49570	242.7	0	0	26.362	-6215.3
49571	242.7	0	0	26.362	-6215.3
49572	242.75	0	0	26.362	-6215.3
49573	242.79	0	0	26.362	-6215.3
49574	242.75	0	0	26.362	-6215.3
49575	242.62	0	0	26.362	-6215.3
49576	242.73	0	0	26.362	-6215.3
49577	242.66	0	0	26.362	-6215.3
49578	242.69	0	0	26.362	-6215.3
49579	242.64	0	0	26.362	-6215.3
49580	242.62	0	0	26.362	-6215.3
49581	242.7	0	0	26.362	-6215.3
49582	242.53	0	0	26.362	-6215.3
49583	242.58	0	0	26.362	-6215.3

49584	242.74	0	0	26.362	-6215.3
49585	242.71	0	0	26.362	-6215.3
49586	242.63	0	0	26.362	-6215.3
49587	242.74	0	0	26.362	-6215.3
49588	242.66	0	0	26.362	-6215.3
49589	242.75	0	0	26.362	-6215.3
49590	242.64	0	0	26.362	-6215.3
49591	242.56	0	0	26.362	-6215.3
49592	242.62	0	0	26.362	-6215.3
49593	242.63	0	0	26.362	-6215.3
49594	242.62	0	0	26.362	-6215.3
49595	242.64	0	0	26.362	-6215.3
49596	242.48	0	0	26.362	-6215.3
49597	242.65	0	0	26.362	-6215.3
49598	242.58	0	0	26.362	-6215.3
49599	242.7	0	0	26.362	-6215.3
49600	242.64	0	0	26.362	-6215.3
49601	242.56	0	0	26.362	-6215.3
49602	242.56	0	0	26.362	-6215.3
49603	242.52	0	0	26.362	-6215.3
49604	242.51	0	0	26.362	-6215.3
49605	242.55	0	0	26.362	-6215.3
49606	242.54	0	0	26.362	-6215.3
49607	242.63	0	0	26.362	-6215.3
49608	242.5	0	0	26.362	-6215.3
49609	242.48	0	0	26.362	-6215.3
49610	242.51	0	0	26.362	-6215.3
49611	242.56	0	0	26.362	-6215.3
49612	242.46	0	0	26.362	-6215.3
49613	242.59	0	0	26.362	-6215.3
49614	242.57	0	0	26.362	-6215.3
49615	242.46	0	0	26.362	-6215.3
49616	242.47	0	0	26.362	-6215.3
49617	242.56	0	0	26.362	-6215.3
49618	242.42	0	0	26.362	-6215.3
49619	242.63	0	0	26.362	-6215.3
49620	242.59	0	0	26.362	-6215.3
49621	242.62	0	0	26.362	-6215.3
49622	242.55	0	0	26.362	-6215.3
49623	242.47	0	0	26.362	-6215.3
49624	241.87	0	0	26.362	-6215.3
49625	242.33	0	0	26.362	-6215.3
49626	242.46	0	0	26.362	-6215.3
49627	242.43	0	0	26.362	-6215.3
49628	242.29	0	0	26.362	-6215.3
49629	242.5	0	0	26.362	-6215.3
49630	242.62	0	0	26.362	-6215.3

49631	242.46	0	0	26.362	-6215.3
49632	242.45	0	0	26.362	-6215.3
49633	242.55	0	0	26.362	-6215.3
49634	242.43	0	0	26.362	-6215.3
49635	242.49	0	0	26.362	-6215.3
49636	242.4	0	0	26.362	-6215.3
49637	242.4	0	0	26.362	-6215.3
49638	242.57	0	0	26.362	-6215.3
49639	242.42	0	0	26.362	-6215.3
49640	242.33	0	0	26.362	-6215.3
49641	242.48	0	0	26.362	-6215.3
49642	242.38	0	0	26.362	-6215.3
49643	242.39	0	0	26.362	-6215.3
49644	242.4	0	0	26.362	-6215.3
49645	242.32	0	0	26.362	-6215.3
49646	242.35	0	0	26.362	-6215.3
49647	242.35	0	0	26.362	-6215.3
49648	242.37	0	0	26.362	-6215.3
49649	242.33	0	0	26.362	-6215.3
49650	242.42	0	0	26.362	-6215.3
49651	242.39	0	0	26.362	-6215.3
49652	242.53	0	0	26.362	-6215.3
49653	242.51	0	0	26.362	-6215.3
49654	242.45	0	0	26.362	-6215.3
49655	242.51	0	0	26.362	-6215.3
49656	242.38	0	0	26.362	-6215.3
49657	242.37	0	0	26.362	-6215.3
49658	242.55	0	0	26.362	-6215.3
49659	242.52	0	0	26.362	-6215.3
49660	242.43	0	0	26.362	-6215.3
49661	242.51	0	0	26.362	-6215.3
49662	242.54	0	0	26.362	-6215.3
49663	242.53	0	0	26.362	-6215.3
49664	242.52	0	0	26.362	-6215.3
49665	242.53	0	0	26.362	-6215.3
49666	242.55	0	0	26.362	-6215.3
49667	242.54	0	0	26.362	-6215.3
49668	242.49	0	0	26.362	-6215.3
49669	242.48	0	0	26.362	-6215.3
49670	242.45	0	0	26.362	-6215.3
49671	242.49	0	0	26.362	-6215.3
49672	242.57	0	0	26.362	-6215.3
49673	242.48	0	0	26.362	-6215.3
49674	242.62	0	0	26.362	-6215.3
49675	242.67	0	0	26.362	-6215.3
49676	242.61	0	0	26.362	-6215.3
49677	242.62	0	0	26.362	-6215.3

49678	242.61	0	0	26.362	-6215.3
49679	242.59	0	0	26.362	-6215.3
49680	242.63	0	0	26.362	-6215.3
49681	242.57	0	0	26.362	-6215.3
49682	242.63	0	0	26.362	-6215.3
49683	242.65	0	0	26.362	-6215.3
49684	242.71	0	0	26.362	-6215.3
49685	242.59	0	0	26.362	-6215.3
49686	242.67	0	0	26.362	-6215.3
49687	242.55	0	0	26.362	-6215.3
49688	242.6	0	0	26.362	-6215.3
49689	242.64	0	0	26.362	-6215.3
49690	242.6	0	0	26.362	-6215.3
49691	242.71	0	0	26.362	-6215.3
49692	242.67	0	0	26.362	-6215.3
49693	242.64	0	0	26.362	-6215.3
49694	242.69	0	0	26.362	-6215.3
49695	242.58	0	0	26.362	-6215.3
49696	242.64	0	0	26.362	-6215.3
49697	242.7	0	0	26.362	-6215.3
49698	242.64	0	0	26.362	-6215.3
49699	242.64	0	0	26.362	-6215.3
49700	242.59	0	0	26.362	-6215.3
49701	242.69	0	0	26.362	-6215.3
49702	242.68	0	0	26.362	-6215.3
49703	242.68	0	0	26.362	-6215.3
49704	242.69	0	0	26.362	-6215.3
49705	242.63	0	0	26.362	-6215.3
49706	242.64	0	0	26.362	-6215.3
49707	242.65	0	0	26.362	-6215.3
49708	242.65	0	0	26.362	-6215.3
49709	242.61	0	0	26.362	-6215.3
49710	242.58	0	0	26.362	-6215.3
49711	242.67	0	0	26.362	-6215.3
49712	242.68	0	0	26.362	-6215.3
49713	242.72	0	0	26.362	-6215.3
49714	242.69	0	0	26.362	-6215.3
49715	242.74	0	0	26.362	-6215.3
49716	242.7	0	0	26.362	-6215.3
49717	242.63	0	0	26.362	-6215.3
49718	242.65	0	0	26.362	-6215.3
49719	242.66	0	0	26.362	-6215.3
49720	242.7	0	0	26.362	-6215.3
49721	242.73	0	0	26.362	-6215.3
49722	242.65	0	0	26.362	-6215.3
49723	242.68	0	0	26.362	-6215.3
49724	242.71	0	0	26.362	-6215.3

49725	242.68	0	0	26.362	-6215.3
49726	242.7	0	0	26.362	-6215.3
49727	242.68	0	0	26.362	-6215.3
49728	242.63	0	0	26.362	-6215.3
49729	242.67	0	0	26.362	-6215.3
49730	242.67	0	0	26.362	-6215.3
49731	242.65	0	0	26.362	-6215.3
49732	242.68	0	0	26.362	-6215.3
49733	242.68	0	0	26.362	-6215.3
49734	242.7	0	0	26.362	-6215.3
49735	242.7	0	0	26.362	-6215.3
49736	242.73	0	0	26.362	-6215.3
49737	242.65	0	0	26.362	-6215.3
49738	242.69	0	0	26.362	-6215.3
49739	242.69	0	0	26.362	-6215.3
49740	242.54	0	0	26.362	-6215.3
49741	242.54	0	0	26.362	-6215.3
49742	242.63	0	0	26.362	-6215.3
49743	242.62	0	0	26.362	-6215.3
49744	242.73	0	0	26.362	-6215.3
49745	242.61	0	0	26.362	-6215.3
49746	242.64	0	0	26.362	-6215.3
49747	242.51	0	0	26.362	-6215.3
49748	242.59	0	0	26.362	-6215.3
49749	242.59	0	0	26.362	-6215.3
49750	242.56	0	0	26.362	-6215.3
49751	242.59	0	0	26.362	-6215.3
49752	242.45	0	0	26.362	-6215.3
49753	242.47	0	0	26.362	-6215.3
49754	242.65	0	0	26.362	-6215.3
49755	242.57	0	0	26.362	-6215.3
49756	242.67	0	0	26.362	-6215.3
49757	242.62	0	0	26.362	-6215.3
49758	242.62	0	0	26.362	-6215.3
49759	242.61	0	0	26.362	-6215.3
49760	242.55	0	0	26.362	-6215.3
49761	242.7	0	0	26.362	-6215.3
49762	242.62	0	0	26.362	-6215.3
49763	242.54	0	0	26.362	-6215.3
49764	242.59	0	0	26.362	-6215.3
49765	242.64	0	0	26.362	-6215.3
49766	242.49	0	0	26.362	-6215.3
49767	242.56	0	0	26.362	-6215.3
49768	242.68	0	0	26.362	-6215.3
49769	242.48	0	0	26.362	-6215.3
49770	242.39	0	0	26.362	-6215.3
49771	242.62	0	0	26.362	-6215.3

49772	242.44	0	0	26.362	-6215.3
49773	242.49	0	0	26.362	-6215.3
49774	242.45	0	0	26.362	-6215.3
49775	242.54	0	0	26.362	-6215.3
49776	242.55	0	0	26.362	-6215.3
49777	242.58	0	0	26.362	-6215.3
49778	242.62	0	0	26.362	-6215.3
49779	242.64	0	0	26.362	-6215.3
49780	242.67	0	0	26.362	-6215.3
49781	242.64	0	0	26.362	-6215.3
49782	242.61	0	0	26.362	-6215.3
49783	242.63	0	0	26.362	-6215.3
49784	242.64	0	0	26.362	-6215.3
49785	242.62	0	0	26.362	-6215.3
49786	242.69	0	0	26.362	-6215.3
49787	242.78	0	0	26.362	-6215.3
49788	242.68	0	0	26.362	-6215.3
49789	242.64	0	0	26.362	-6215.3
49790	242.7	0	0	26.362	-6215.3
49791	242.72	0	0	26.362	-6215.3
49792	242.66	0	0	26.362	-6215.3
49793	242.73	0	0	26.362	-6215.3
49794	242.97	0	0	26.362	-6215.3
49795	242.99	0	0	26.362	-6215.3
49796	242.96	0	0	26.362	-6215.3
49797	243.01	0	0	26.362	-6215.3
49798	242.97	0	0	26.362	-6215.3
49799	242.97	0	0	26.362	-6215.3
49800	242.89	0	0	26.362	-6215.3
49801	242.94	0	0	26.362	-6215.3
49802	242.98	0	0	26.362	-6215.3
49803	243.03	0	0	26.362	-6215.3
49804	243.04	0	0	26.362	-6215.3
49805	243.01	0	0	26.362	-6215.3
49806	243.04	0	0	26.362	-6215.3
49807	242.94	0	0	26.362	-6215.3
49808	242.94	0	0	26.362	-6215.3
49809	242.86	0	0	26.362	-6215.3
49810	242.78	0	0	26.362	-6215.3
49811	242.8	0	0	26.362	-6215.3
49812	242.84	0	0	26.362	-6215.3
49813	242.89	0	0	26.362	-6215.3
49814	242.9	0	0	26.362	-6215.3
49815	242.83	0	0	26.362	-6215.3
49816	242.81	0	0	26.362	-6215.3
49817	242.83	0	0	26.362	-6215.3
49818	242.85	0	0	26.362	-6215.3

49819	242.88	0	0	26.362	-6215.3
49820	242.75	0	0	26.362	-6215.3
49821	242.87	0	0	26.362	-6215.3
49822	242.92	0	0	26.362	-6215.3
49823	242.96	0	0	26.362	-6215.3
49824	242.89	0	0	26.362	-6215.3
49825	242.84	0	0	26.362	-6215.3
49826	242.92	0	0	26.362	-6215.3
49827	242.81	0	0	26.362	-6215.3
49828	242.86	0	0	26.362	-6215.3
49829	242.81	0	0	26.362	-6215.3
49830	242.83	0	0	26.362	-6215.3
49831	242.9	0	0	26.362	-6215.3
49832	242.86	0	0	26.362	-6215.3
49833	242.86	0	0	26.362	-6215.3
49834	242.84	0	0	26.362	-6215.3
49835	242.82	0	0	26.362	-6215.3
49836	242.77	0	0	26.362	-6215.3
49837	242.9	0	0	26.362	-6215.3
49838	242.84	0	0	26.362	-6215.3
49839	242.89	0	0	26.362	-6215.3
49840	242.94	0	0	26.362	-6215.3
49841	242.87	0	0	26.362	-6215.3
49842	242.95	0	0	26.362	-6215.3
49843	242.95	0	0	26.362	-6215.3
49844	242.95	0	0	26.362	-6215.3
49845	243.01	0	0	26.362	-6215.3
49846	242.93	0	0	26.362	-6215.3
49847	242.82	0	0	26.362	-6215.3
49848	242.82	0	0	26.362	-6215.3
49849	242.81	0	0	26.362	-6215.3
49850	242.74	0	0	26.362	-6215.3
49851	242.86	0	0	26.362	-6215.3
49852	242.82	0	0	26.362	-6215.3
49853	242.81	0	0	26.362	-6215.3
49854	242.83	0	0	26.362	-6215.3
49855	242.84	0	0	26.362	-6215.3
49856	242.83	0	0	26.362	-6215.3
49857	242.87	0	0	26.362	-6215.3
49858	242.82	0	0	26.362	-6215.3
49859	242.8	0	0	26.362	-6215.3
49860	242.85	0	0	26.362	-6215.3
49861	242.88	0	0	26.362	-6215.3
49862	242.92	0	0	26.362	-6215.3
49863	243	0	0	26.362	-6215.3
49864	242.94	0	0	26.362	-6215.3
49865	242.96	0	0	26.362	-6215.3

49866	243.08	0	0	26.362	-6215.3
49867	243.09	0	0	26.362	-6215.3
49868	243.05	0	0	26.362	-6215.3
49869	243.13	0	0	26.362	-6215.3
49870	243.08	0	0	26.362	-6215.3
49871	243.08	0	0	26.362	-6215.3
49872	242.98	0	0	26.362	-6215.3
49873	242.86	0	0	26.362	-6215.3
49874	242.97	0	0	26.362	-6215.3
49875	242.92	0	0	26.362	-6215.3
49876	242.85	0	0	26.362	-6215.3
49877	242.91	0	0	26.362	-6215.3
49878	242.87	0	0	26.362	-6215.3
49879	242.81	0	0	26.362	-6215.3
49880	242.92	0	0	26.362	-6215.3
49881	242.99	0	0	26.362	-6215.3
49882	242.96	0	0	26.362	-6215.3
49883	242.97	0	0	26.362	-6215.3
49884	242.97	0	0	26.362	-6215.3
49885	243	0	0	26.362	-6215.3
49886	242.93	0	0	26.362	-6215.3
49887	242.96	0	0	26.362	-6215.3
49888	242.97	0	0	26.362	-6215.3
49889	242.97	0	0	26.362	-6215.3
49890	242.96	0	0	26.362	-6215.3
49891	242.99	0	0	26.362	-6215.3
49892	242.99	0	0	26.362	-6215.3
49893	243.01	0	0	26.362	-6215.3
49894	243	0	0	26.362	-6215.3
49895	242.97	0	0	26.362	-6215.3
49896	242.94	0	0	26.362	-6215.3
49897	242.95	0	0	26.362	-6215.3
49898	242.99	0	0	26.362	-6215.3
49899	242.9	0	0	26.362	-6215.3
49900	242.85	0	0	26.362	-6215.3
49901	242.92	0	0	26.362	-6215.3
49902	243	0	0	26.362	-6215.3
49903	242.95	0	0	26.362	-6215.3
49904	242.93	0	0	26.362	-6215.3
49905	242.94	0	0	26.362	-6215.3
49906	242.94	0	0	26.362	-6215.3
49907	242.91	0	0	26.362	-6215.3
49908	242.96	0	0	26.362	-6215.3
49909	242.93	0	0	26.362	-6215.3
49910	242.91	0	0	26.362	-6215.3
49911	242.94	0	0	26.362	-6215.3
49912	242.9	0	0	26.362	-6215.3

49913	242.91	0	0	26.362	-6215.3
49914	242.91	0	0	26.362	-6215.3
49915	242.85	0	0	26.362	-6215.3
49916	242.84	0	0	26.362	-6215.3
49917	242.74	0	0	26.362	-6215.3
49918	242.78	0	0	26.362	-6215.3
49919	242.77	0	0	26.362	-6215.3
49920	242.83	0	0	26.362	-6215.3
49921	242.74	0	0	26.362	-6215.3
49922	242.77	0	0	26.362	-6215.3
49923	242.84	0	0	26.362	-6215.3
49924	242.87	0	0	26.362	-6215.3
49925	242.88	0	0	26.362	-6215.3
49926	242.91	0	0	26.362	-6215.3
49927	242.8	0	0	26.362	-6215.3
49928	242.88	0	0	26.362	-6215.3
49929	242.84	0	0	26.362	-6215.3
49930	242.85	0	0	26.362	-6215.3
49931	242.8	0	0	26.362	-6215.3
49932	242.77	0	0	26.362	-6215.3
49933	242.69	0	0	26.362	-6215.3
49934	242.79	0	0	26.362	-6215.3
49935	242.79	0	0	26.362	-6215.3
49936	242.79	0	0	26.362	-6215.3
49937	242.82	0	0	26.362	-6215.3
49938	242.7	0	0	26.362	-6215.3
49939	242.73	0	0	26.362	-6215.3
49940	242.77	0	0	26.362	-6215.3
49941	242.77	0	0	26.362	-6215.3
49942	242.79	0	0	26.362	-6215.3
49943	242.78	0	0	26.362	-6215.3
49944	242.78	0	0	26.362	-6215.3
49945	242.78	0	0	26.362	-6215.3
49946	242.65	0	0	26.362	-6215.3
49947	242.62	0	0	26.362	-6215.3
49948	242.69	0	0	26.362	-6215.3
49949	242.72	0	0	26.362	-6215.3
49950	242.71	0	0	26.362	-6215.3
49951	242.6	0	0	26.362	-6215.3
49952	242.56	0	0	26.362	-6215.3
49953	242.45	0	0	26.362	-6215.3
49954	242.66	0	0	26.362	-6215.3
49955	242.57	0	0	26.362	-6215.3
49956	242.66	0	0	26.362	-6215.3
49957	242.56	0	0	26.362	-6215.3
49958	242.64	0	0	26.362	-6215.3
49959	242.56	0	0	26.362	-6215.3

49960	242.51	0	0	26.362	-6215.3
49961	242.25	0	0	26.362	-6215.3
49962	242.44	0	0	26.362	-6215.3
49963	242.43	0	0	26.362	-6215.3
49964	242.46	0	0	26.362	-6215.3
49965	242.37	0	0	26.362	-6215.3
49966	242.63	0	0	26.362	-6215.3
49967	242.44	0	0	26.362	-6215.3
49968	242.46	0	0	26.362	-6215.3
49969	242.45	0	0	26.362	-6215.3
49970	242.34	0	0	26.362	-6215.3
49971	242.56	0	0	26.362	-6215.3
49972	242.48	0	0	26.362	-6215.3
49973	242.42	0	0	26.362	-6215.3
49974	242.38	0	0	26.362	-6215.3
49975	242.52	0	0	26.362	-6215.3
49976	242.43	0	0	26.362	-6215.3
49977	242.53	0	0	26.362	-6215.3
49978	242.32	0	0	26.362	-6215.3
49979	242.41	0	0	26.362	-6215.3
49980	242.38	0	0	26.362	-6215.3
49981	242.36	0	0	26.362	-6215.3
49982	242.32	0	0	26.362	-6215.3
49983	242.28	0	0	26.362	-6215.3
49984	242.43	0	0	26.362	-6215.3
49985	242.4	0	0	26.362	-6215.3
49986	242.39	0	0	26.362	-6215.3
49987	242.42	0	0	26.362	-6215.3
49988	242.32	0	0	26.362	-6215.3
49989	242.48	0	0	26.362	-6215.3
49990	242.27	0	0	26.362	-6215.3
49991	242.52	0	0	26.362	-6215.3
49992	242.44	0	0	26.362	-6215.3
49993	242.47	0	0	26.362	-6215.3
49994	242.43	0	0	26.362	-6215.3
49995	242.37	0	0	26.362	-6215.3
49996	242.33	0	0	26.362	-6215.3
49997	242.35	0	0	26.362	-6215.3
49998	242.24	0	0	26.362	-6215.3
49999	242.22	0	0	26.362	-6215.3
50000	242.29	0	0	26.362	-6215.3
50001	242.26	0	0	26.362	-6215.3
50002	242.31	0	0	26.362	-6215.3
50003	242.17	0	0	26.362	-6215.3
50004	242.35	0	0	26.362	-6215.3
50005	242.38	0	0	26.362	-6215.3
50006	242.31	0	0	26.362	-6215.3

50007	242.42	0	0	26.362	-6215.3
50008	242.34	0	0	26.362	-6215.3
50009	242.34	0	0	26.362	-6215.3
50010	242.21	0	0	26.362	-6215.3
50011	242.23	0	0	26.362	-6215.3
50012	242.4	0	0	26.362	-6215.3
50013	242.26	0	0	26.362	-6215.3
50014	242.26	0	0	26.362	-6215.3
50015	242.37	0	0	26.362	-6215.3
50016	242.18	0	0	26.362	-6215.3
50017	242.3	0	0	26.362	-6215.3
50018	242.15	0	0	26.362	-6215.3
50019	242.13	0	0	26.362	-6215.3
50020	242.25	0	0	26.362	-6215.3
50021	242.22	0	0	26.362	-6215.3
50022	242.2	0	0	26.362	-6215.3
50023	242.19	0	0	26.362	-6215.3
50024	242.2	0	0	26.362	-6215.3
50025	242.29	0	0	26.362	-6215.3
50026	242.32	0	0	26.362	-6215.3
50027	242.3	0	0	26.362	-6215.3
50028	242.33	0	0	26.362	-6215.3
50029	242.31	0	0	26.362	-6215.3
50030	242.28	0	0	26.362	-6215.3
50031	242.41	0	0	26.362	-6215.3
50032	242.39	0	0	26.362	-6215.3
50033	242.29	0	0	26.362	-6215.3
50034	242.44	0	0	26.362	-6215.3
50035	242.38	0	0	26.362	-6215.3
50036	242.45	0	0	26.362	-6215.3
50037	242.38	0	0	26.362	-6215.3
50038	242.35	0	0	26.362	-6215.3
50039	242.46	0	0	26.362	-6215.3
50040	242.43	0	0	26.362	-6215.3
50041	242.52	0	0	26.362	-6215.3
50042	242.32	0	0	26.362	-6215.3
50043	241.59	0	0	26.362	-6215.3
50044	242.26	0	0	26.362	-6215.3
50045	242.4	0	0	26.362	-6215.3
50046	242.23	0	0	26.362	-6215.3
50047	242.27	0	0	26.362	-6215.3
50048	242.45	0	0	26.362	-6215.3
50049	242.32	0	0	26.362	-6215.3
50050	242.28	0	0	26.362	-6215.3
50051	242.3	0	0	26.362	-6215.3
50052	242.35	0	0	26.362	-6215.3
50053	242.23	0	0	26.362	-6215.3

50054	242.18	0	0	26.362	-6215.3
50055	242.12	0	0	26.362	-6215.3
50056	242.21	0	0	26.362	-6215.3
50057	242.35	0	0	26.362	-6215.3
50058	242.42	0	0	26.362	-6215.3
50059	242.24	0	0	26.362	-6215.3
50060	242.28	0	0	26.362	-6215.3
50061	242.22	0	0	26.362	-6215.3
50062	242.34	0	0	26.362	-6215.3
50063	242.25	0	0	26.362	-6215.3
50064	242.2	0	0	26.362	-6215.3
50065	242.29	0	0	26.362	-6215.3
50066	242.26	0	0	26.362	-6215.3
50067	241.98	0	0	26.362	-6215.3
50068	242.52	0	0	26.362	-6215.3
50069	242.38	0	0	26.362	-6215.3
50070	242.52	0	0	26.362	-6215.3
50071	242.36	0	0	26.362	-6215.3
50072	242.41	0	0	26.362	-6215.3
50073	242.48	0	0	26.362	-6215.3
50074	242.24	0	0	26.362	-6215.3
50075	242.3	0	0	26.362	-6215.3
50076	242.22	0	0	26.362	-6215.3
50077	242.23	0	0	26.362	-6215.3
50078	242.35	0	0	26.362	-6215.3
50079	242.4	0	0	26.362	-6215.3
50080	242.21	0	0	26.362	-6215.3
50081	242.24	0	0	26.362	-6215.3
50082	242.41	0	0	26.362	-6215.3
50083	242.32	0	0	26.362	-6215.3
50084	242.53	0	0	26.362	-6215.3
50085	242.54	0	0	26.362	-6215.3
50086	242.37	0	0	26.362	-6215.3
50087	242.46	0	0	26.362	-6215.3
50088	242.44	0	0	26.362	-6215.3
50089	242.44	0	0	26.362	-6215.3
50090	242.52	0	0	26.362	-6215.3
50091	242.6	0	0	26.362	-6215.3
50092	242.46	0	0	26.362	-6215.3
50093	242.46	0	0	26.362	-6215.3
50094	242.55	0	0	26.362	-6215.3
50095	242.45	0	0	26.362	-6215.3
50096	242.34	0	0	26.362	-6215.3
50097	242.59	0	0	26.362	-6215.3
50098	242.39	0	0	26.362	-6215.3
50099	242.45	0	0	26.362	-6215.3
50100	242.58	0	0	26.362	-6215.3

50101	242.35	0	0	26.362	-6215.3
50102	242.39	0	0	26.362	-6215.3
50103	242.62	0	0	26.362	-6215.3
50104	242.33	0	0	26.362	-6215.3
50105	242.3	0	0	26.362	-6215.3
50106	242.4	0	0	26.362	-6215.3
50107	242.3	0	0	26.362	-6215.3
50108	242.36	0	0	26.362	-6215.3
50109	242.48	0	0	26.362	-6215.3
50110	242.46	0	0	26.362	-6215.3
50111	242.41	0	0	26.362	-6215.3
50112	242.51	0	0	26.362	-6215.3
50113	242.44	0	0	26.362	-6215.3
50114	242.25	0	0	26.362	-6215.3
50115	242.46	0	0	26.362	-6215.3
50116	242.53	0	0	26.362	-6215.3
50117	242.36	0	0	26.362	-6215.3
50118	242.39	0	0	26.362	-6215.3
50119	242.3	0	0	26.362	-6215.3
50120	242.42	0	0	26.362	-6215.3
50121	242.51	0	0	26.362	-6215.3
50122	242.37	0	0	26.362	-6215.3
50123	242.38	0	0	26.362	-6215.3
50124	242.5	0	0	26.362	-6215.3
50125	242.47	0	0	26.362	-6215.3
50126	242.48	0	0	26.362	-6215.3
50127	242.43	0	0	26.362	-6215.3
50128	242.38	0	0	26.362	-6215.3
50129	242.5	0	0	26.362	-6215.3
50130	242.58	0	0	26.362	-6215.3
50131	242.56	0	0	26.362	-6215.3
50132	242.46	0	0	26.362	-6215.3
50133	242.32	0	0	26.362	-6215.3
50134	242.45	0	0	26.362	-6215.3
50135	242.39	0	0	26.362	-6215.3
50136	242.39	0	0	26.362	-6215.3
50137	242.4	0	0	26.362	-6215.3
50138	242.36	0	0	26.362	-6215.3
50139	242.45	0	0	26.362	-6215.3
50140	242.38	0	0	26.362	-6215.3
50141	242.47	0	0	26.362	-6215.3
50142	242.5	0	0	26.362	-6215.3
50143	242.37	0	0	26.362	-6215.3
50144	242.39	0	0	26.362	-6215.3
50145	242.55	0	0	26.362	-6215.3
50146	242.41	0	0	26.362	-6215.3
50147	242.47	0	0	26.362	-6215.3

50148	242.49	0	0	26.362	-6215.3
50149	242.43	0	0	26.362	-6215.3
50150	242.47	0	0	26.362	-6215.3
50151	242.37	0	0	26.362	-6215.3
50152	242.45	0	0	26.362	-6215.3
50153	242.44	0	0	26.362	-6215.3
50154	242.58	0	0	26.362	-6215.3
50155	242.65	0	0	26.362	-6215.3
50156	242.64	0	0	26.362	-6215.3
50157	242.56	0	0	26.362	-6215.3
50158	242.54	0	0	26.362	-6215.3
50159	242.46	0	0	26.362	-6215.3
50160	242.47	0	0	26.362	-6215.3
50161	242.29	0	0	26.362	-6215.3
50162	242.42	0	0	26.362	-6215.3
50163	242.29	0	0	26.362	-6215.3
50164	242.29	0	0	26.362	-6215.3
50165	242.85	0	0	26.362	-6215.3
50166	242.78	0	0	26.362	-6215.3
50167	242.16	0	0	26.362	-6215.3
50168	242.54	0	0	26.362	-6215.3
50169	242.56	0	0	26.362	-6215.3
50170	242.65	0	0	26.362	-6215.3
50171	242.63	0	0	26.362	-6215.3
50172	242.53	0	0	26.362	-6215.3
50173	242.65	0	0	26.362	-6215.3
50174	242.7	0	0	26.362	-6215.3
50175	242.45	0	0	26.362	-6215.3
50176	242.55	0	0	26.362	-6215.3
50177	242.35	0	0	26.362	-6215.3
50178	242.55	0	0	26.362	-6215.3
50179	242.52	0	0	26.362	-6215.3
50180	242.57	0	0	26.362	-6215.3
50181	242.47	0	0	26.362	-6215.3
50182	242.43	0	0	26.362	-6215.3
50183	242.49	0	0	26.362	-6215.3
50184	242.58	0	0	26.362	-6215.3
50185	242.57	0	0	26.362	-6215.3
50186	242.51	0	0	26.362	-6215.3
50187	242.4	0	0	26.362	-6215.3
50188	242.5	0	0	26.362	-6215.3
50189	242.55	0	0	26.362	-6215.3
50190	242.51	0	0	26.362	-6215.3
50191	242.4	0	0	26.362	-6215.3
50192	242.3	0	0	26.362	-6215.3
50193	242.4	0	0	26.362	-6215.3
50194	242.43	0	0	26.362	-6215.3

50195	242.47	0	0	26.362	-6215.3
50196	242.4	0	0	26.362	-6215.3
50197	242.45	0	0	26.362	-6215.3
50198	242.43	0	0	26.362	-6215.3
50199	242.52	0	0	26.362	-6215.3
50200	242.49	0	0	26.362	-6215.3
50201	242.32	0	0	26.362	-6215.3
50202	242.49	0	0	26.362	-6215.3
50203	242.5	0	0	26.362	-6215.3
50204	242.51	0	0	26.362	-6215.3
50205	242.43	0	0	26.362	-6215.3
50206	242.48	0	0	26.362	-6215.3
50207	242.43	0	0	26.362	-6215.3
50208	242.51	0	0	26.362	-6215.3
50209	242.55	0	0	26.362	-6215.3
50210	242.43	0	0	26.362	-6215.3
50211	242.59	0	0	26.362	-6215.3
50212	242.61	0	0	26.362	-6215.3
50213	242.49	0	0	26.362	-6215.3
50214	242.54	0	0	26.362	-6215.3
50215	242.45	0	0	26.362	-6215.3
50216	242.56	0	0	26.362	-6215.3
50217	242.44	0	0	26.362	-6215.3
50218	242.45	0	0	26.362	-6215.3
50219	242.47	0	0	26.362	-6215.3
50220	242.39	0	0	26.362	-6215.3
50221	242.37	0	0	26.362	-6215.3
50222	242.45	0	0	26.362	-6215.3
50223	242.47	0	0	26.362	-6215.3
50224	242.45	0	0	26.362	-6215.3
50225	242.49	0	0	26.362	-6215.3
50226	242.38	0	0	26.362	-6215.3
50227	242.48	0	0	26.362	-6215.3
50228	242.5	0	0	26.362	-6215.3
50229	242.37	0	0	26.362	-6215.3
50230	242.46	0	0	26.362	-6215.3
50231	242.55	0	0	26.362	-6215.3
50232	242.57	0	0	26.362	-6215.3
50233	242.49	0	0	26.362	-6215.3
50234	242.53	0	0	26.362	-6215.3
50235	242.5	0	0	26.362	-6215.3
50236	242.6	0	0	26.362	-6215.3
50237	242.45	0	0	26.362	-6215.3
50238	242.43	0	0	26.362	-6215.3
50239	242.55	0	0	26.362	-6215.3
50240	242.46	0	0	26.362	-6215.3
50241	242.52	0	0	26.362	-6215.3

50242	242.67	0	0	26.362	-6215.3
50243	242.48	0	0	26.362	-6215.3
50244	242.48	0	0	26.362	-6215.3
50245	242.6	0	0	26.362	-6215.3
50246	242.48	0	0	26.362	-6215.3
50247	242.52	0	0	26.362	-6215.3
50248	242.53	0	0	26.362	-6215.3
50249	242.52	0	0	26.362	-6215.3
50250	242.4	0	0	26.362	-6215.3
50251	242.47	0	0	26.362	-6215.3
50252	242.33	0	0	26.362	-6215.3
50253	242.5	0	0	26.362	-6215.3
50254	242.31	0	0	26.362	-6215.3
50255	242.35	0	0	26.362	-6215.3
50256	242.42	0	0	26.362	-6215.3
50257	242.36	0	0	26.362	-6215.3
50258	242.36	0	0	26.362	-6215.3
50259	242.39	0	0	26.362	-6215.3
50260	242.34	0	0	26.362	-6215.3
50261	242.42	0	0	26.362	-6215.3
50262	242.32	0	0	26.362	-6215.3
50263	242.54	0	0	26.362	-6215.3
50264	242.49	0	0	26.362	-6215.3
50265	242.46	0	0	26.362	-6215.3
50266	242.59	0	0	26.362	-6215.3
50267	242.33	0	0	26.362	-6215.3
50268	242.55	0	0	26.362	-6215.3
50269	242.54	0	0	26.362	-6215.3
50270	242.57	0	0	26.362	-6215.3
50271	242.37	0	0	26.362	-6215.3
50272	242.38	0	0	26.362	-6215.3
50273	242.47	0	0	26.362	-6215.3
50274	242.4	0	0	26.362	-6215.3
50275	242.44	0	0	26.362	-6215.3
50276	242.46	0	0	26.362	-6215.3
50277	242.49	0	0	26.362	-6215.3
50278	242.44	0	0	26.362	-6215.3
50279	242.4	0	0	26.362	-6215.3
50280	242.31	0	0	26.362	-6215.3
50281	242.28	0	0	26.362	-6215.3
50282	242.38	0	0	26.362	-6215.3
50283	242.44	0	0	26.362	-6215.3
50284	242.36	0	0	26.362	-6215.3
50285	242.36	0	0	26.362	-6215.3
50286	242.33	0	0	26.362	-6215.3
50287	242.34	0	0	26.362	-6215.3
50288	242.2	0	0	26.362	-6215.3

50289	242.47	0	0	26.362	-6215.3
50290	242.33	0	0	26.362	-6215.3
50291	242.41	0	0	26.362	-6215.3
50292	242.28	0	0	26.362	-6215.3
50293	242.25	0	0	26.362	-6215.3
50294	242.38	0	0	26.362	-6215.3
50295	242.53	0	0	26.362	-6215.3
50296	242.52	0	0	26.362	-6215.3
50297	242.54	0	0	26.362	-6215.3
50298	242.63	0	0	26.362	-6215.3
50299	242.58	0	0	26.362	-6215.3
50300	242.55	0	0	26.362	-6215.3
50301	242.65	0	0	26.362	-6215.3
50302	242.63	0	0	26.362	-6215.3
50303	242.65	0	0	26.362	-6215.3
50304	242.65	0	0	26.362	-6215.3
50305	242.62	0	0	26.362	-6215.3
50306	242.55	0	0	26.362	-6215.3
50307	242.48	0	0	26.362	-6215.3
50308	242.46	0	0	26.362	-6215.3
50309	242.6	0	0	26.362	-6215.3
50310	242.58	0	0	26.362	-6215.3
50311	242.66	0	0	26.362	-6215.3
50312	242.63	0	0	26.362	-6215.3
50313	242.68	0	0	26.362	-6215.3
50314	242.53	0	0	26.362	-6215.3
50315	242.65	0	0	26.362	-6215.3
50316	242.62	0	0	26.362	-6215.3
50317	242.58	0	0	26.362	-6215.3
50318	242.64	0	0	26.362	-6215.3
50319	242.67	0	0	26.362	-6215.3
50320	242.64	0	0	26.362	-6215.3
50321	242.53	0	0	26.362	-6215.3
50322	242.55	0	0	26.362	-6215.3
50323	242.58	0	0	26.362	-6215.3
50324	242.59	0	0	26.362	-6215.3
50325	242.48	0	0	26.362	-6215.3
50326	242.52	0	0	26.362	-6215.3
50327	242.53	0	0	26.362	-6215.3
50328	242.51	0	0	26.362	-6215.3
50329	242.39	0	0	26.362	-6215.3
50330	242.37	0	0	26.362	-6215.3
50331	242.41	0	0	26.362	-6215.3
50332	242.38	0	0	26.362	-6215.3
50333	242.41	0	0	26.362	-6215.3
50334	242.39	0	0	26.362	-6215.3
50335	242.25	0	0	26.362	-6215.3

50336	242.28	0	0	26.362	-6215.3
50337	242.28	0	0	26.362	-6215.3
50338	242.55	0	0	26.362	-6215.3
50339	242.64	0	0	26.362	-6215.3
50340	242.58	0	0	26.362	-6215.3
50341	242.57	0	0	26.362	-6215.3
50342	242.56	0	0	26.362	-6215.3
50343	242.56	0	0	26.362	-6215.3
50344	242.51	0	0	26.362	-6215.3
50345	242.5	0	0	26.362	-6215.3
50346	242.47	0	0	26.362	-6215.3
50347	242.44	0	0	26.362	-6215.3
50348	242.47	0	0	26.362	-6215.3
50349	242.46	0	0	26.362	-6215.3
50350	242.36	0	0	26.362	-6215.3
50351	242.52	0	0	26.362	-6215.3
50352	242.44	0	0	26.362	-6215.3
50353	242.49	0	0	26.362	-6215.3
50354	242.48	0	0	26.362	-6215.3
50355	242.5	0	0	26.362	-6215.3
50356	242.42	0	0	26.362	-6215.3
50357	242.45	0	0	26.362	-6215.3
50358	242.51	0	0	26.362	-6215.3
50359	242.47	0	0	26.362	-6215.3
50360	242.58	0	0	26.362	-6215.3
50361	242.48	0	0	26.362	-6215.3
50362	242.54	0	0	26.362	-6215.3
50363	242.52	0	0	26.362	-6215.3
50364	242.57	0	0	26.362	-6215.3
50365	242.45	0	0	26.362	-6215.3
50366	242.58	0	0	26.362	-6215.3
50367	242.52	0	0	26.362	-6215.3
50368	242.46	0	0	26.362	-6215.3
50369	242.51	0	0	26.362	-6215.3
50370	242.5	0	0	26.362	-6215.3
50371	242.54	0	0	26.362	-6215.3
50372	242.55	0	0	26.362	-6215.3
50373	242.49	0	0	26.362	-6215.3
50374	242.5	0	0	26.362	-6215.3
50375	242.52	0	0	26.362	-6215.3
50376	242.4	0	0	26.362	-6215.3
50377	242.41	0	0	26.362	-6215.3
50378	242.47	0	0	26.362	-6215.3
50379	242.53	0	0	26.362	-6215.3
50380	242.51	0	0	26.362	-6215.3
50381	242.45	0	0	26.362	-6215.3
50382	242.63	0	0	26.362	-6215.3

50383	242.57	0	0	26.362	-6215.3
50384	242.57	0	0	26.362	-6215.3
50385	242.57	0	0	26.362	-6215.3
50386	242.58	0	0	26.362	-6215.3
50387	242.53	0	0	26.362	-6215.3
50388	242.57	0	0	26.362	-6215.3
50389	242.49	0	0	26.362	-6215.3
50390	242.56	0	0	26.362	-6215.3
50391	242.6	0	0	26.362	-6215.3
50392	242.56	0	0	26.362	-6215.3
50393	242.54	0	0	26.362	-6215.3
50394	242.61	0	0	26.362	-6215.3
50395	242.63	0	0	26.362	-6215.3
50396	242.61	0	0	26.362	-6215.3
50397	242.59	0	0	26.362	-6215.3
50398	242.6	0	0	26.362	-6215.3
50399	242.62	0	0	26.362	-6215.3
50400	242.64	0	0	26.362	-6215.3
50401	242.7	0	0	26.362	-6215.3

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Wed 10/14/2015 4:43:21 PM
Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

I just sent it 3-4 minutes ago did you get it?

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Wednesday, October 14, 2015 12:42 PM
To: Snyder, Jim
Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Hi Jim, Have you seen any CD data yet?

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Wednesday, October 14, 2015 12:38 PM
To: Good, David
Cc: Thomas, Richard (EEO); Rodgers, William (EEO)

Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Dave, correct, the engine didn't turn on during the CD tests but I think it may come on during on-road driving if the load request is high enough.

Jim

From: Good, David
Sent: Wednesday, October 14, 2015 11:47 AM
To: Snyder, Jim
Cc: richard.thomas@vw.com
Subject: FW: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Jim,

When you tested the vehicle was it blended or non-blended?

My notes from an 11/20/2013 meeting indicate it was a parallel (blended) PHEV but the engine didn't come on during UDDS and Hwy testing.

[The label format is for a non-blended PHEV.]

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Friday, September 25, 2015 2:25 PM
To: Good, David
Cc: Snyder, Jim
Subject: Audi A3 e-tron ultra

Hi Dave;

As your requested, attached is a sample of the fuel economy label for the 2106 Audi A3 e-tron ultra. Please let me now if you have any concerns and that all the required data has been properly displayed. The factory has told me that it is a non-blended PHEV, I believe this point was already pointed out to EPA in an A3 e-tron presentation in early August.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Rodgers, William (EEO)
Sent: Wed 10/14/2015 4:44:40 PM
Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Just now got the electrical data thanks

Bill

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Wednesday, October 14, 2015 12:43 PM
To: Rodgers, William (EEO)
Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

I just sent it 3-4 minutes ago did you get it?

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Wednesday, October 14, 2015 12:42 PM
To: Snyder, Jim
Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Hi Jim, Have you seen any CD data yet?

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Wednesday, October 14, 2015 12:38 PM
To: Good, David
Cc: Thomas, Richard (EEO); Rodgers, William (EEO)
Subject: RE: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Dave, correct, the engine didn't turn on during the CD tests but I think it may come on during on-road driving if the load request is high enough.

Jim

From: Good, David
Sent: Wednesday, October 14, 2015 11:47 AM
To: Snyder, Jim
Cc: richard.thomas@vw.com
Subject: FW: Audi A3 e-tron ultra - Is it a blended or non-blended (parallel) PHEV?

Jim,

When you tested the vehicle was it blended or non-blended?

My notes from an 11/20/2013 meeting indicate it was a parallel (blended) PHEV but the engine didn't come on during UDDS and Hwy testing.

[The label format is for a non-blended PHEV.]

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Friday, September 25, 2015 2:25 PM
To: Good, David
Cc: Snyder, Jim
Subject: Audi A3 e-tron ultra

Hi Dave;

As your requested, attached is a sample of the fuel economy label for the 2106 Audi A3 e-tron ultra. Please let me now if you have any concerns and that all the required data has been properly displayed. The factory has told me that it is a non-blended PHEV, I believe this point was already pointed out to EPA in an A3 e-tron presentation in early August.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Grundler, Christopher[grundler.christopher@epa.gov]
From: Blubaugh, Jim
Sent: Wed 10/14/2015 4:54:11 PM
Subject: FW: Meeting request for German Member of Parliament, Mr. Hubertus Heil on October 21
Hubertus Heil Bio .pdf

Chris - your schedule is so busy next week that I recommend you not take this meeting. But, do you have any desire to meet with Mr. Heil? Let me know.

Jim

-----Original Message-----
From: Kasman, Mark
Sent: Tuesday, October 13, 2015 8:06 AM
To: Grundler, Christopher; Blubaugh, Jim
Cc: Phillips, Anna
Subject: FW: Meeting request for German Member of Parliament, Mr. Hubertus Heil on October 21

Chris/Jim,

The requests related to Volkswagen continue to come in. This particular request comes from a German Member of Parliament who long planned his mission here to promote trade with the U.S. Since he has a lot of Volkswagen employees in his district, it is now difficult for him to come to Washington without some sort of meeting related to Volkswagen. His request was not very specific. The German Embassy pressed him on this and he seems more interested in being able to say that he had a meeting than in addressing any specific issue related to the monitoring and testing.

If OTAQ decides to take this meeting, it would not have to be at a high level. I have explained that it might be difficult to schedule but that I would make the inquiry.

Mark

Mark S. Kasman
Director
Office of Regional and Bilateral Affairs Office of International and Tribal Affairs U.S. Environmental Protection Agency
1300 Pennsylvania Avenue, N.W. (2650R)
Washington, D.C. 20460
202-564-2024

-----Original Message-----
From: .WASH WI-11 Laskovski, Ulrike [mailto:wi-11@wash.auswaertiges-amt.de]
Sent: Monday, October 12, 2015 3:24 PM
To: Kasman, Mark
Subject: Meeting request for German Member of Parliament, Mr. Hubertus Heil on October 21

Dear Mark,

My colleague Michael Weber forwarded your email address to me. May I contact you today with another meeting request?

Mr. Hubertus Heil, Member of the German parliament and Deputy Chairman of the Social Democratic Party's (SPD) Parliamentary Group, will be in Washington next week. Responsible for Economic Affairs and Labour within the Parliamentary Group he is interested in exchanging thoughts about the latest developments regarding Volkswagen. Being the Representative of the district of Gifhorn - Peine an area close to Wolfsburg where many employees working for Volkswagen live, Mr. Heil's meeting request comes with a more "personal" approach.
While Mr. Heil is also very keen to know more about the EPA's plans to further improve monitoring standards and testing he's perfectly aware that in light of the ongoing investigation enforcement issues could only be discussed in a general way. However he would be delighted to raise this point as well.

Given his short time of visiting Washington DC a meeting preferably on October 21 would be best although there might be some flexibility regarding the next day (October 22).

Please find a short bio of Mr. Heil attached.

I am looking forward to hearing from you.

Thank you,

Ulrike

Ulrike Laskovski (Ms)
Head of Visitors' Desk (Economic Department)

Embassy of the Federal Republic of Germany
4645 Reservoir Road NW
Washington, DC 20007
Direct: (202) 298 4265
Mobil: (202) 413 0582
Fax: (202) 298 4286
Email: wi-11@wash.diplo.de

To: Blubaugh, Jim[Blubaugh.Jim@epa.gov]
From: Grundler, Christopher
Sent: Wed 10/14/2015 5:11:00 PM
Subject: Re: Meeting request for German Member of Parliament, Mr. Hubertus Heil on October 21

Send regrets

Sent from my iPhone

> On Oct 14, 2015, at 12:54 PM, Blubaugh, Jim <Blubaugh.Jim@epa.gov> wrote:
>
> Chris - your schedule is so busy next week that I recommend you not take this meeting. But, do you have any desire to meet with Mr. Heil? Let me know.
>
> Jim
>
>
> -----Original Message-----
> From: Kasman, Mark
> Sent: Tuesday, October 13, 2015 8:06 AM
> To: Grundler, Christopher; Blubaugh, Jim
> Cc: Phillips, Anna
> Subject: FW: Meeting request for German Member of Parliament, Mr. Hubertus Heil on October 21
>
> Chris/Jim,
>
> The requests related to Volkswagen continue to come in. This particular request comes from a German Member of Parliament who long planned his mission here to promote trade with the U.S. Since he has a lot of Volkswagen employees in his district, it is now difficult for him to come to Washington without some sort of meeting related to Volkswagen. His request was not very specific. The German Embassy pressed him on this and he seems more interested in being able to say that he had a meeting than in addressing any specific issue related to the monitoring and testing.
>
> If OTAQ decides to take this meeting, it would not have to be at a high level. I have explained that it might be difficult to schedule but that I would make the inquiry.
>
> Mark
>
>
> Mark S. Kasman
> Director
> Office of Regional and Bilateral Affairs Office of International and Tribal Affairs U.S. Environmental Protection Agency
> 1300 Pennsylvania Avenue, N.W. (2650R)
> Washington, D.C. 20460
> 202-564-2024
>
>
>
>
>
> -----Original Message-----
> From: .WASH WI-11 Laskovski, Ulrike [mailto:wi-11@wash.auswaertiges-amt.de]
> Sent: Monday, October 12, 2015 3:24 PM
> To: Kasman, Mark
> Subject: Meeting request for German Member of Parliament, Mr. Hubertus Heil on October 21

>
> Dear Mark,
>
> My colleague Michael Weber forwarded your email address to me. May I contact you today with another meeting request?
>
> Mr. Hubertus Heil, Member of the German parliament and Deputy Chairman of the Social Democratic Party's (SPD) Parliamentary Group, will be in Washington next week. Responsible for Economic Affairs and Labour within the Parliamentary Group he is interested in exchanging thoughts about the latest developments regarding Volkswagen. Being the Representative of the district of Gifhorn - Peine an area close to Wolfsburg where many employees working for Volkswagen live, Mr. Heil's meeting request comes with a more "personal" approach.
> While Mr. Heil is also very keen to know more about the EPA's plans to further improve monitoring standards and testing he's perfectly aware that in light of the ongoing investigation enforcement issues could only be discussed in a general way. However he would be delighted to raise this point as well.
>
> Given his short time of visiting Washington DC a meeting preferably on October 21 would be best although there might be some flexibility regarding the next day (October 22).
>
> Please find a short bio of Mr. Heil attached.
>
> I am looking forward to hearing from you.
>
> Thank you,
>
> Ulrike
>
> _____
> Ulrike Laskovski (Ms)
> Head of Visitors' Desk (Economic Department)
>
> Embassy of the Federal Republic of Germany
> 4645 Reservoir Road NW
> Washington, DC 20007
> Direct: (202) 298 4265
> Mobil: (202) 413 0582
> Fax: (202) 298 4286
> Email: wi-11@wash.diplo.de
>
>
>
> <Hubertus Heil Bio .pdf>

To: Allen, Laura[Allen.Laura@epa.gov]; Abrams, Dan[Abrams.Dan@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Senn, John[Senn.John@epa.gov]; Millett, John[Millett.John@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Hull, George[Hull.George@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Grantham, Nancy[Grantham.Nancy@epa.gov]; StClair, Christie[StClair.Christie@epa.gov]; Davis, Jay[Davis.Jay@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Brooks, Phillip[Brooks.Phillip@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Purchia, Liz[Purchia.Liz@epa.gov]
From: Gong, Kristiene
Sent: Wed 10/14/2015 5:26:15 PM
Subject: RE: Volkswagen Clips 10/14/2015

The Hill

http://thehill.com/policy/energy-environment/256900-volkswagen-could-have-new-emissions-control-problem

Volkswagen could have new emissions control problem

By Timothy Cama - 10/14/15 11:34 AM EDT

Government officials are investigating a newly disclosed emissions software feature that could help Volkswagen Group vehicles to pass government tests, the company said.

In a statement to The Associated Press, Volkswagen Group said Wednesday that some 2016 model-year diesel vehicles have an "auxiliary emissions control device," which the company said is different from the "defeat devices" that have landed the automaker in major international trouble in recent weeks.

The new issue causes a pollution control catalyst to better break down nitrogen oxide emissions by heating up faster, the AP said.

The Environmental Protection Agency (EPA) and the California Air Resources Board have delayed approving some 2016 diesel models from Volkswagen while they investigate the new software feature.

"We have a long list of questions for VW about this," said Janet McCabe, acting assistant administrator of the EPA's air pollution office. "We're getting some answers from them, but we do not have all the answers yet."

McCabe declined to say whether the feature, or Volkswagen's failure to disclose it, is illegal.

The EPA discovered that Volkswagen used a software workaround to make its cars emit less nitrogen dioxide during tests than during regular use, which could subject the company to $18 billion in fines.

International Business Times:

http://www.ibtimes.com/vw-scandal-executive-tapped-new-volkswagen-north-america-chief-winfried-vahland-2141332

VW Scandal: Executive Tapped As New Volkswagen North America Chief, Winfried Vahland, Suddenly Quits

By Angelo Young @angeloyoung_ a.young@ibtimes.com on October 14 2015 12:07 PM EDT

Thanks, but no thanks. Less than three weeks after Winfried Vahland was named Volkswagen Group's head of North American operations, the former head of Volkswagen-owned Skoda Auto has made an about-face and is leaving the company.

The abrupt announcement comes a day after the German auto giant announced major development changes, including more focus on electric cars, and major spending cuts to Volkswagen-branded car development.

"Differing views on the organization of the new Group region have led to this decision," Skoda said in a statement released Wednesday, referring to the newly formed North American

corporate structure that places one executive in control of the company's U.S., Canada and Mexico operations. Volkswagen Group owns a dozen auto brands, including Audi, Porsche and SEAT. "This decision is expressly not related to current events on the issue of diesel engines."

The world's largest automaker by sales volume is struggling with an emissions-test cheating scandal that has it facing billions of dollars in fines, a raft of class-action lawsuits, federal and state investigations and a costly, time-consuming recall process set to begin early next year.

On Wednesday the German weekly Der Spiegel said at least 30 company managers were involved in the scandal in which about 11 million small-engine diesel cars were built to dodge emissions standards. About 482,000 of these cars are in the United States.

New York Times:

http://www.nytimes.com/2015/10/15/business/international/new-volkswagen-chief-for-north-america-winfried-vahland-resigns.html?_r=0

New Volkswagen Chief for North America, Winfried Vahland, Resigns

By MELISSA EDDYOCT. 14, 2015

BERLIN — A senior Volkswagen executive who was recently tapped to take over the company's North American division is instead leaving the company after 25 years.

In announcing the departure of the executive, Winfried Vahland, the company said Wednesday that he was leaving over a disagreement about how to structure the North American operations. The company specifically said that his departure had nothing to do with the diesel-emissions scandal that is preoccupying Volkswagen.

But the development only adds to the turmoil at Volkswagen, which is the subject of

investigations on both sides of the Atlantic, including inquiries by the United States Justice Department and state prosecutors from Lower Saxony in Germany.

Mr. Vahland, who had been the chief of Volkswagen Group's Skoda unit, was appointed on Sept. 25 to lead Volkswagen's newly reorganized North America division. It was part of a shake-up that followed the resignation of Volkswagen's chief executive, Martin Winterkorn, after the company admitted installing software designed to trick diesel air-quality tests and that was installed on 11 million vehicles worldwide.

Several executives have been suspended in connection with Volkswagen's investigation into the fraud, although the company has refused to release any details. On Wednesday, the company said that reports in the German news media that "several dozen" managers had been involved were inflated.

Mr. Vahland had been expected to take up a position that would have placed overall responsibility for the automaker in the United States, Mexico and Canada in his hands. But because of "differing views on the organization" of the new division, "expressly not related to current events on the issue of diesel engines," he decided to leave the company, a company statement said.

Before taking over Skoda, which is based in the Czech Republic, Mr. Vahland served in various posts at Volkswagen. In 2005, he helped start a major expansion of Volkswagen in China, and he was considered one of the company's most senior executives.

In announcing the reorganization of its operations in North America last month, Volkswagen said that Mr. Vahland would "combine and significantly strengthen" the new North America division. Existing executives, including the company's top executive in the United States, Michael Horn, would have remained in place, but they would have reported to him.

From: Gong, Kristiene
Sent: Wednesday, October 14, 2015 11:17 AM
To: Allen, Laura; Abrams, Dan; Conger, Nick; Senn, John; Millett, John; Birgfeld, Erin; Hull, George; Valentine, Julia; Grantham, Nancy; StClair, Christie; Davis, Jay; Bunker, Byron; Cohen, Janet; Brooks, Phillip; Hengst, Benjamin; Grundler, Christopher; Giles-AA, Cynthia; Purchia,

Liz
Subject: Volkswagen Clips 10/14/2015

AP (via Richmond Times-Dispatch):

http://www.richmond.com/news/national-world/article_d1bb33cb-66de-5b25-8782-053e6824d9eb.html

2016 VW diesels have new software affecting emissions tests

Posted: Wednesday, October 14, 2015 10:15 am

WASHINGTON (AP) — Volkswagen has disclosed to U.S. regulators that there is additional suspect software in its 2016 diesel models that would potentially help their exhaust systems run cleaner during government tests.

Volkswagen confirmed to The Associated Press that the "auxiliary emissions control device" at issue operates differently from the "defeat" device software included in the company's 2009 to 2015 models disclosed last month. That disclosure triggered the worldwide cheating scandal engulfing the world's largest automaker.

The newly revealed software makes a pollution control catalyst heat up faster, improving performance of the device that separates smog-causing nitrogen oxide into harmless nitrogen and oxygen gases.

VW spokeswoman Jeannine Ginivan said the new issue with the 2016 vehicles was first revealed last week to U.S. Environmental Protection Agency and California regulators.

"Volkswagen has disclosed, in the application process for the model year 2016 2.0 TDI models, an auxiliary emissions control device," Ginivan said. "This has the function of a warmup strategy which is subject to approval by the agencies. The agencies are currently evaluating this and Volkswagen is submitting additional information."

AP first reported last week that the EPA and California Air Resources Board are investigating "the nature and purpose" of additional software on the new VW models. Regulators have not yet determined whether the code is a defeat device installed specifically to cheat on emissions tests, said Janet McCabe, acting assistant EPA administrator for air quality.

"We have a long list of questions for VW about this," she said Tuesday at a dedication ceremony for a new heavy-duty truck testing lab in Ann Arbor, Michigan. "We're getting some answers from them, but we do not have all the answers yet."

Volkswagen already faced an ongoing criminal investigation and billions in fines for violating the Clean Air Act for its earlier emissions cheat, as well as a raft of state investigations and class-action lawsuits filed on behalf of customers.

If it is determined the new issue is a second defeat device, that would call into question recent assertions by top VW executives that responsibility for the cheating scheme lay with a handful of rogue software developers who wrote the original code installed with the company's diesel engines starting with the 2009 model year.

The separate device included in the redesigned 2016 cars would appear to suggest a multi-year effort by the company to influence U.S. emissions tests that continued even after regulators began pressing the company last year about irregularities with the emissions produced by the older cars.

A congressional staffer briefed on the issue last week told AP that VW probably didn't need the additional software to meet government emissions standards, but that the device appears intended to ensure the 2016 cars would pass by wider margins. The staffer spoke on the condition of anonymity because he was not authorized to talk publicly about the ongoing investigation.

The company's most senior U.S.-based executive announced in congressional testimony last week that the German automaker had withdrawn applications seeking certification of its 2016

diesels because of on-board software that hadn't been disclosed to regulators.

However, the statement by Volkswagen of America CEO Michael Horn left unclear whether the issue with the 2016 models was the same as that in the earlier models, or whether it potentially constituted a new violation. Manufacturers are required by law to disclose any devices affecting emissions controls as part of the process to receive the EPA certifications required to sell the cars in the country.

EPA's McCabe wouldn't say if VW's failure to disclose the software in its 2016 application for emissions certification was illegal. "I don't want to speak to any potential subjects of an enforcement activity," she said.

VW is now working with regulators to continue the certification process needed to sell the 2016 diesel cars.

The delay is bad news for Volkswagen dealers, who had been anticipating delivery of the new models to replace older inventory which they can no longer offer to customers. Thousands of 2016 Beetles, Golfs, Jettas and Passats will remain quarantined in U.S. ports until a fix can be developed, approved and carried out.

—

Matthew Daly contributed from Washington. Krisher reported from Ann Arbor, Michigan.

Fortune

http://fortune.com/2015/10/14/dozens-of-managers-implicated-in-volkswagen-scandal/

"Dozens" of managers implicated in Volkswagen scandal

by Geoffrey Smith

OCTOBER 14, 2015, 10:37 AM EDT

And there's more woe for VW as the designated head of its new North America region refuses to take up post.

The external investigation that Volkswagen AG VLKAY 0.41% commissioned is making alarmingly quick (and leaky) progress.

According to the German magazine and website Der Spiegel, the circle of managers with direct knowledge of how the company falsified the emissions performance of its diesel vehicles is much wider than the company had so far indicated. Last week, Michael Horn, head of the company's U.S. operations, had told a Congressional committee that the decision to install "defeat devices" that masked the actual level of emissions was taken by a small group, and wasn't a corporate decision.

Der Spiegel cited company sources as saying that "at least 30 people" were involved in the scandal, and that the final number may be higher. Earlier this month, VW's board had commissioned law firm Jones Day LLC to conduct an investigation into the affair, promising a rigorous clean-up. Spiegel's story referred to the first preliminary findings of that investigation. These aren't being made public yet.

It wasn't clear whether the company had suspended any more employees. According to media reports, the senior R&D managers at the group's three leading brands, VW, Audi and Porsche, have all been suspended while the investigation goes on.

A spokesman for Volkswagen didn't immediately respond to a request for comment.

In separate news Wednesday, it emerged that Winfried Vahland, who was slated to take over as head of the VW group's new North American division, is to leave the company at his own request.

The new structure was unveiled at the first board meeting after the resignation of CEO Martin Winterkorn, and was aimed at devolving more power away from the group's headquarters in Germany.

Škoda, the low-end, Czech-based unit of VW which Vahland has run for the last five years, said "differing views on the organisation of the new Group region have led to this decision." It added that it is "expressly not related to current events on the issue of diesel engines."

Vahland had been with the VW group for 25 years, and had run Czech-based Škoda since 2010. Before that he had been head of VW's regional operations in China. According to some reports, Winterkorn had pressed for Vahland to succeed him as CEO.

From: Gong, Kristiene
Sent: Wednesday, October 14, 2015 10:17 AM
To: Allen, Laura
Subject: RE: Volkswagen Clips 10/14/2015

AP (via Chattanooga Free Time Press):

http://www.timesfreepress.com/news/breakingnews/story/2015/oct/14/after-pollution-scandal-volkswagen-focus-electric-vehicles/330444/

After pollution scandal, Volkswagen to focus on electric vehicles

October 14th, 2015 by Associated Press

The all-new Chattanooga built VW Passat TDI cruises on East Brow Road atop Signal Mountain early Wednesday afternoon. Staff photo by Dan Henry/Chattanooga Times Free Press

Volkswagen says it will shift its focus toward developing electric cars.

It aims to develop new hybrid and electric vehicles in response to its emissions scandal.

The new steps were part of a plan to confront the company's scandal over cars that were equipped with computer software that let them evade U.S. emissions tests.

Volkswagen division head Herbert Diess said in a statement Tuesday the company would change its approach to diesel emissions in Europe and North America and adopt so-called selective catalytic converter technology, or SCR. That is a system that injects the chemical substance urea into the exhaust stream to neutralize harmful nitrogen oxides.

He said that change would come "as soon as possible."

Diess also said the company would reduce spending on investments by 1 billion euros ($1.1billion) and redouble efforts to cut other costs.

Volkswagen will expand its modular construction system — which involves sharing technical specifications and parts across different models to save money — to include new plug-in hybrid and electric vehicles.

The company additionally plans to turn the next version of its large Phaeton luxury sedan into an electric-only vehicle to demonstrate the company's technological competence.

The Phaeton, a project introduced by former CEO Ferdinand Piech, has been criticized as a money-loser. The Piech and Porsche families own the majority of voting shares in Volkswagen through a holding company.

"The Volkswagen brand is repositioning itself for the future," Diess said in a statement. "We are becoming more efficient, we are giving our product range and our core technologies a new focus, and we are creating room for forward-looking technologies by speeding up the efficiency program."

Diess is a recent hire from competitor BMW, where he oversaw development of new models including the i3 electric and i8 plug-in hybrid vehicles.

Volkswagen AG, whose other brands include Audi and Skoda, is facing a crisis after U.S. authorities said it evaded emissions checks on 482,000 vehicles. The company has set aside 6.5 billion euros ($7.3 billion) to cover the costs of recalls and fines. But analysts say the costs in terms of fines and lost sales will likely be considerably higher.

Earlier, the governor of Germany's Lower Saxony state, which holds a 20 percent stake in Volkswagen, said the automaker should have admitted earlier that it manipulated emissions data in the U.S. Volkswagen acknowledged the deception to U.S. regulators on Sept. 3, more than a year after researchers published a study showing the real-world emissions of two VW models were far higher than allowed.

Governor Stephan Weil told Lower Saxony's state legislature on Tuesday that "this confession should clearly have come a great deal earlier — another serious mistake," news agency dpa reported.

Weil sits on Volkswagen's board of directors. He has said that the state's representatives were "completely surprised" by the emissions scandal and vowed to work to protect jobs.

WSJ:

http://www.wsj.com/articles/volkswagen-north-america-chief-designate-quits-1444827950

Volkswagen North America Chief-Designate Quits

Winfied Vahland was head of Skoda brand

By SARAH SLOAT

Oct. 14, 2015 9:05 a.m. ET

FRANKFURT— Volkswagen AG parted ways with another senior executive Wednesday. Winfried Vahland is leaving the company due to differences over the auto maker's North America organization, which he was poised to oversee.

The automotive group, in the grips an international emissions-testing scandal, had designated Mr. Vahland, currently the head of Volkswagen's Czech Republic-based Skoda brand, as the new chief of its North America business last month.

"This decision is expressly not related to current events on the issue of diesel engines," Skoda said in a statement. Skoda said Mr. Vahland is leaving at his own request.

Volkswagen has been in disarray since mid-September, when it admitted to using software in millions of diesel cars that allow them to run cleaner in emissions tests than on the road. The disclosure, which came first for cars sold in the U.S., triggered a boardroom reshuffle, a profit warning and cutbacks in investment spending.

The group's supervisory board elected Hans Dieter Pötsch, the company's 64-year-old chief financial officer, as chairman last week, filing a post left open since April when former patriarch Ferdinand Piëch resigned. Matthias Müller, head of Volkswagen's Porsche brand, had replaced Martin Winterkorn as Volkswagen's CEO after Mr. Winterkorn resigned last month in the wake of the diesel-engine scandal.

From: Gong, Kristiene
Sent: Wednesday, October 14, 2015 10:02 AM
To: Allen, Laura
Subject: Volkswagen Clips 10/14/2015

USA Today:

http://www.usatoday.com/story/money/cars/2015/10/14/new-volkswagen-north-america-chief-winfried-vahland-out-after-three-weeks/73916418/

New Volkswagen North America chief Winfried Vahland out after three weeks

Nathan Bomey, USA TODAY 9:19 a.m. EDT October 14, 2015

Volkswagen's newly appointed head of North America is leaving the company less than three weeks after he was assigned to that position, injecting a new measure of instability as the company navigates an emissions scandal.

The sudden exit of Winfried Vahland gives the company's sweeping restructuring of its global operations a discombobulated feel, raising further questions about the future of its business in the U.S.

Vahland and Volkswagen had "differing views" on the company's new structure, the automaker said in a statement. His exit is "expressly not related" to the emissions scandal, VW said.

Vahland's swift appointment as head of the new North America region on Sept. 25 was billed as critical to creating a cohesive strategy for Volkswagen in one of the company's few weak spots. It came just a week after the U.S. Environmental Protection Agency exposed the fact that Volkswagen had installed software on vehicles to cheat emissions tests.

The company's U.S. chief, Michael Horn, who was set to report to Vahland, is staying in his current role.

Volkswagen did not immediately name a successor for Vahland, who also led Volkswagen's China operation for a period and was most recently chairman of the Skoda brand.

"In the last 25 years, Professor Vahland made a great contribution to the company," Volkswagen Group CEO Matthias Mueller said in a statement. "We respect his decision and thank him for his exceptional performance."

AP

http://bigstory.ap.org/article/24588210332a4d0b8f19490d0c9649e6/recently-named-head-vw-north-america-will-not-take-post

Recently named head of VW North America will not take post

By DAVID McHUGH and TOM KRISHER

Oct. 14, 2015 9:38 AM EDT

FRANKFURT, Germany (AP) — The recently named head of Volkswagen's North American business won't be taking up his new job - and has left the company.

The announcement comes as Volkswagen faces a scandal over rigging the results of emissions testing of its diesel vehicles in the U.S. It means that one of the company's most experienced managers will not be coming to lead the company's response in the United States as it faces possible heavy fines from the Environmental Protection Agency.

Volkswagen's Skoda division made the announcement about its chairman, Winfried Vahland, in a news release on Wednesday.

The release said that Vahland will not be moving to take over his new position carrying overall responsibility for North America. It said his decision to quit was not related to the scandal over the diesel engines.

On Sept. 24, Volkswagen announced a reorganization of its North American operations that put Vahland over country executives including Volkswagen's U.S. chief, Michael Horn. The announcement came the same day Volkswagen named Matthias Mueller as CEO after Martin Winterkorn stepped down from the job.

VW had said Horn would remain as president and CEO of Volkswagen Group of America, but its U.S., Canada and Mexico markets will be "combined and significantly strengthened" to form a new "North America region" led by Vahland.

Vahland, the former head of VW's crucial China business, was leaving because of "differing views on the organization of the new group region."

Mueller thanked him for 25 years of service and a "great contribution to the company."

"We respect his decision and thank him for his exceptional performance," Mueller was quoted as saying in the Skoda statement.

Skoda, based in the Czech Republic, is one of VW's brands, which also include Audi, SEAT, Lamborghini and Bentley.

Forbes:

http://www.forbes.com/sites/beltway/2015/10/13/how-a-carbon-tax-could-have-prevented-the-volkswagen-diesel-scandal/2/

How A Carbon Tax Could Have Prevented The Volkswagen Diesel Scandal

Howard Gleckman, CONTRIBUTOR

If anyone needed another example of why a carbon tax is a good idea, look no further than Volkswagen's diesel scandal. The automaker's efforts to game the current system are a case study in what's wrong with government attempts to reduce pollution with regulation and tax subsidies, rather than through a relatively straight-forward tax on carbon-based fuels.

The current system is complex mix of environmental carrots and sticks. The sticks include regulation such as fuel economy standards. The carrots include tax subsidies. One was the (now-expired) alternative motor vehicle tax credit that was available to specific models that met detailed fuel economy requirements. Two models of VW Jettas qualified for credits of $1,300 and the LA Times reported in September that the government paid as much as $51 million in credits to buyers of VW diesel cars.

Unable to limit emissions, give consumers the high performance they want, and meet fuel economy standards, VW cheated. As you know by now, the firm installed software in its diesel cars designed to fool routine emissions tests—which made the cars appear "cleaner" than they really were. In all, VW reportedly sold 500,000 cars in the US from 2009-2015 with the rogue software. Here is a helpful description from Vox explaining the whole sad story.

VW eventually got caught, of course. It faces penalties from EPA and potential criminal charges for violating the False Claims Act, as well as an investigation by the Senate Finance Committee. CEO Martin Winterkorn has resigned and the firm has stopped selling diesel cars in the US.

Still, a lot of this mess could have been avoided with a carbon tax. Such a levy could replace many—though not all– of these complex rules and eliminate most incentives for gaming. A carbon tax would not help reduce local air pollutants such as NOx so it would not replace all auto pollution regulations. But it could supplant those that aim to reduce carbon emissions from vehicles.

For drivers, the choice would be relative simply: You buy a carbon-based fuel, you pay a tax. The more carbon in the fuel, the more tax you pay. The manufacturer wouldn't need to hit a mandated fuel economy standard. No-one would need to worry about conflicting regulations.

Instead, consumers would likely respond to higher taxes by demanding cars that, one way or

another, use less carbon-based fuel. We have lots of evidence that consumers are extremely responsive to changes in gasoline prices—the price goes up, they buy Priuses; it goes down, they switch to less fuel-efficient vehicles.

And with a big carbon tax, manufacturers will probably respond to consumer demands by producing low-carbon vehicles. The proof will be at the pump. If an automaker lies about its fuel efficiency, it will be immediately obvious: Consumers will be filling up their tanks more often than they expected. And government won't have to test carbon emissions from tens of millions of cars. It will just need to calculate the carbon content of their fuel.

There is one other classic argument for corrective taxes such as a carbon tax. Such a levy provides ongoing incentives for firms to enhance technology and continue to drive down emissions. But with regulation or subsidies, even honest producers are more likely to hit the mandated target—and stop.

This is not to suggest that carbon taxes are not without their own complex issues. My Tax Policy Center colleagues Donald Marron and Eric Toder have described some of the technical challenges. But overall, market mechanisms such as carbon taxes (or a cap-and-trade system) are far more efficient, and much less prone to cheating, than a system based on regulations and subsidies.

Bloomberg:

http://www.bloomberg.com/news/articles/2015-10-14/volkswagen-s-designated-north-america-chief-leaves-carmaker

Volkswagen's Designated North America Chief Leaves Carmaker

Christoph Rauwald

October 14, 2015 — 8:58 AM EDT

Volkswagen AG's designated North America chief turned down the job in the wake of a management revamp triggered by the diesel-emissions scandal.

Winfried Vahland, a company veteran who currently leads VW's Czech Skoda unit, decided to not take over the new post as had been planned and will leave the carmaker, Skoda said in an e-mailed statement.

Vahland was among the candidates to succeed former VW Chief Executive Officer Martin Winterkorn, who resigned last month, but the supervisory board favored former Porsche chief Matthias Mueller. Vahland is leaving Wolfsburg, Germany-based Volkswagen at his own request. His departure is unrelated to the investigations into the rigging of millions of diesel engines worldwide, Skoda said in the statement.

Volkswagen said Tuesday it will reduce annual investment by about 1 billion euros ($1.1 billion) at its namesake car brand as the automaker steps up a cost-cutting push to weather the impact of the diesel-emissions scandal.

VW is under increasing financial strain following revelations last month that it rigged diesel engines to circumvent emissions regulations. The company set aside 6.5 billion euros for repairs and to compensate customers, but has said that won't be enough. VW faces numerous lawsuits in the U.S., where it has lost money and struggled to become more than an also-ran despite rapid expansion elsewhere.

Vahland was appointed head of VW's North American operations as part of a restructuring plan pushed by Mueller and meant to shift more responsibility to brand and regional managers. VW wasn't immediately available to comment on whether it still planned to fill the post.

Business Insider:

http://www.businessinsider.com/r-bosch-sees-diesel-market-so-far-unharmed-by-volkswagen-scandal-2015-10

Bosch sees diesel market so far unharmed by Volkswagen scandal

RENNINGEN, Germany (Reuters) - German automotive supplier Robert Bosch [ROBG.UL] has not seen any change so far in the diesel car market as a result of an emissions scandal that has rocked Volkswagen , its chief executive said on Wednesday.

"It will depend, though, on an active campaign for diesel to quickly dispel the current uncertainty that many consumers are feeling," Volkmar Denner told reporters at the opening of a new research center in the German town of Renningen near Stuttgart.

German Economy Minister Sigmar Gabriel warned against condemning diesel technology overall but said Germany needed to do better in switching to alternative engines.

He said he favored introducing incentives to reduce the price difference between electric and conventional cars.

Volkswagen, Europe's largest carmaker, last month admitted to cheating U.S. diesel emissions tests, sparking a crisis that unseated its CEO and wiped around a quarter off its market value.

Bosch is the maker of a popular diesel engine management program used by several top automakers including VW, which U.S. officials said last week was not preprogrammed to detect when a vehicle was undergoing laboratory emissions testing.

But it is not clear what role Bosch played, how closely it worked with VW to modify the engine management software and how much it knew about VW's intentions to use software to cheat on emissions standards.

Denner declined to comment on the matter.

He added that VW had not started talks to demand lower prices, following a media report that VW planned to extract 3 billion euros in price cuts from its suppliers to help mitigate the costs of the scandal.

(Reporting by Ilona Wissenbach; Writing by Georgina Prodhan; Editing by Louise Heavens)

Detroit News:

http://www.detroitnews.com/story/business/autos/2015/10/13/ann-arbor-epa-lab-diesel-tests-vw-scandal/73888296/

Ann Arbor EPA lab tests other cars after VW scandal

Michael Martinez, The Detroit News 5:05 p.m. EDT October 13, 2015

Ann Arbor — The Environmental Protection Agency on Tuesday said it's begun testing other automakers' vehicles in the wake of Volkswagen AG's massive diesel-testing scandal. Some of those tests are being done at the agency's emissions testing lab in Ann Arbor.

Janet McCabe, assistant administrator of the EPA's office of air and radiation, said the agency is "upping our game" following VW's admission last month that it cheated on emissions tests for more than 11 million diesel cars worldwide. The EPA said late last month it would conduct more spot checks of light-duty cars and trucks, testing vehicles owned by individuals and rental companies in real-world driving conditions. The EPA also could take cars from manufacturers' assembly lines.

"We're focused on diesel right now, but ... we're becoming the unpredictable EPA, so we'll be testing a range of vehicles with a range of configurations and situations," McCabe told reporters at a Wednesday technology showcase event.

The EPA sent letters to automakers late last month, warning that it will take further steps to prevent fraud. New safeguards will "detect any kind of defeat devices" that might turn off pollution-control equipment, Chris Grundler, the head of the EPA's office of transportation and air quality, said. He called the new tests part of an "evolution" of enforcement.

McCabe declined to say if the agency discovered that any other automakers have used defeat devices. "When we finish that process we'll be able to talk about the results," she said.

The California Air Resources Board and Environment Canada also are conducting real-world vehicle emissions testing, and all three facilities plan to share the results.

McCabe said the EPA isn't necessarily looking at software that could potentially trigger the defeat devices, which VW used to evade tests on its diesel vehicles.

"Our focus is on what's coming out of the tailpipe, which is how our standards are set and what the cars need to be measured up against," she said. "What we're focused on is whether they meet the standards that are in our rules."

McCabe was in Ann Arbor Wednesday to celebrate the launch of the EPA's new heavy-duty truck chassis dynamometer, a $3 million piece of equipment built in Germany that allows the agency to perform emissions tests on full-size heavy-duty trucks. Previously, the EPA had to spend about a week removing truck engines to run the tests.

The new dynamometer is housed in part of the agency's 200,000-square-foot National Vehicle & Fuel Emissions lab in Ann Arbor. The lab includes a number of emissions testing rooms that run simulations on cars, trucks and even small equipment like lawn mowers in a wide range of climates and conditions

Reuters:

http://www.reuters.com/article/2015/10/13/us-volkswagen-emissions-epa-idUSKCN0S72R120151013

EPA hasn't decided if new software on 2016 VW diesels is legal

ANN ARBOR, MICH. | BY PAUL LIENERT

U.S. regulators haven't determined the legality of a new emission-control device on Volkswagen's (VOWG_p.DE) 2016 diesel models, a top official said on Tuesday.

Those models still have not been certified for sale by the U.S. Environmental Protection Agency.

The existence of the new software was made public last week by VW's top U.S. executive in testimony to a congressional subcommittee investigating the German automaker's diesel cheating scandal.

The company has not confirmed speculation that the new software was configured before the wider emissions scandal broke on Sept. 18.

"We have a long list of questions for VW," said EPA Assistant Administrator Janet McCabe at a media briefing here. "When we have all of the answers, we will be able to make a determination" on the whether the device is legal or considered to be a "defeat device" designed to circumvent U.S. emission rules.

VW last month admitted that it installed illegal software on its 2009-2015 U.S. diesel models that enabled the cars to pass laboratory tests, but dump higher-than-legal limits of pollutants in real-world driving.

VW told regulators only recently that some of its U.S. diesel models included a previously undisclosed software feature that could affect emission controls on the 2016 models, according to Michael Horn, president and CEO of Volkswagen Group of America. Horn told U.S. lawmakers last week that the company subsequently had withdrawn its application for EPA certification of its 2016 diesel models.

Asked for additional detail, a VW spokesperson on Monday said the software "has the function of a warmup strategy which is subject to approval" by EPA. Typical diesel emission control systems are designed to be most effective when the engine is warmed up.

The EPA defines such software as an "auxiliary emission control device," or AECD, and describes it as any device that can change the operation of the vehicle's emission control system.

The agency also requires automakers to disclose the existence of such a software device, including "a rationale for why it is not a defeat device."

VW on Monday said the EPA is evaluating the new software device, and that the automaker is "working with the regulators to continue the 2016 certification process" for VW vehicles equipped with the 2.0-liter diesel engine.

Daily Caller:

http://dailycaller.com/2015/10/13/volkswagen-lobbied-obama-administration-for-green-tax-credits/

Volkswagen Lobbied Obama Administration For Green Tax Credits

STEVE BIRR

11:41 AM 10/13/2015

As President Barack Obama pushed his green energy proposals for the auto-industry in 2011, Volkswagen was lobbying the administration for tax credits on its now tainted line of diesel vehicles.

Volkswagen wanted a green tax credit that applies to electric cars to be given to their diesel line as well. The Environmental Protection Agency, however, refused to go along with Volkswagen's plan and also declined Toyota's request to apply the same tax credit to their hybrid electric cars.

EPA documents from 2009 and 2010 show that Volkswagen supported the Obama administration's plan to reduce carbon dioxide emissions from automobiles. Former VW CEO Stefan Jacoby wrote to the EPA in 2010 praising their "leadership on this important subject." Jacoby, along with the EPA and other auto-makers, said they would "aim to make substantial annual progress in reducing transportation sector greenhouse gas emissions and fossil fuel consumption consistent with the Obama Administration's energy and climate security goals."

While Volkswagen was publicly backing White House efforts to tackle global warming and push green vehicles, the automaker was quietly lobbying behind the scenes to get government subsidies — the political price for the company's support of Obama's agenda. But the EPA refused to play ball, and Volkswagen withdrew its support for Obama's green vehicle push, according to The New York Times.

Margo Oge, the former director of the EPA Office of Transportation and Air Quality who worked closely with auto-makers on these proposals, told The New York Times that Volkswagen "wanted a special deal for diesel cars that we now know weren't even meeting the standard." Oge suggested that Volkswagen thought their diesel technology was superior to electric or hybrid alternatives, saying, "These people had religion, and that religion was diesel."

When Obama announced his plan to reduce carbon dioxide emissions from cars, Volkswagen was one of the only major automakers to not sign a letter of support for the president's agenda. The New York Times reports that much of this attitude came from overseas.

"My sense was that things were being dictated by Germany," said Oge.

Without a tax credit or subsidy, Volkswagen was going to have a tougher time meeting regulatory standards on emissions while still being able to advertise their diesel vehicles' good fuel economy and relatively low price. These reasons might have played a role in Volkswagen using "defeat devices" to get around EPA emissions tests.

Despite Volkswagen's efforts to get government assistance for their diesel line, their lobbying footprint in America remains relatively small, which could hurt them as this scandal moves forward. Volkswagen spent just $1.2 million on lobbying in 2014, a number dwarfed by General Motors which spends an average of $8.5 million a year on lobbying.

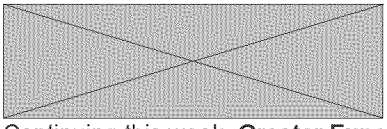
GM just recently settled with the government over the fact that they knowingly hid information about a faulty ignition switch that was linked directly to the deaths of 174 people. They were fined only $900 million and no one at GM was ever charged. Volkswagen currently faces up to $18 billion in potential fines.

To: Kaul, Meetu[Kaul.Meetu@epa.gov]
From: E&E Publishing
Sent: Wed 10/14/2015 5:35:30 PM
Subject: October 14 -- Greenwire is ready

Read today's Greenwire on the web

AN E&E PUBLISHING SERVICE

GREATER EXPECTATIONS SPECIAL REPORT



Continuing this week, **Greater Expectations: The New Geopolitics of Climate Change exposes the on-the-ground reality of developing countries challenged by a world that will require every nation to cut carbon emissions. Go to the special report.**

GREENWIRE — Wed., October 14, 2015

READ FULL EDITION

1.GRID:

Justices question regulators' reach in fight over energy rule

Supreme Court justices today probed whether federal regulators overstepped legal limits with a rule incentivizing energy conservation.

TOP STORIES

2.WATER POLICY:

DOJ seeks to halt WOTUS case until jurisdiction is determined

3.HOUSE:

With Ryan on the fence, uncertainty looms for caucus, agenda

4.NATIONAL MONUMENTS:

Cheers, jeers for 1.1M-acre Mojave plan at raucous meeting

CONGRESS

5.TRANSPORTATION:

As hopes for repatriation deal fade, focus shifting to 2017

6.OIL:

Industry lobbyist mum on possible exports-for-renewables deal

7.OCEANS:

Dems urge Obama to be transparent about marine monument plans

8.BIOFUELS:

DuPont letter blasts Sen. Toomey's RFS stance

9.SENATE:

Californians think Feinstein does good job, split on re-election

POLITICS

10.CAMPAIGN 2016:

Candidates frame argument for climate action in security terms

11.ALASKA:

Gov. Bill Walker cleans house in Washington, D.C., office

NATURAL RESOURCES

12.COLORADO RIVER:

Researchers seek 'independence and expertise' of NAS study

13.NATIONAL PARKS:

NPS is urged to add charging stations for electric cars

14.NATIONAL PARKS:

All content is copyrighted and may not be reproduced or retransmitted without the express consent of E&E Publishing, LLC. Prefer plain text?

Veteran sues Interior after 16-pound pine cone conks him on head

15. MISSISSIPPI RIVER:

Report card gives basin 'D+' for infrastructure, flood problems

16. EARTHQUAKES:

Drills ramp up as temblors shake central U.S.

17. AGRICULTURE:

Bats worth billions to U.S. farmers

18. WILDLIFE:

Conservation group takes on unusual job of enforcing law

LAW

19. COAL ASH:

Enviros challenge Duke's $20M settlement with N.C.

20. COAL:

Tapes show Don Blankenship knew about Massey safety lapses

21. DRINKING WATER:

Fight over subsurface rights heads to Texas Supreme Court

CLIMATE CHANGE

22. ENERGY POLICY:

Moniz touts rules, smart grid as boon to U.S. climate goals

23. NEGOTIATIONS:

14 carbon-intensive companies call for 'balanced' Paris deal

TRANSPORTATION

24. ALTERNATIVE FUELS:

Toyota plans to eliminate CO2 emissions by 2050

25. AIR POLLUTION:

EPA hasn't decided if Volkswagen's new software is legal

AIR AND WATER

26. AIR POLLUTION:

EPA rolls out new standards for aluminum producers

27. AIR POLLUTION:

Port of Los Angeles failed to reduce smog, noise

28. ARCTIC:

Microplastics found in far north

STATES

29. CALIFORNIA:

State backs off plan to let violent criminals fight wildfires

30. MONTANA:

Dog chased away bear that attacked owner

E&ETV'S ONPOINT

31. INTERNATIONAL:

CCAP's Helme discusses need for private financing to meet Paris goals

Get all of the stories in today's Greenwire, plus an in-depth archive with thousands of articles on your issues, detailed Special Reports and much more at http://www.greenwire.com.
Forgot your passcodes? Call us at 202-628-6500 now and we'll set you up instantly.
To send a press release, fax 202-737-5299 or email editorial@eenews.net.

ABOUT GREENWIRE – The leader in energy & environmental policy news

Greenwire is written and produced by the staff of E&E Publishing, LLC. The one-stop source for those who need to stay on top of all of today's major energy and environmental action with an average of more than 20 stories a day, Greenwire covers the complete spectrum, from electricity industry restructuring to Clean Air Act litigation to public lands management. Greenwire publishes daily at 1 p.m.

Unsubscribe | Our Privacy Policy
E&E Publishing, LLC
122 C St. NW, Ste. 722, Wash., D.C. 20001
Phone: 202-628-6500 Fax: 202-737-5299
www.eenews.net

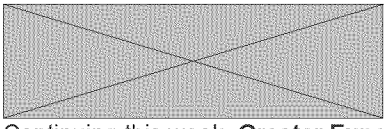
All content is copyrighted and may not be reproduced or retransmitted without the express consent of E&E Publishing, LLC. Prefer plain text? Click here.

To: Grundler, Christopher[grundler.christopher@epa.gov]
From: E&E Publishing
Sent: Wed 10/14/2015 5:37:03 PM
Subject: October 14 -- Greenwire is ready

Read today's Greenwire on the web

AN E&E PUBLISHING SERVICE

GREATER EXPECTATIONS SPECIAL REPORT



Continuing this week, **Greater Expectations: The New Geopolitics of Climate Change exposes the on-the-ground reality of developing countries challenged by a world that will require every nation to cut carbon emissions. Go to the special report.**

GREENWIRE — Wed., October 14, 2015

READ FULL EDITION

1.GRID:

Justices question regulators' reach in fight over energy rule

Supreme Court justices today probed whether federal regulators overstepped legal limits with a rule incentivizing energy conservation.

TOP STORIES

2.WATER POLICY:

DOJ seeks to halt WOTUS case until jurisdiction is determined

3.HOUSE:

With Ryan on the fence, uncertainty looms for caucus, agenda

4.NATIONAL MONUMENTS:

Cheers, jeers for 1.1M-acre Mojave plan at raucous meeting

CONGRESS

5.TRANSPORTATION:

As hopes for repatriation deal fade, focus shifting to 2017

6.OIL:

Industry lobbyist mum on possible exports-for-renewables deal

7.OCEANS:

Dems urge Obama to be transparent about marine monument plans

8.BIOFUELS:

DuPont letter blasts Sen. Toomey's RFS stance

9.SENATE:

Californians think Feinstein does good job, split on re-election

POLITICS

10.CAMPAIGN 2016:

Candidates frame argument for climate action in security terms

11.ALASKA:

Gov. Bill Walker cleans house in Washington, D.C., office

NATURAL RESOURCES

12.COLORADO RIVER:

Researchers seek 'independence and expertise' of NAS study

13.NATIONAL PARKS:

NPS is urged to add charging stations for electric cars

14.NATIONAL PARKS:

All content is copyrighted and may not be reproduced or retransmitted without the express consent of E&E Publishing, LLC. Prefer plain text?

Veteran sues Interior after 16-pound pine cone conks him on head

15. MISSISSIPPI RIVER:
Report card gives basin 'D+' for infrastructure, flood problems

16. EARTHQUAKES:
Drills ramp up as temblors shake central U.S.

17. AGRICULTURE:
Bats worth billions to U.S. farmers

18. WILDLIFE:
Conservation group takes on unusual job of enforcing law

LAW

19. COAL ASH:
Enviros challenge Duke's $20M settlement with N.C.

20. COAL:
Tapes show Don Blankenship knew about Massey safety lapses

21. DRINKING WATER:
Fight over subsurface rights heads to Texas Supreme Court

CLIMATE CHANGE

22. ENERGY POLICY:
Moniz touts rules, smart grid as boon to U.S. climate goals

23. NEGOTIATIONS:
14 carbon-intensive companies call for 'balanced' Paris deal

TRANSPORTATION

24. ALTERNATIVE FUELS:
Toyota plans to eliminate CO2 emissions by 2050

25. AIR POLLUTION:
EPA hasn't decided if Volkswagen's new software is legal

AIR AND WATER

26. AIR POLLUTION:
EPA rolls out new standards for aluminum producers

27. AIR POLLUTION:
Port of Los Angeles failed to reduce smog, noise

28. ARCTIC:
Microplastics found in far north

STATES

29. CALIFORNIA:
State backs off plan to let violent criminals fight wildfires

30. MONTANA:
Dog chased away bear that attacked owner

E&ETV'S ONPOINT

31. INTERNATIONAL:
CCAP's Helme discusses need for private financing to meet Paris goals

Get all of the stories in today's Greenwire, plus an in-depth archive with thousands of articles on your issues, detailed Special Reports and much more at http://www.greenwire.com.
Forgot your passcodes? Call us at 202-628-6500 now and we'll set you up instantly.
To send a press release, fax 202-737-5299 or email editorial@eenews.net.

ABOUT GREENWIRE – The leader in energy & environmental policy news

Greenwire is written and produced by the staff of E&E Publishing, LLC. The one-stop source for those who need to stay on top of all of today's major energy and environmental action with an average of more than 20 stories a day, Greenwire covers the complete spectrum, from electricity industry restructuring to Clean Air Act litigation to public lands management. Greenwire publishes daily at 1 p.m.

Unsubscribe | Our Privacy Policy
E&E Publishing, LLC
122 C St. NW, Ste. 722, Wash., D.C. 20001
Phone: 202-628-6500 Fax: 202-737-5299
www.eenews.net

All content is copyrighted and may not be reproduced or retransmitted without the express consent of E&E Publishing, LLC. Prefer plain text? Click here.

From: Orehowsky, Gregory
Location: Non-Responsive
Importance: Normal
Subject: Accepted: FW: VW - WVU Interview Thursday 1:45
Start Date/Time: Thur 10/15/2015 5:45:00 PM
End Date/Time: Thur 10/15/2015 6:45:00 PM

To: Drake, Stuart[sdrake@kirkland.com]; David Geanacopoulos (David.Geanacopoulos@vw.com)[David.Geanacopoulos@vw.com]
From: Kaul, Meetu
Sent: Wed 10/14/2015 6:32:55 PM
Subject: VW - CBI Disclosure Letters
image2015-10-13-143727.pdf

David and Stuart,

Please see the attached letters which are also being sent out via certified mail.

Regards,

Meetu

Ms.Meetu Kaul, Attorney-Advisor

Air Enforcement Division
United States Environmental Protection Agency
Direct: 202-564-5472
Email: kaul.meetu@epa.gov

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]; Thomas, Richard (EEO)[Richard.Thomas@vw.com]
From: Rodgers, William (EEO)
Sent: Wed 10/14/2015 6:41:46 PM
Subject: FW: Confirmatory Test Date set

Jim,
We are not sure what this test is for? Please clarify.

Regards,

Bill Rodgers
Emissions Certification Engineer
Volkswagen Group
3800 Hamlin Rd
Auburn Hills, MI 48326
p. (248) 754-4219

-----Original Message-----
From: no-reply@epa.gov [mailto:no-reply@epa.gov]
Sent: Wednesday, October 14, 2015 2:37 PM
To: Allen, Gregory (EEO); Giles, Michael (EEO); Rodgers, William (EEO); Thomas, Richard (EEO)
Subject: Confirmatory Test Date set

The following is a courtesy copy of status message for a Verify submission. Any references made to links refer to links which will appear in the CDX Inbox message.

Confirmatory Test Date has been set for the following vehicle :

Manufacturer: VGA
Vehicle ID: AU373-6-0813/16
Vehicle Configuration: 0

The test date is 10/30/2015.

The Verify submission this message relates to has the following values:

Vehicle ID: AU373-6-0813/16

Vehicle Configuration #: 0

Test Group Name: GVGAV01.4V3B

The following transaction identifier has been assigned to this request:

_b3206417-af92-4c8e-9b9c-d5f7c79fabe8

Please do not reply to this message.

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Thomas, Richard (EEO)[Richard.Thomas@vw.com]; Rodgers, William (EEO)[William.Rodgers@vw.com]; Horton, Garett (VWGoA Imp)[garett.horton@volkswagen.de]
From: Giles, Michael (EEO)
Sent: Wed 10/14/2015 7:57:42 PM
Subject: RE: Confirmatory Test Date set

Hi Jim,

Just to close this question, we will disregard the message below, since as you explained in our phone discussion no further testing is required.

Mike

-----Original Message-----
From: Rodgers, William (EEO)
Sent: Wednesday, October 14, 2015 2:42 PM
To: "Jim Snyder' (Snyder.Jim@epamail.epa.gov)' <Snyder.Jim@epamail.epa.gov>
Cc: Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Giles, Michael (EEO) <michael.giles@vw.com>; Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Subject: FW: Confirmatory Test Date set

Jim,
We are not sure what this test is for? Please clarify.

Regards,

Bill Rodgers
Emissions Certification Engineer
Volkswagen Group
3800 Hamlin Rd
Auburn Hills, MI 48326
p. (248) 754-4219

-----Original Message-----
From: no-reply@epa.gov [mailto:no-reply@epa.gov]
Sent: Wednesday, October 14, 2015 2:37 PM
To: Allen, Gregory (EEO); Giles, Michael (EEO); Rodgers, William (EEO); Thomas, Richard (EEO)
Subject: Confirmatory Test Date set

The following is a courtesy copy of status message for a Verify submission. Any references made to links refer to links which will appear in the CDX Inbox message.

Confirmatory Test Date has been set for the following vehicle :

Manufacturer: VGA
Vehicle ID: AU373-6-0813/16
Vehicle Configuration: 0

The test date is 10/30/2015.

The Verify submission this message relates to has the following values:

Vehicle ID: AU373-6-0813/16

Vehicle Configuration #: 0

Test Group Name: GVGAV01.4V3B

The following transaction identifier has been assigned to this request:

_b3206417-af92-4c8e-9b9c-d5f7c79fabe8

Please do not reply to this message.

To: Grundler, Christopher[grundler.christopher@epa.gov]
From: Automotive News
Sent: Wed 10/14/2015 8:16:54 PM
Subject: DAILY: FTC joins U.S. probe of Volkswagen | FCA interior-design chief Busse heads back to Europe | U.S. auto market nearing peak, IHS says | NADA picks Ill. dealer Mark Scarpelli to be 2017 chairman

Today's most read story

Fiat Chrysler could double use of temp workers under new UAW contract, report says

October 14, 2015

» Get breaking news at autonews.com

View in a Web browser | Forward to a colleague

FTC joins U.S. probe of Volkswagen

The U.S. Federal Trade Commission, which probes companies accused of deceptive advertising, has joined the Justice Department and Environmental Protection Agency in investigating Volkswagen, which is accused of lying about emissions from diesel cars.

FCA interior-design chief Busse heads back to Europe

Klaus Busse -- the German-born designer who transformed the interiors of Chrysler, Jeep, Dodge and Ram vehicles -- is leaving the U.S. to shape Fiat Chrysler's European brands. It's the latest in a series of management changes at FCA US this month.

MOST READ (Last 7 days)

New FCA-UAW contract deal would raise Tier 2 pay to $29 an hour, report says
As crisis grows, Volkswagen

Advertisement

U.S. auto market nearing peak with 'pull back' expected after 2017, IHS says

Market researcher IHS Automotive is predicting the U.S. auto market is nearing its peak and will experience a "pull back" after 2017 as a result of rising interest rates and other factors.

dealers fear cash won't be enough
How the Civic got its turbo
VW diesels, with operative emissions gear, are slower and thirstier, Consumer Reports finds
FCA concedes on Tier 2 without busting budget

Looking for an F&I provider that listens to your needs?
We'll provide the products, service and support to grow your brand and your business.
If you're looking for an F&I partner, give National Auto Care a call – we'll listen! 800–548–1875, option 4.

NADA picks Illinois dealer Mark Scarpelli to be 2017 chairman

NADA chose Illinois dealer Mark Scarpelli to be its 2016 vice chairman, putting him in line to become chairman in 2017. Jeff Carlson, the current vice chairman, was elected to

VW's Mercedes S-class, shunned Martin tops the charts

Winterkorn was no longer the automaker's CEO and because his wife didn't want to move to the U.S., a source said.

Toyota outlines ambitious plan to slash CO2

Lexus prices high-performance GS F from $85,380

VW's designated N.A. chief Vahland to leave

VW denies report that at least 30 managers were involved in diesel cheat

Bosch sees diesel market so far unharmed by VW scandal

BMW plans spring 2016 launch for M2

Jaguar Land Rover says Tianjin blast to hit Q2 earnings

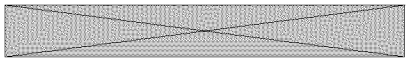
Tesla says 2 journalists caught trespassing at Nevada plant site

Ontario will allow road tests of autonomous cars

Automotive News Newscasts

Make sure you get ALL the news! Subscribe today to the print or digital edition of *Automotive News*, the industry's premier source of news, data and analysis

UPCOMING ...



EVENTS

» Oct. 14 - Best Dealerships To Work For

» Jan. 12 - Automotive News World Congress

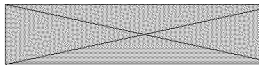
WEBINARS

» Oct. 15 at 2pm ET - Create Loyal Customers
by Auto/Mate

» Oct. 22 at 2pm ET - Save on Energy
by KeyBank

» Oct. 28 at 2pm ET - Targeted Digital Advertising
by DMEautomotive

» Nov. 4 at 11am ET - Digital Disruption
by IBM



Connect with Automotive News

Cars & Concepts | OEM/Suppliers | Dealers | Data Center | Blogs | Events

Click here to unsubscribe from this newsletter or to sign up for other Automotive News email products.

Automotive News
1155 Gratiot Ave.
Detroit, MI 48207-2997 United States
customerservice@autonews.com

To: Conger, Nick[Conger.Nick@epa.gov]
Cc: Bunker, Byron[bunker.byron@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Senn, John[Senn.John@epa.gov]; Allen, Laura[Allen.Laura@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]
From: Belser, Evan
Sent: Wed 10/14/2015 9:03:34 PM
Subject: Re: WSJ questions on VW--NEED RESPONSES

Ex. 5, 7

On Oct 14, 2015, at 4:24 PM, Conger, Nick <Conger.Nick@epa.gov> wrote:

Ex. 5, 7

Nick Conger

Deputy Press Secretary

Office of the Administrator

U.S. Environmental Protection Agency

Office: (202) 564-6287

Cell: (202) 412-2655

From: Bunker, Byron
Sent: Wednesday, October 14, 2015 4:17 PM
To: Conger, Nick; Grundler, Christopher; Belser, Evan
Cc: Werner, Jacqueline; Senn, John; Allen, Laura; Valentine, Julia; Birgfeld, Erin; Sutton, Tia
Subject: RE: WSJ questions on VW--NEED RESPONSES

Ex. 5, 7

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Conger, Nick
Sent: Wednesday, October 14, 2015 3:34 PM
To: Bunker, Byron; Grundler, Christopher; Belser, Evan
Cc: Werner, Jacqueline; Senn, John; Allen, Laura; Valentine, Julia; Birgfeld, Erin; Sutton, Tia
Subject: RE: WSJ questions on VW--NEED RESPONSES

Another WSJ follow-up:

Can you confirm for us what role Eastern Research Group has had as it pertains to your work on Volkswagen?

Ex. 5, 7

Nick Conger

Deputy Press Secretary

Office of the Administrator

U.S. Environmental Protection Agency

Office: (202) 564-6287

Cell: (202) 412-2655

From: Conger, Nick

Sent: Wednesday, October 14, 2015 11:03 AM
To: Bunker, Byron; Grundler, Christopher; Belser, Evan (Belser.Evan@epa.gov)
Cc: Werner, Jacqueline; John Senn (Senn.John@epa.gov); Allen, Laura; Valentine, Julia; Birgfeld, Erin; Sutton, Tia
Subject: RE: WSJ questions on VW--NEED RESPONSES

All,

WSJ is working on a story about the AECD. They have two more follow-up questions. Ex. 5, 7

Ex. 5, 7

Who from Volkswagen alerted CARB and EPA to the additional AECD on Sept. 29? If in a letter, to whom was the letter addressed and may we see a copy?

What was EPA's response to Volkswagen between Sept. 29 and Oct. 7? We'd appreciate any detail.

Nick Conger

Deputy Press Secretary

Office of the Administrator

U.S. Environmental Protection Agency

Office: (202) 564-6287

Cell: (202) 412-2655

From: Valentine, Julia
Sent: Tuesday, October 13, 2015 5:59 PM
To: Conger, Nick
Cc: Allen, Laura
Subject: RE: WSJ questions on VW--NEED RESPONSES

Here you go, Nick:

When did Volkswagen alert EPA to the AECD on the 2016 diesel models?

Volkswagen told EPA and CARB about the existence of the additional AECD on their 2016 diesel vehicle on Tuesday, September 29, 2015.

When did Volkswagen withdraw its application for certification of the 2016 diesel models?

Volkswagen withdrew its application on Wednesday, October 7, 2015.

Julia P. Valentine

Office of Public Affairs

U.S. EPA

202.564.2663 direct

202.740.1336 m/txt

From: Conger, Nick
Sent: Tuesday, October 13, 2015 5:11 PM
To: Allen, Laura
Cc: Belser, Evan; Bunker, Byron; Hengst, Benjamin; Grundler, Christopher; Millett, John; Sutton, Tia; Birgfeld, Erin; Valentine, Julia; Senn, John; Werner, Jacqueline
Subject: RE: WSJ questions on VW--NEED RESPONSES

Two follow-ups from the WSJ. Can we answer these?

When did Volkswagen alert EPA to the AECD on the 2016 diesel models?

When did Volkswagen withdraw its application for certification of the 2016 diesel models?

Nick Conger

Deputy Press Secretary

Office of the Administrator

U.S. Environmental Protection Agency

Office: (202) 564-6287

Cell: (202) 412-2655

From: Allen, Laura
Sent: Tuesday, October 13, 2015 4:13 PM
To: Conger, Nick
Cc: Belser, Evan; Bunker, Byron; Hengst, Benjamin; Grundler, Christopher; Millett, John; Sutton, Tia; Birgfeld, Erin; Valentine, Julia; Senn, John; Werner, Jacqueline
Subject: Re: WSJ questions on VW--NEED RESPONSES

Ex. 5, 7

On Oct 13, 2015, at 3:50 PM, Birgfeld, Erin <Birgfeld.Erin@epa.gov> wrote:

Ex. 5, 7

-Erin

From: Belser, Evan
Sent: Tuesday, October 13, 2015 3:03 PM
To: Bunker, Byron; Conger, Nick; Hengst, Benjamin; Birgfeld, Erin; Grundler, Christopher; Millett, John; Sutton, Tia
Cc: Valentine, Julia; Allen, Laura; Senn, John; Werner, Jacqueline
Subject: RE: WSJ questions on VW--NEED RESPONSES

Ex. 5, 7

Evan

Evan Belser

Chief, Mobile Source Enforcement Branch, Air Enforcement Division

National Coordinator for Administrative Litigation, Office of Civil Enforcement

Office of Enforcement and Compliance Assurance

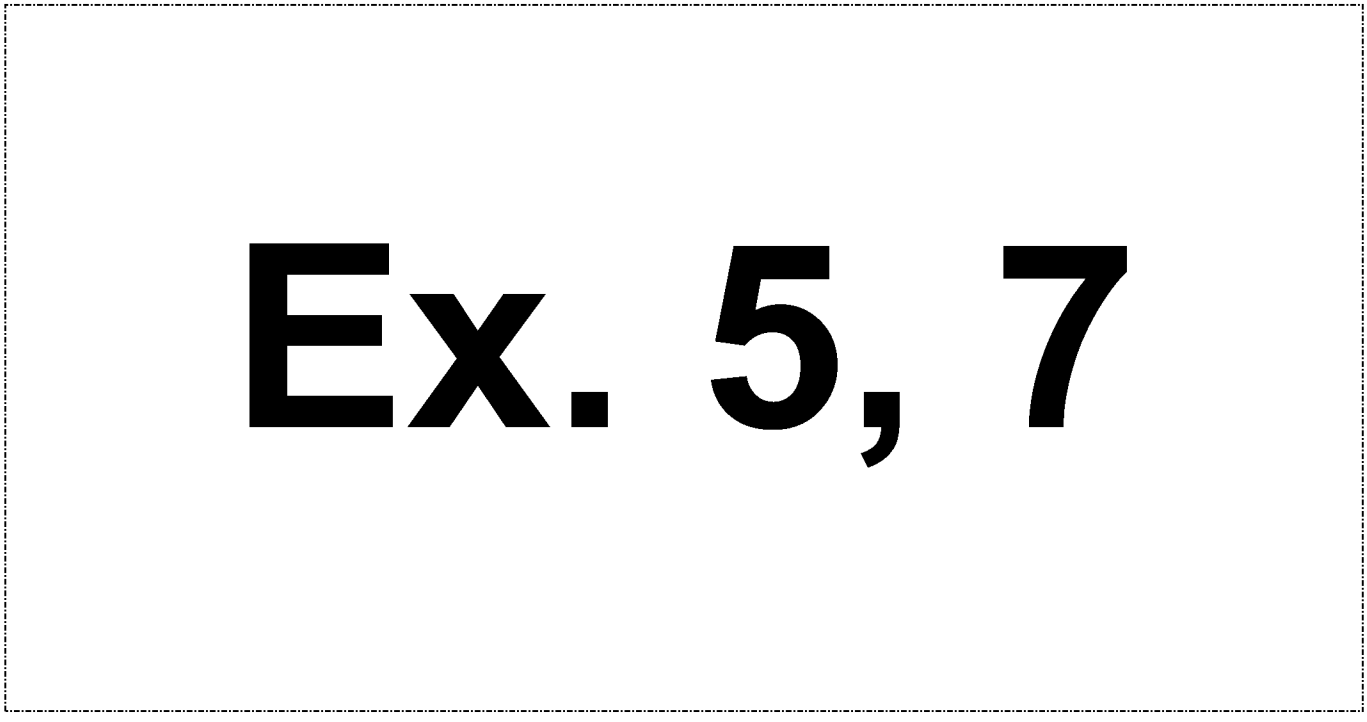
United States Environmental Protection Agency

202-564-6850

From: Bunker, Byron
Sent: Tuesday, October 13, 2015 2:48 PM
To: Conger, Nick; Hengst, Benjamin; Birgfeld, Erin; Grundler, Christopher; Millett, John; Sutton, Tia
Cc: Valentine, Julia; Allen, Laura; Senn, John; Belser, Evan
Subject: RE: WSJ questions on VW--NEED RESPONSES

Hi Nick,

Ex. 5, 7



****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Conger, Nick
Sent: Tuesday, October 13, 2015 2:24 PM
To: Hengst, Benjamin; Birgfeld, Erin; Bunker, Byron; Grundler, Christopher; Millett, John; Sutton, Tia
Cc: Valentine, Julia; Allen, Laura; Senn, John; Belser, Evan
Subject: WSJ questions on VW--NEED RESPONSES

Hi OTAQ. I think Erin is in Michigan, as are many others, but here are some questions from the Wall Street Journal that we need to turn around by 6pm today. **Ex. 5, 7**

Ex. 5, 7

Ex. 5, 7

Nick

Nick Conger

Deputy Press Secretary

Office of the Administrator

U.S. Environmental Protection Agency

Office: (202) 564-6287

Cell: (202) 412-2655

Liz/Nick:

Amy and I wanted to follow up on some questions we're hoping you can help with as we do reporting on VW.

1) Can you break down for us which of the VW diesel models are Generation 1, Generation 2 and Generation 3? Some detail beyond model years would be helpful, as I understand, for instance, that certain model-year Passats are Generation 2 but not Jettas. If you can tell us make, model and year for each generation, and tell us what differentiates each generation, that would be very helpful.

2) Could you walk us through or point us to the specific rules that require Volkswagen to explain the capabilities of auxiliary emissions control devices on the 2016 diesel models as part of the certification process? I understand they are obligated under EPA regulations to lay that all our for the agency. Perhaps you can point us to the specific rules or put us on the phone with someone who can help?

3) Has VW yet fulfilled its obligation to explain all the capabilities of the AECD on the 2016 diesel models? If not, has VW indicated when you can expect the full explanation?

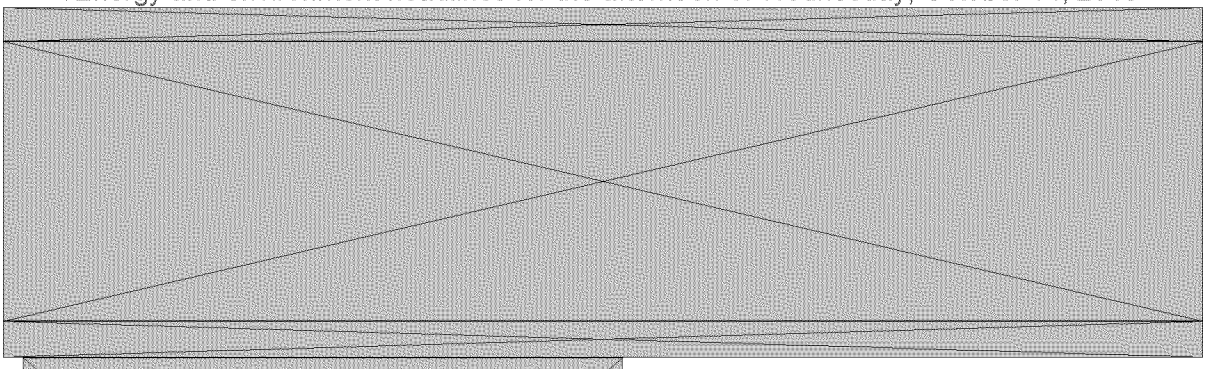
Best,

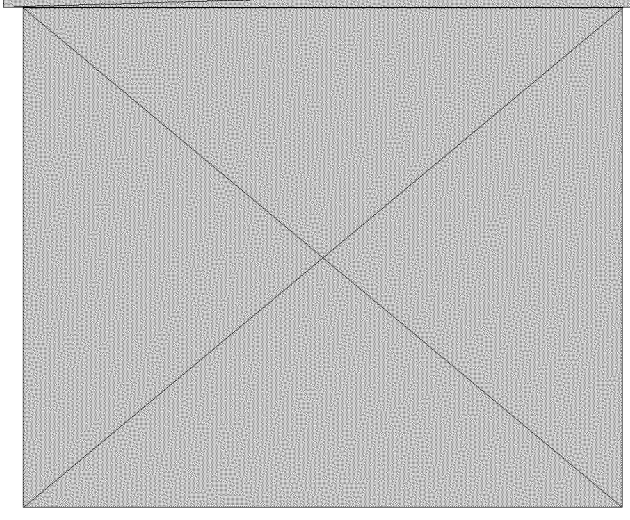
Mike

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Wed 10/14/2015 9:40:30 PM
Subject: API chief, bullish on Senate crude export vote, deflects on clean energy credits

Advertise | Contact

Energy and environment headlines for the afternoon of Wednesday, October 14, 2015





API chief, bullish on Senate crude export vote, deflects on clean energy credits

By Kevin Rogers

The leader of the American Petroleum Institute on Wednesday said he sees "momentum" building in the Senate on a bill to lift the 40-year-old ban on crude oil exports, but he wouldn't say if his group would support extending clean energy tax credits if that's what it took to get the bill enacted.

On a call with reporters, API President and CEO Jack Gerard repeatedly declined to

comment on the floated compromise that would link crude exports to long-term extensions for wind and solar tax credits. Gerard said he believed there were "20 or 30 different paths" forward for export language, and said he didn't want to speculate on what form a final bill would take.

"The oil and natural gas industry has really left it to the Congress to decide how they develop the energy policies, who they give tax credits to, who they subsidize, who they don't," he told reporters on a call. "If something like that comes together, we'll be quick to share our views on it, but until we see something like that, it's premature to even comment on it."

Sen. Heidi Heitkamp, D-N.D., a leader of the Senate push to lift the ban, has said that renewable energy tax credits would be on the table to win Democratic support for the measure. Some members of the caucus, including Sens. Jon Tester, D-Mont., Martin Heinrich, D-N.M., and Angus King, I-Maine, have indicated they could support that approach.

The Solar Energy Industries Association, which is pressing for extension of its Investment Tax Credit -- which is set to begin phasing out next year -- said it would accept any congressional vehicle to reach that goal.

"Recently, there has been a lot of discussion on Capitol Hill about combining the lifting of the current ban on crude oil exports with long-term extensions of renewable energy tax credits, like the Investment Tax Credit," Vice President of Federal Affairs Christopher Mansour said in a statement. "SEIA strongly supports a long-term extension of the Investment Tax Credit, as a means of maintaining the phenomenal growth in American solar jobs, installations and investments. How Congress decides to make that happen is up to the congressional leadership."

But Jay Hauck, executive director of Consumers and Refiners United for Domestic Energy, which opposes lifting the ban, predicted that approach would backfire.

"Export proponents are stuck between a rock and a hard place," he said. "The more that they offer Democrats, the more likely they are to lose Republicans."

And some Senate Democrats believe the suggested deal won't materialize.

"The offer is not going to be put on the table," Sen. Ed Markey, D-Mass., said at an export forum last month. "The only reason it's teased out is that they want to figure out how they can put this thing together with the minimum number of Democratic votes in order to pass it."

Gerard said the most "efficient" path forward in the Senate would be a clean bill to end the ban. The Senate is currently sitting on such a bill, from Heitkamp and Sen. Lisa Murkowski, R-Alaska. A similar bill passed the House Friday by a vote of 261-159, with the backing of 26 Democrats.

Heitkamp and Murkowski's bill advanced in the Senate Banking Committee two weeks ago, though no Democrat other than Heitkamp voted for it. Any bill would require backing from at least six Democrats on the floor, as well as every Republican, to allow for a full debate and vote on the legislation.

Gerard was nonetheless optimistic that Congress could get a bill to President Barack Obama's desk by the end of the year.

"The process will finally determine that, but I think there's strong Democratic support for lifting the ban on crude oil exports," he said.

He also maintained that Obama could come to support such legislation, noting that the president has yet to go on the record against it.

"If you read the statement of administration position, it says that staff would recommend a veto, so I'm not sure the president has yet said — or I've not heard any senior leaders say — they would veto," he said.

Hauck dismissed Gerard's view as overly optimistic.

"The political calculus is a lot trickier in the Senate than in the House," he said. "We continue to believe that exports face an uphill battle in the Senate."

The White House veto recommendation, which was issued in connection with the House bill, argued that the Commerce Department already has necessary authority over exports. Proponents would need to gather 290 votes in the House and 67 votes in the Senate for an override.

Quick Links

Supreme Court seems troubled over demand response rule

Fed says impact of lower oil prices reflected in latest snapshot

Oil official: Federal rules threaten North Dakota's output

Fed review boosts ocean gas plan; foes seek NY governor veto

2016 VW diesels have new software affecting emissions tests

Recently named head of VW North America will not take post

C2ES gets coal and oil companies to back climate deal

Is Texas close to meeting its Clean Power Plan goal?

EIA predicts big cut in shale oil production in November

Banks putting aside more money to cover energy losses

Oil loses pennies as traders await supply figures

Reuters estimates oil glut has grown by half a billion barrels this year

WSJ: Analysts estimate crude stocks rose 2.6 million barrels last week

Gasoline futures lowest in a month

'Drop, cover—and hold on!'

Tulsa oil company agrees to meet with state on dispoal wells and quakes

Upcoming Events

Supreme Court seems troubled over demand response rule

By Sam Hananel

WASHINGTON (AP) — The Supreme Court on Wednesday seemed troubled by a federal regulation backed by environmental groups that requires utilities to pay big electric customers who save energy during times of peak demand.

The Obama administration and other supporters say the rule has helped consumers save billions in energy costs, improved reliability of the power grid and helped reduce air pollution since it was put in place in 2011.

But the key question during a one-hour argument that pitted the nation's current solicitor general against a past holder of the office was whether the Federal Energy Regulatory Commission overstepped its authority in adopting the program, known as demand response.

A federal appeals court ruled 2-1 last year that it intrudes on state power over retail electricity purchases. Federal law gives the commission authority to regulate wholesale markets, while retail sales are governed by states.

The issue appeared to divide the justices along political lines, with conservatives wary the commission had gone too far and liberals more willing to side with the government.

More

Fed says impact of lower oil prices reflected in latest snapshot

By The Associated Press

Steep drops in oil and gas prices in the past year continued to weigh on many energy producers, which are still cutting jobs in Texas, the Dallas Federal Reserve said Wednesday as part of the Federal Reserve's latest snapshot of the economy.

Oil and gas drillers are ordering less steel pipe and other equipment, dragging down factory output, according to many districts reporting in the Fed's "beige book" report.

Manufacturers are also struggling because of the strong dollar, which has increased about 13 percent in value against a basket of other currencies in the past 12 months. That makes U.S. goods more expensive overseas and lowers the price of foreign goods in the United States, cutting into U.S. exports.

Oil official: Federal rules threaten North Dakota's output

By James MacPherson

BISMARCK, N.D. (AP) — Forget slumping crude prices — it's a "suite" of proposed regulations by the Obama administration that most threaten North Dakota's oil production, a top industry official said Wednesday.

"Jurisdictional overreach appears to be the norm in the federal agency rulemaking process," North Dakota Petroleum Council Vice President Kari Cutting told a state legislative committee on energy development.

North Dakota sweet crude was fetching about $38 a barrel Wednesday, which is about half of what it sold for a year ago. The number of drilling rigs has plummeted in North Dakota by nearly two-thirds to 66 due to low prices but production remains at near-record levels as drillers concentrate rigs in high-volume areas.

Cutting, whose group represents more than 550 companies working in the oil patch, said the industry has increased efficiencies to keep production steady at about 1.1 million barrels daily, second only to Texas. But the industry will have a tougher time adapting to what she calls a "jurisdictional grab" by the federal government.

Fed review boosts ocean gas plan; foes seek NY governor veto

By Wayne Parry

ATLANTIC CITY, N.J. (AP) — A company that wants to build an ocean terminal off the coast of New York and New Jersey to import liquefied natural gas said Wednesday that a federal review supports its claim the $600 million project is safe and economically necessary.

Roger Whelan, CEO of Liberty Natural Gas, told The Associated Press that the final environmental impact statement from the U.S. Coast Guard bolsters its contention that the project to import natural gas to the New York metropolitan region during peak demand times should go forward.

The environmental review was released Friday, and the plan can be vetoed by the governor of either state. The United States Maritime Administration will make a final decision following public hearings this fall.

Neither New Jersey Gov. Chris Christie nor New York Gov. Andrew Cuomo has expressed his intentions regarding the application for what would be called Port Ambrose. Christie has vetoed a previous iteration of the plan, but both governors declined to discuss the subject last week.

Opponents, including environmentalists, fishing groups, and some elected officials, say an ocean terminal is a potential terrorist target, would disrupt fishing and would harm the environment. They say it's not needed because America already has large supplies of domestically produced natural gas.

2016 VW diesels have new software affecting emissions tests

By Michael Biesecker and Tom Krisher

WASHINGTON (AP) — Volkswagen has disclosed to U.S. regulators that there is additional suspect software in its 2016 diesel models that would potentially help their exhaust systems run cleaner during government tests.

Volkswagen confirmed to The Associated Press that the "auxiliary emissions control device" at issue operates differently from the "defeat" device software included in the company's 2009 to 2015 models disclosed last month. That disclosure triggered the worldwide cheating

scandal engulfing the world's largest automaker.

The newly revealed software makes a pollution control catalyst heat up faster, improving performance of the device that separates smog-causing nitrogen oxide into harmless nitrogen and oxygen gases.

VW spokeswoman Jeannine Ginivan said the new issue with the 2016 diesel models, known as an auxiliary emissions control device, was first revealed last week to U.S. Environmental Protection Agency and California regulators.

"This has the function of a warmup strategy which is subject to approval by the agencies," Ginivan said. "The agencies are currently evaluating this and Volkswagen is submitting additional information."

More

A message from America's Natural Gas Alliance

Clean is Powerful. Natural gas helps Georgia Power's plant generate electricity with 50% fewer emissions. Think about it.

Learn more at www.thinkaboutit.org.

Recently named head of VW North America will not take post

By David McHugh and Tom Krisher

FRANKFURT, Germany (AP) — The recently named head of Volkswagen's North American business has left the company before taking up his new job — adding disruption as the company faces a scandal over rigging the results of emissions testing of its diesel vehicles.

It means that one of the company's most experienced managers will not be coming to lead the company's response in the United States as it faces possible heavy fines from the Environmental Protection Agency.

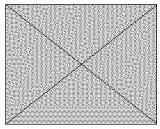
Volkswagen's Skoda division made the announcement about its chairman, Winfried Vahland, in a news release on Wednesday.

The release said that Vahland will not be moving to take over his new position carrying overall responsibility for North America because of "differing views on the organization of the new group region." It said his decision to quit was not related to the scandal over the

diesel engines.

More

Sponsored Links



Week in Review – House Defies White House on Oil Export Ban

New Climate Change Laws in California.

Click here to read the brief

C2ES gets coal and oil companies to back climate deal

The list of companies signing onto a Center for Climate & Energy Solutions supporting a Paris climate deal includes coal miners, oil producers, aluminum manufacturers and cement makers, Bloomberg reports.

More

Is Texas close to meeting its Clean Power Plan goal?

The Environmental Defense Fund thinks Texas is on track to meet 88 percent of its Clean Power Plan carbon cut goals, FuelFix reports.

More

EIA predicts big cut in shale oil production in November

A new government forecast says U.S. shale oil production will drop by about 115,000 barrels a day next month, FuelFix reports.

More

Banks putting aside more money to cover energy losses

The toll low oil prices have taken on oil and gas companies is prompting the banks to prepare to cover more losses, Bloomberg reports.

More

Oil loses pennies as traders await supply figures

Oil barely budged Wednesday as traders waited for fresh government reports on crude

stockpiles. West Texas Intermediate dropped 2 cents, settling at $46.64 a barrel on the Nymex. In London, Brent lost 9 cents, settling at $49.15, MarketWatch reports.

More

Reuters estimates oil glut has grown by half a billion barrels this year

Reuters talked to some analysts and did its sums and estimates that more than 550 million barrels of crude were added to the oil glut in the first nine months of 2015.

More

WSJ: Analysts estimate crude stocks rose 2.6 million barrels last week

Ahead of Thursday's government report, The Wall Street Journal's survey of analysts estimates that crude oil stocks rose about 2.6 million barrels last week.

More

Gasoline futures lowest in a month

Gasoline futures dropped to their lowest level in a month—$1.3083 a gallon—on word that demand fell to a six-month low the week ending Oct. 2, The Wall Street Journal reports.

More

'Drop, cover—and hold on!'

Reuters reports that earthquake drills are becoming more important in the Midwest as quake activity surges.

More

Tulsa oil company agrees to meet with state on dispoal wells and quakes

Marjo Operating Co. has agreed to meet with Oklahoma regulators to discuss their dispute over earthquakes and waste disposal well volumes, The Associated Press reports.

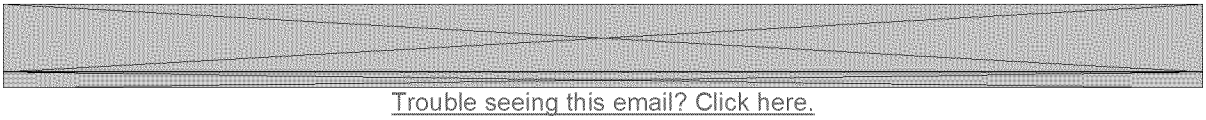
More

Upcoming Events

- Oct. 14, Washington: The District of Columbia Bar to hold a discussion on the legality of the Environmental Protection Agency's Clean Power Plan to reduce greenhouse gas emissions from the power sector. Natural Resources Defense Council Climate and Clean Air Director David Doniger, Georgetown Professor Lisa Heizerling and

Bracewell & Giuliani partner Jeff Holmstead to speak. 12:30 pm , 1101 K Street, NW.

- Oct. 14, Washington: International Energy Agency Energy Efficiency and Environment Division chief Phillipe Benoit to discuss the agency's 2015 Energy Efficiency Market Report. 12:30 pm , 1616 Rhode Island Avenue, NW.
- Oct. 14, Washington: Former General Motors Chief Technology Officer Larry Burns, Domino's Pizza Executive Vice President Lynn Liddle and Securing America's Future Energy CEO Robby Diamond to participate in a discussion on the future for autonomous vehicles. 10:00 am , National Press Club
- Oct. 14, Washington: Energy Secretary Ernest Moniz to give keynote address at the final day of the National Summit on Smart Grid and Climate Change. 9:00 am , Hyatt Regency Capitol Hill.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

From: Washington, Debra
Required Attendees: Wilkes, Mary; Regional Counsel Contacts; Ex. 7 benjamin bahk; Jerison, Joanna; Quast, Sylvia; Sierra, Eddie; Kaplan, Robert; Castanon, Lisa; Busterud, Gretchen; Humphrey, Leslie; Ellen Mahan; Thompson, Christopher; Sullivan, Greg; OKeefe, Susan; Theis, Joseph; Brooks, Phillip; Stewart, Andrew; Werner, Jacqueline; Kelley, Rosemarie; Sullivan, Tim; Lott, Don; Fried, Gregory; Bunnell, Julia; Saenz, Diana; Fogarty, Johnpc; Ben Fisherow; Holmes, Carol; Denton, Loren; Klepp, Robert; Kabler, Lauren; Pollins, Mark; Moyer, Robert; Lyons, John; Chapman, Apple; Makepeace, Caroline; Stoy, Alyse
Optional Attendees: Skelley, Dana; Heard, Anne; Nelson, Leverett; Tozzi, Lauren; Simon, Paul; Tommelleo, Nancy; Cozad, David; Nann, Barbara; Coe, Mary; Bohan, Suzanne; Ajl, Diane; Stern, Allyn; Madigan, Andrea; bigioni, neil; Jonesi, Gary; Seager, Cheryl; Frey, Bert; Schaaf, Eric; Mairs, Stephanie; Berg, Elizabeth; Murray, Suzanne; Isales, Lydia; Dolph, Becky; Eppers, Jim; Allnutt, David; Ex. 7 Belser, Evan; Katz, Melissa; Spiegelman, Nina
Location: 3146 WJC South
Importance: Normal
Subject: OCE-DOJ & RC's Monthly Conf. **Non-Responsive**
Start Date/Time: Thur 10/15/2015 5:00:00 PM
End Date/Time: Thur 10/15/2015 6:30:00 PM
Acting Associate Attorney General Memorandum to Agencies re FRCP Changes....pdf
ENV_DEFENSE-#741229-v1-Foster_-_Opinion_and_Order_denying_in_part_and_gr....pdf
OCE-DOJ-RCs Monthly Agenda-10-15-15.docx

To: Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]
Cc: Cook, Leila[cook.leila@epa.gov]
From: Grundler, Christopher
Sent: Wed 10/14/2015 11:35:31 PM
Subject: NHTSA Followup

Let's decide tomorrow on best way to Followup on Rosekind request for VW briefing.

Sent from my iPhone

To: Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Jackson, Cleophas[jackson.cleophas@epa.gov]; Ex. 7 Drew Kodjak[drew@theicct.org]
From: Hui He
Sent: Thur 10/15/2015 7:40:11 AM
Subject: Latest agenda and logistics of Sino-US workshop
Agenda v7-clean.docx
ATT00001.htm
logistic memo .pdf
ATT00002.htm

Dear speakers,
Please find the attached latest agenda of the workshop and a logistics memo. I checked in with VECC-MEP a couple of hours ago, there is still one unconfirmed speaker from China side. So this version is still not final final, but that should not affect your presentations.

Later, I'll send to each speaker his/her final bilingual slides, and specific airport pick up information (if applicable).

Best,
Hui

The 5th Sino-US Mobile Source Emissions Control Workshop
On Vehicle And Engine Emissions Compliance

Oct 21-22, 2015
Yu Yang Hotel • Beijing
18 Xin Yuan Xi Li Middle St., Chaoyang Dist.

Day 1. Plenary meeting
Venue: Century Hall, 3rd Fl.

TIME	Item	HOST/presenter
9:00-9:20	**Opening Remarks**	**MEP and Jim Blubaugh, EPA**
Part I. Legal Basis for Vehicle Emissions Control		**Host: MEP**
9:20-9:40	Indications from China's New Air Pollution Control And Prevention Law to Mobile Source Emissions Control	DPLR, MEP
9:40-10:00	Opportunities and Challenges on Mobile Source Emissions Control Under the New China Air Law	DPPC, MEP
10:00-10:20	EPA Authority Under the Clean Air Act Regarding Motor Vehicle Emission And Fuel Standards	Byron Bunker, EPA
10:20-10:40	*Break*	
Part II. Effective Vehicle Emissions Compliance and Management		**Host: EPA**
10:40-11:00	Vehicle Emissions Compliance Programs in China	VECC-MEP
11:00-11:20	EPA Compliance Programs	Cleophas Jackson, EPA
11:20-11:40	The Role of On-Board Diagnostics (OBD) in In-Use Emissions Control	Sharon Lemieux, CARB
11:40-12:00	Q&A	
12:00-1:30	*Lunch Buffet*	
Part III. Technical And Testing Methods For In-Use Compliance		**Host: EPA**

VW FOIA, EPA 06/20/2017 2017-FFP_034015

1:30-1:50	Vehicle Compliance and Enforcement after Discovery of Volkswagen's Defeat Device	Drew Kodjak, ICCT
1:50-2:10	New Development in In-Use Emissions Testing in China: PEMS and Full Vehicle Testing	Jingnan Hu, CRAES-MEP
2:10-2:30	Technologies for Monitoring SCR Systems on Heavy Diesel Vehicles	Yunshan Ge, BIT
2:30-2:50	Application of Big Data in Vehicle Emissions Compliance	Ye Wu, Tsinghua Univ.
2:50-3:10	*Break*	
Part IV. Strategies for Improving In-Use Emissions		**HOST: MEP**
3:10-3:30	Overview Of Legacy Fleet Emissions Control in China	VECC-MEP
3:30-3:50	U.S. Clean Diesel Legacy Fleet Program	Jim Blubaugh and TBD, EPA
3:50-4:10	Achieving a Successful Retrofit Program	Sharon Lemieux, CARB
4:10-4:30	Beijing's Experiences in Addressing In-Use Emissions	TBD, BEPB
4:30-5:00	Q&A and Discussion	
5:00-5:15	**Closing Remarks**	**MEP**
6:00-7:45	*Dinner Buffet*	

Abbreviations of agencies
MEP: Ministry of Environmental Protection
EPA: United States Environmental Protection Agency
VECC-MEP: Vehicle Emission Control Center of Ministry of Environmental Protection
DPLR-MEP: Department of Policies, Laws, and Regulations, Ministry of Environmental Protection
DPPC-MEP: Department of Pollution Prevention and Control, Ministry of Environmental Protection
CARB: California Air Resources Board
ICCT: International Council on Clean Transportation
CRAES-MEP: China Research Academy of Environmental Science of Ministry of Environmental Protection
BEPB: Beijing Environmental Protection Bureau
BIT: Beijing Institute of Technology

Day 2. Invited Discussion
Venue: Wenhua Hall, 3rd Fl.

VW FOIA, EPA 06/20/2017 2017-FFP_034016

TIME	ITEM	HOST/PRESENTER
9:00-9:30	Lessons from Emissions Recalls in the US	EPA
9:30-9:50	Challenges in Vehicle Emissions Compliance in China	VECC-MEP
9:50-11:30	Discussion with Ad-Hoc Breaks	Host: VECC-MEP
11:30-12:30	*Lunch Buffet**	

To: Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Jackson, Cleophas[jackson.cleophas@epa.gov]
From: Hui He
Sent: Thur 10/15/2015 7:49:37 AM
Subject: your final slides
EPA Compliance Programs_2015_Final.ppt
ATT00001.htm
EPA-Blubaugh-Clean Diesel Program in US_Final.ppt
ATT00002.htm
EPA-Bunker-CleanAirAct-21 October 2015_Final.pptx
ATT00003.htm

Dear Jim, Byron and Cle,
Please find your final slides.

I under that you do not need airport pick up. Please let me know if you plan to join the welcome dinner in the evening of Oct 20.

Best,
Hui

EPA Compliance Programs
EPA达标管理
Office of Transportation and Air Quality
Compliance Workshop
美国环保局交通与空气质量办公室
Cleophas Jackson, Director
Gasoline Engine Compliance Center
汽油发动机合规管理中心

VW FOIA, EPA 06/20/2017 2017-FFP_034019

Compliance Overview
达标管理概况

- EPA's Regulatory Programs help ensure cleaner air and result in health and welfare benefits for all of us
- EPA's Compliance Programs are designed to ensure we achieve the expected air quality benefits and to ensure that manufacturers can compete on a level playing field
- Broadly we ensure compliance two ways – Compliance Determination and Compliance Oversight

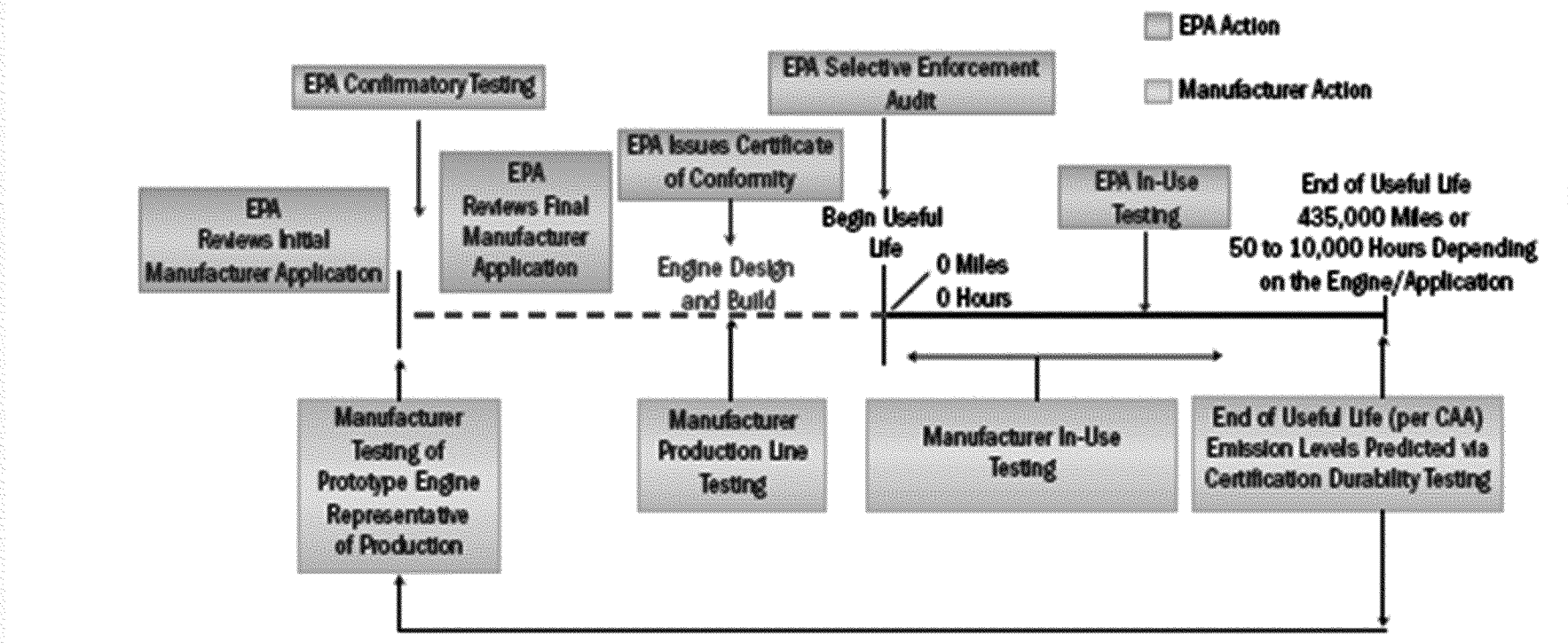
- EPA的管理方案帮助我们确保空气更加清洁，所有人都能从中获得健康和福利。
- EPA的达标管理从设计上就是为了确保我们能实现预期的空气质量收益并确保生产企业之间能够公平竞争。
- 大体上，我们通过两大途径来确保达标–达标判定和达标监管。

Compliance Overview
达标管理概况

- Compliance Review
  - Ramping up our certification review activity with more rigorous analysis of data submitted
    - If industry appropriately completes this work, we can have high confidence their product / process should be compliant.
    - We do not issue certificates (licenses to produce) if we do not believe manufacturers have met these requirements
  - Improving our oversight of manufacturer-submitted PLT reports
    - Leveraging information technology to identify potential problems from manufacturer-submitted compliance reports
    - Identifying potential manufacturing problems in real-time
  - Improving our cross-government communications (including with Customs) to turn away uncertified products at the port
  - Providing transparency for our compliance activities by posting those families that have faced actions such as voiding
    - http://www.epa.gov/otaq/motor-void.htm

- 达标管理概况
  - 对提交的数据进行严格分析，加强认证审核
    - 如果生产企业适当地完成了这些工作，我们会相信企业的产品/生产流程是达标的。
    - 如果生产企业没有满足这些要求，我们就不会为其发放认证证书（生产许可）。
  - 改善我们对生产企业的监管-提交生产线测试（PLT）报告
    - 通过生产企业提交的达标报告，借助信息技术来识别出可能存在的问题。
    - 实时发现生产企业可能存在的问题。
  - 加强政府机构之间的交流（包括海关），从港口清退未经认证的产品。
  - 公开提供达标管理行动的信息，公布面临处罚（比如吊销认证）的车辆系族
    - http://www.epa.gov/otaq/motor-void.htm

Compliance Life Cycle
车辆使用周期达标管理



Compliance Overview
达标管理概况

- Compliance Tools
  - Ramping up our confirmatory testing at EPA and Contract facilities
  - Auditing manufacturer's laboratories and engines/vehicles through Selective Enforcement Audits
  - Checking consumer products by purchasing equipment from retailers
    - Checking for accuracy of certification applications and performing emissions testing
  - Partnering with the California Air Resources Board, Environment Canada, and China's MEP to broaden our testing reach and to take coordinated recall/enforcement actions

- 达标管理手段
  - 加强EPA和合约检测机构的一致性测试工作
  - 通过选择性达标审核对生产企业的实验室和发动机/车辆进行审核
  - 从零售商处购买设备来检查终端消费产品
    - 检查配置是否符合认证规格并进行排放测试
  - 与加州空气资源委员会、加拿大环保部和中国环保部合作，拓宽我们的测试范围，并联合开展召回/执法行动。

Compliance Testing
达标管理测试

- EPA's program for engines includes a variety of types of emission testing outside of certification
  - Production Line Testing
    - Manufacturer verifies performance of production engines
  - Confirmatory Test
    - EPA audits emission performance of engine design
  - Selective Enforcement Audit
    - EPA audits emission performance of production engines
  - Laboratory Audit
    - EPA audits emission lab of manufacturer
  - In-Use Testing
    - EPA purchases new equipment and audits emission performance
    - Manufacturer run in-use programs with data submissions to EPA

- 除了进行认证测试，EPA对发动机的管理还包括多项不同的排放测试
  - 生产线测试
    - 生产企业审核发动机产品的性能
  - 一致性测试
    - EPA审核发动机设计排放性能
  - 选择性达标审核
    - EPA审核实际生产的发动机的排放性能
  - 实验室审核
    - EPA审核生产企业的排放实验室
  - 在用测试
    - EPA购买新生产设备并审核其排放性能
    - 生产企业进行在用测试并向EPA提交相关数据

Compliance Testing - PLT
达标管理测试-PLT

- Production Line Testing (PLT) –
  - Manufacturers perform low-hour emission tests on production engines
    - Maximum number of engines tested is 30 or 1% of production, whichever is lower
    - PLT does not apply to Small-volume manufacturers or approved small volume emission families
  - Statistical analysis determines if the family passes/fails
    - Manufacturers must notify EPA if an engine family fails its PLT
    - Engine certificate is suspended if family fails

- 生产线测试(PLT) –
  - 生产企业对发动机产品进行的排放测试
    - 发动机测试数量为最多30台或产品的1%，以二者较低者为准
    - PLT不适用于小批量生产企业或经过批准的小批量排放系族
  - 通过统计分析判定发动机系族是否通过测试
    - 如果发动机系族未能通过PLT测试，生产企业必须向EPA报告
    - 对于未能通过测试的系族，将暂时吊销发动机认证

Compliance Testing – PLT (cont.)
达标管理测试-PLT（续）

- Production Line Testing (PLT) –
  - Many families are subject to PLT testing each year
    - Remaining families are from exempted small-volume engine manufacturers and small-volume engine families, and engine families that had zero production
  - According to manufacturer submitted reports, no families have failed PLT testing
    - EPA has seen issues with some manufacturers and works to address those with the manufacturers
  - How to handle failing engines is the most common problem identified in EPA's review
    - Failing engines can be repaired and retested, but retest data should not be included in the PLT calculations
    - However, all retest data should be reported in PLT template

- 生产线测试(PLT) –
  - 很多系族每年都要进行PLT测试
    - 除了小批量发动机生产企业、小批量发动机系族和产量为零的发动机系族，其他发动机系族都要进行测试
  - 根据生产企业提交的报告，没有不通过PLT测试的系族
    - EPA已发现部分生产企业存在一些问题，并且会与生产企业共同解决这些问题
  - 如何处理未能通过测试的发动机是EPA在审核中最常遇到的问题
    - 未能通过测试的发动机可以在经过维修后重新进行测试，但复测数据不能被纳入PLT计算
    - 不过，所有复测数据必须在PLT模板中进行报告

Compliance Testing – Confirmatory Testing
达标管理测试－一致性测试

- Confirmatory Test
  - EPA issues test order to manufacturer
  - Manufacturer provides product to EPA for testing
  - EPA tests engine prior to certification approval

- 一致性测试
  - EPA向生产企业发出测试指令
  - 生产企业向EPA提供进行测试的产品
  - EPA在批准认证之前对发动机进行测试

Compliance Testing – Confirmatory Testing (cont.)

达标管理测试 – 一致性测试（续）

- Confirmatory Test
  - As we've tested more handheld engines, we've seen more testing/quality problems
    - We encourage all manufacturers to test their engines before shipping to EPA
    - Manufacturers will have 24 hours to repair/replace an engine that cannot run a valid test or fails the initial test
  - Certificate is not issued if engine family fails the confirmatory test

- 一致性测试
  - 随着我们对越来越多的手持发动机进行了测试，我们发现了更多的测试/质量问题
    - 我们鼓励生产企业在将发动机交给EPA之前先自己对发动机进行测试
    - 如果发动机无法进行有效测试或未能通过初测，生产企业将有24小时的时间对发动机进行维修/换件
  - 如果发动机系族未能通过一致性测试是无法获得认证的

Compliance Testing – Selective Enforcement Audit
达标管理测试–选择性达标审核

- Selective Enforcement Audit (SEA)
  - EPA issues test order to manufacturer
  - Manufacturer tests production engines
    - EPA may be present for engine selection and testing
    - Emission tests run at US-based facility listed in certification application
  - Number of engines passing/failing determines if a family passes or not
  - Engine certificate is suspended if family fails the SEA

- 选择性达标审核(SEA)
  - EPA向生产企业发出测试指令
  - 生产企业对发动机产品进行测试
    - EPA可能会到场参与发动机选择和测试
    - 由认证申请列表上列出的美国检测机构来进行发动机测试
  - 通过/不通过测试的发动机数量决定发动机系族是否最终通过
  - 如果发动机系族未能通过SEA审核，将暂时吊销发动机的认证

Compliance Testing – Audit
达标管理测试 – 审核

- Laboratory Audit -
  - EPA visits manufacturer test labs to perform and emission audit
    - Check records
  - Engine testing may be requested as part of audit
    - Check emission calculations
  - EPA continues as an active audit program of manufacturers' facilities, records, and emission performance
    - There are on-going reviews based on information gleaned from the audits

- 实验室审核 –
  - EPA检查生产企业的测试实验室并进行排放审核
    - 检查记录
  - 可以要求将发动机测试作为审核的一部分
    - 检查排放计算结果
  - EPA会持续性的对生产企业的设备、记录和产品排放性能进行审核
    - 也会不断审阅审核过程中获取的信息

Compliance Testing - In-Use Program
达标管理测试-在用车管理方案

- Goal:
  - Ensure in-use vehicles comply with standards
- Numerous data sources:
  - Defect reports, warranty, voluntary recall reports, IUVP data
- Testing
  - Manufacturer IUVP & IUCP
  - EPA in-use surveillance
- Enforcement tools
  - Voluntary recall
  - Mandatory recall
  - Service bulletins

- 目标:
  - 确保在用车符合标准要求
- 多方面的数据来源：
  - 缺陷报告、保修、自愿性召回报告、IUVP数据
- 测试
  - 生产企业IUVP & IUCP
  - EPA的在用车监管
- 执行手段
  - 自愿性召回
  - 强制性召回
  - 服务公告

Compliance Testing – In-Use Program (cont.)
达标管理测试-在用车管理方案（续）

- In-Use Testing -
  - EPA decides which families to test
    - EPA purchases products at retail establishments
  - Number of engines passing/failing would factor into EPA's decision whether to pursue further action
    - Clean Air Act criteria: Do a "statistically significant number" fail to meet the standards?
  - Engine certificate could be suspended if family fails
  - EPA has run pilot in-use programs for some sectors and manufacturer run in-use programs for other sectors
  - EPA plans additional work in this area in the future

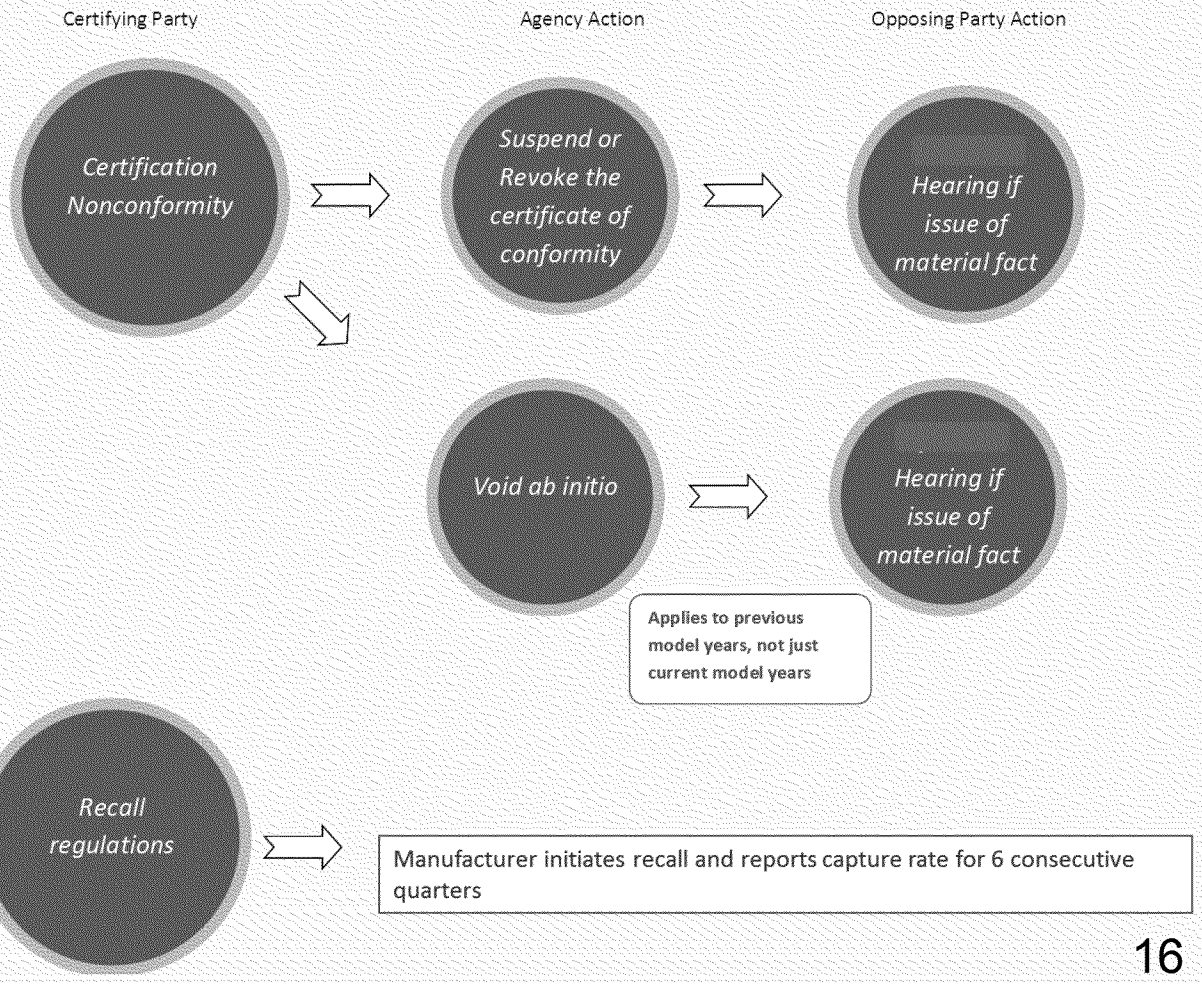
- 在用车测试 –
  - EPA决定对哪些系族进行测试
    - EPA在零售店购买产品
  - EPA会根据发动机通过/不通过的数量决定是否采取进一步行动
    - 清洁空气法中的标准：是否有相当数量的车辆/发动机未能满足标准要求？
  - 如果发动机系族未能通过测试，将暂时吊销发动机的认证
  - EPA在部分领域率先开展了在用车管理方案，生产企业负责开展其他领域的在用车管理方案
  - EPA计划在今后继续加强这方面的工作

In-Use Compliance
在用车达标管理

- Light Duty
  - IUVP (In-Use Verification Program)
  - EPA In-Use Testing
- Diesel Engines
  - Manufacturer In-Use Testing Program
  - EPA In-Use Testing (PEMS and Engine Dynamometer)
- Gasoline Engines
  - Manufacturer Run In-Use Programs
  - EPA In-Use Engine Testing (PEMS and Engine Dynamometer)

- 轻型车
  - IUVP（在用车审核方案）
  - EPA在用车测试
- 柴油发动机
  - 生产企业执行的在用车测试
  - EPA执行的在用车测试（PEMS和发动机测功机）
- 汽油发动机
  - 生产企业执行的在用车管理
  - EPA执行的在用发动机测试（PEMS和发动机测功机）

What happens when noncompliance is identified?
发现不达标情况后怎么处理？



Coordination with Partner Agencies
与其他部门合作

- CARB
  - EPA coordinates with ARB on a regular basis to help provide a broad compliance presence
  - EPA also seeks to reduce unnecessary burden to avoid duplication of redundant testing activities
- Canada
  - EPA engages in compliance coordination with Environment Canada
  - Within the scope of the President's Regulatory Cooperation Council and the existing U.S. / Canada Air Quality Agreement the two agencies collaborate on regulatory initiatives to improve efficiencies within the North American market
- China
  - EPA has initiated outreach and coordination efforts with the Ministry of Environmental Protection (MEP) to facilitate opportunities for information exchange with MEP staff
  - EPA is also working to establish compliance engagement to address product compliance prior to arrival at U.S. ports

- CARB
  - EPA与ARB进行常规合作，加强达标管理
  - EPA正在努力减少不必要的负担，避免重复测试的行为
- 加拿大
  - EPA与加拿大环境部开展达标管理协作
  - 在美加联合管理和美加空气质量协议的范围内，两家管理机构将开展管理合作，提高北美市场的效率。
- 中国
  - EPA已经开始拓展与中国环境保护部之间的合作，为环保部的官员提供信息交换的契机。
  - EPA还着力于签署达标合约的工作，在产品到达美国口岸之前加强对产品的达标管理。

Conclusion
结论

- EPA regulatory programs help ensure cleaner air and result in significant health and welfare improvements
- EPA Compliance Programs are designed to help ensure we achieve these air quality benefits and to help ensure that manufacturers investing to comply with these programs can compete on a level playing field
- EPA staff is ready to answer your questions and work with you to ensure the products you make help achieve these goals

- EPA的管理方案帮助我们确保空气更加清洁并获得显著的健康和福利。
- EPA的达标管理从设计上就是为了确保我们能实现这些空气质量收益并确保为遵守管理要求的生产企业提供公平竞争的平台。
- EPA工作人员会时刻回答你的问题并与你一起共同工作，确保所生产的产品实现上述目标。

U.S. Clean Diesel Legacy Fleet Program
美国在用柴油车清洁管理方案

The 5th Sino-US Mobile Source Emission Control Workshop

第五届中美机动车排放达标监管研讨会

U.S. Environmental Protection Agency
Office of Transportation and Air Quality
美国环保局交通与空气质量办公室

The National Clean Diesel Campaign
国家清洁柴油车行动

SmartWay Transport Partnership
SmartWay交通伙伴关系

SmartWay℠

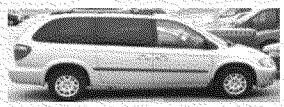
Multiple Drivers for Reducing Diesel Emissions
多方面原因要求降低柴油车排放

- Diesels were responsible for 90% of the U.S. mobile emissions of particulate matter (2005 inventory)
- Studies link breathing diesel PM to significant health problems:
  - –aggravated asthma and decreased lung function
  - –Cancer
  - –Heart disease
- Diesel emissions often affect sensitive subpopulations and disadvantaged communities the most
  - –Children are especially vulnerable
    - Rate of respiration is faster than adults
    - Pollutants are 2-5 times more concentrated inside school buses than outside
- Proven, cost-effective technologies and strategies exist to effectively address the problem

- 柴油车（发动机）占美国移动源颗粒物排放的90%（2005年清单）
- 研究表明，柴油车PM会导致严重的健康问题：
  - 加重哮喘和降低肺部功能
  - 癌症
  - 心脏病
- 柴油车排放对敏感和弱势人群的影响最为严重
  - 儿童尤其容易受到伤害
    - 呼吸频率比成年人快
    - 校车内的污染物浓度是外面的2-5倍
- 经证明，现有的技术和管理措施已经能够在费效比合理的前提下有效解决柴油车排放问题。

EPA's National Clean Diesel Campaign - Regulatory Roadmap
EPA的国家清洁柴油车行动-管理蓝图

Light-Duty 轻型车

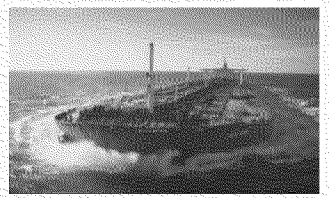


final rule 1999 1999年出台最终管理规定
fully phased in 2009 到2009年全面实施
Diesels held to same stringent standards as gasoline vehicles 汽柴油车辆执行同样严格的排放标准

Heavy-Duty Highway 道路重型车
sales 800,000 / yr 年销量89万辆
40B gallons / yr 年耗油量400亿加仑
final rule 2000 2000年出台最终管理规定
fully phased in 2010 到2010年全面实施

Nonroad Diesel 非道路柴油机械
sales over 650,000 / yr 年销量超过65万台
12B gallons / yr 年耗油量120亿加仑
final rule 2004 2004年出台最终管理规定
fully phased in 2015 到2015年全面实施

Locomotive/Marine 火车/船舶
sales 40,000 marine engines 年销量船舶发动机4万台
1,000 locomotives / yr 火车机车1000辆
6B gallons / yr 年耗油量60亿加仑
final rule 2008 2008年出台最终管理规定
fully phased in 2017 到2017年全面实施



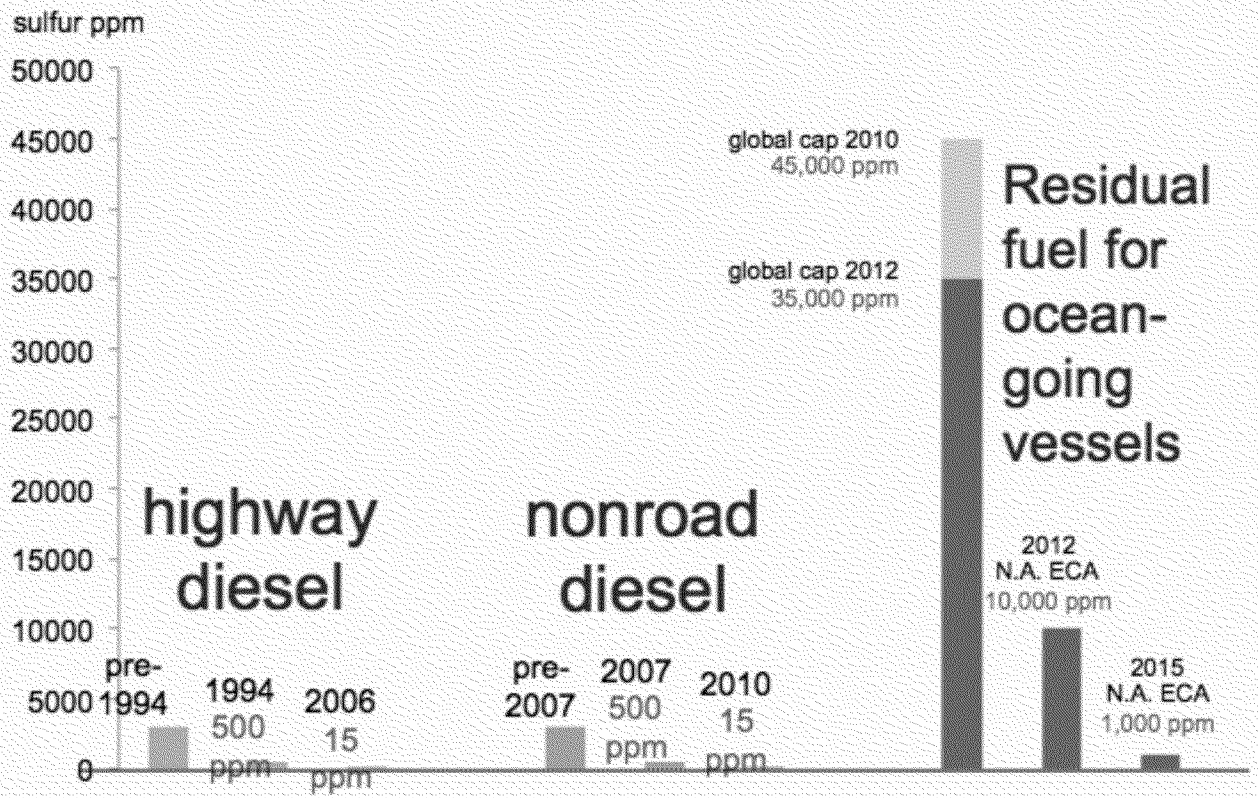
Ocean Going Vessels 远洋船舶
CAA Rule Dec 2009 2009年12月CAA管理规定
IMO MARPOL Annex VI IMO MARPOL 附录VI
ECA Controls ECA控制
- Fuel Based 2015 2015燃料基准
- SCR Catalyst Based 2016 2016 SCR催化器基准

Note: 销售量和柴油燃料消耗量每年都是不同的，图片信息仅供参考比较用途。

Common Aspects *管理共性--*

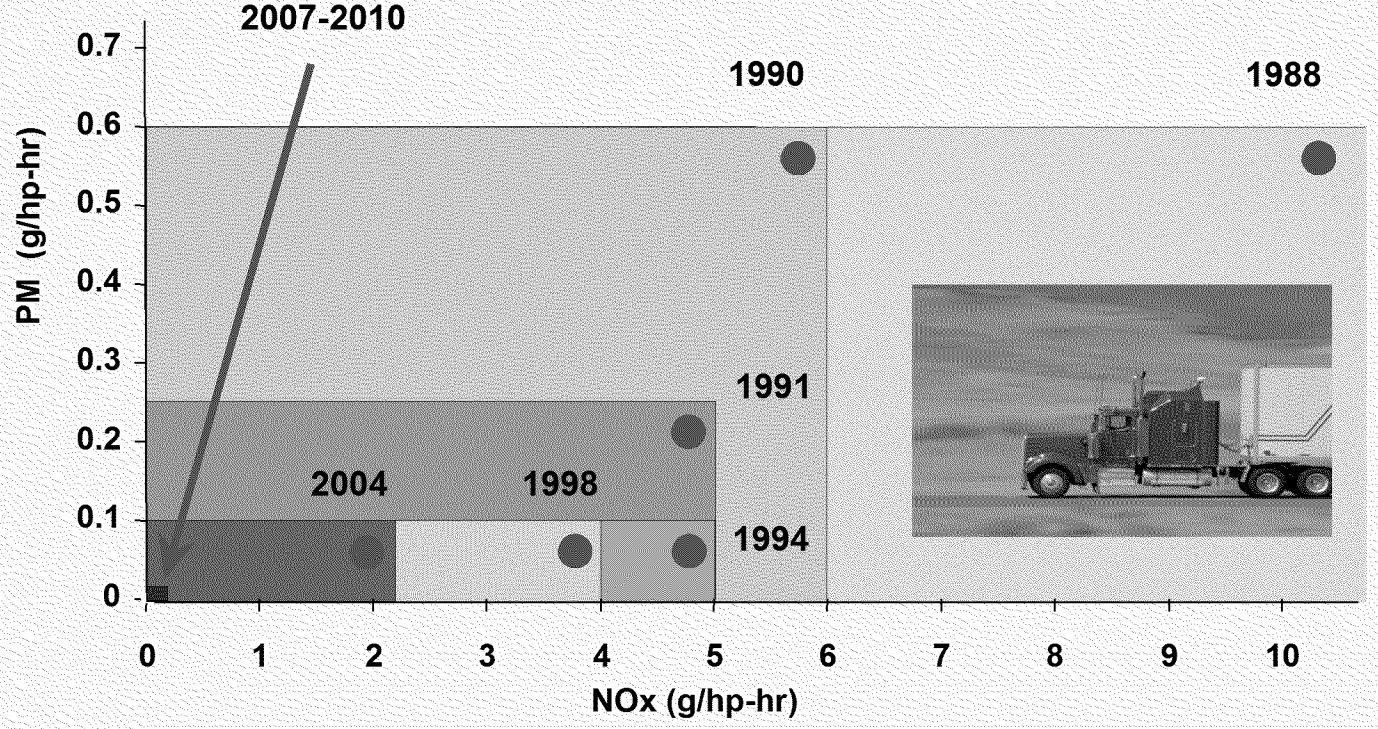
- Systems approach– ULSD enables clean technologies. 系统化模式—超低硫柴油燃料使得清洁技术得以应用
- Large environmental and public health benefits
  获得环境和健康方面的大幅收益
- Current regulations: by 2030, PM reduced by ~250,000 tons/year, NOx by ~4 million tons/year. Annual benefits are expected to exceed $175 billion versus costs of approximately $11 billion. 现有管理：到2030年，PM减排约25万吨/年、NOx减排约400万吨/年。年收益预计可达1750亿美元，成本仅约为110亿美元。
- Responsive to needs of states to meet NAAQS
  均为满足国家环境空气质量标准
- Collaborative process 需要协作完成

Clean Diesel Fuel Enabled Clean Diesel Engines
清洁柴油燃料为清洁柴油发动机奠定基础



Increasingly Stringent Technology-Forcing Standards for Trucks and Buses

不断加严卡车和巴士的标准，推进技术应用



Existing Diesel Engines & Emissions
现有柴油发动机&排放

- Standards for new engines, no matter how tight, cannot clean up the existing fleet
- Reducing emissions from diesel engines remains one of the most important air quality challenges facing the country
- Even with more stringent standards set to take effect in the next decade, over the next 20 years, millions of existing engines will continue to emit large amounts of pollution
- This pollution will continue to contribute to numerous instances of premature mortality, asthma attacks, lost work days and many other health impacts

- 无论新发动机的标准有多么严格，都无法减少现有在用车辆的排放。
- 减少柴油发动机排放仍然是国家面临的最主要的空气质量挑战之一。
- 即使今后10年实施了更为严格的标准，20年后，仍然有上百万的老旧发动机继续维持较高的污染物排放。
- 这些污染物会继续导致大量的提早死亡、哮喘发作、误工和其他健康影响。

VW FOIA, EPA 06/20/2017 2017-FFP_034043

Legislative Support for the National Clean Diesel Campaign
为国家清洁柴油车行动提供法律支持

- Congress passed The Diesel Emissions Reductions Act (DERA), which was originally part of the Energy Policy Act of 2005.
- This law provided funding for grants and low-cost revolving loans to reduce diesel emissions from the “legacy fleet” of existing engines.
  - Authorized up to $200m annually (2007 to 2011)
- Reauthorized in 2010
  - Authorized up to $100m annually (2012 to 2016)
  - Added authority to provide rebates to individual vehicle owners

- 国会通过了柴油车减排法案（DERA），该法案原本是2005能源政策法的一部分。
- 该法案为降低在用柴油发动机排放提供低息贷款。
  - 每年最高可批准2亿美元(2007 -2011)。
- 2010年再次获得授权
  - 每年贷款额度最高1亿美元（2012-2016）。
  - 添加了可以向私人车主提供现金补贴的授权。

VW FOIA, EPA 06/20/2017 2017-FFP_034044

The U.S. Experience: Focus on Key Sectors
美国的经验：把重点放在关键领域

- We target our efforts based on:
  - Levels of emissions
  - Public health impacts
    - Non-attainment zones
    - Proximity to sensitive populations
  - Cost-effectiveness of reduction strategies
  - Timely opportunities
    - e.g. Expansion of ports and major road construction
  - Support from stakeholders and the public

- 我们基于以下几点确定管理重点：
  - 排放水平
  - 对公众健康的影响
    - 不达标地区
    - 与敏感人群的接近程度
  - 减排措施的成本效益
  - 时间契机
    - 例如：港口扩建和主干道建设
  - 相关部门和公众的支持

VW FOIA, EPA 06/20/2017 2017-FFP_034045

Diesel "Retrofit" Solutions
柴油车"改造"解决方案

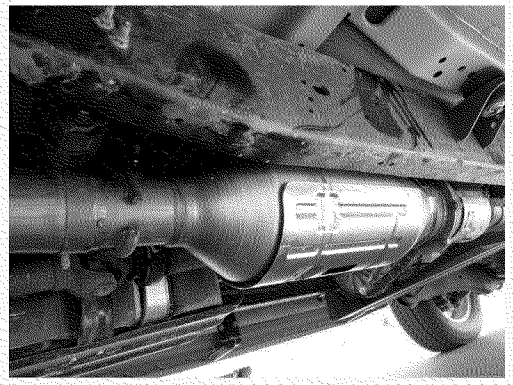
Retrofit Technologies can be:

改造技术可以：

any change to an engine system above and beyond that required by EPA regulations that improves the engine's emission performance:

对符合或未达到EPA管理要求的发动机系统进行任何改造，从而改善发动机的排放性能：

- Catalyst or filter 催化器或过滤器
- Early engine or vehicle replacement 老旧发动机或车辆置换
- Other devices or systems like SCR, CCV 其他装置或系统，如SCR、CCV
- Engine upgrade (generally at rebuild) 发动机升级（基本上是更换）
- Cleaner fuels 更清洁的燃料
- Idling reduction 减少怠速
- Combination of above 结合应用上述技术手段



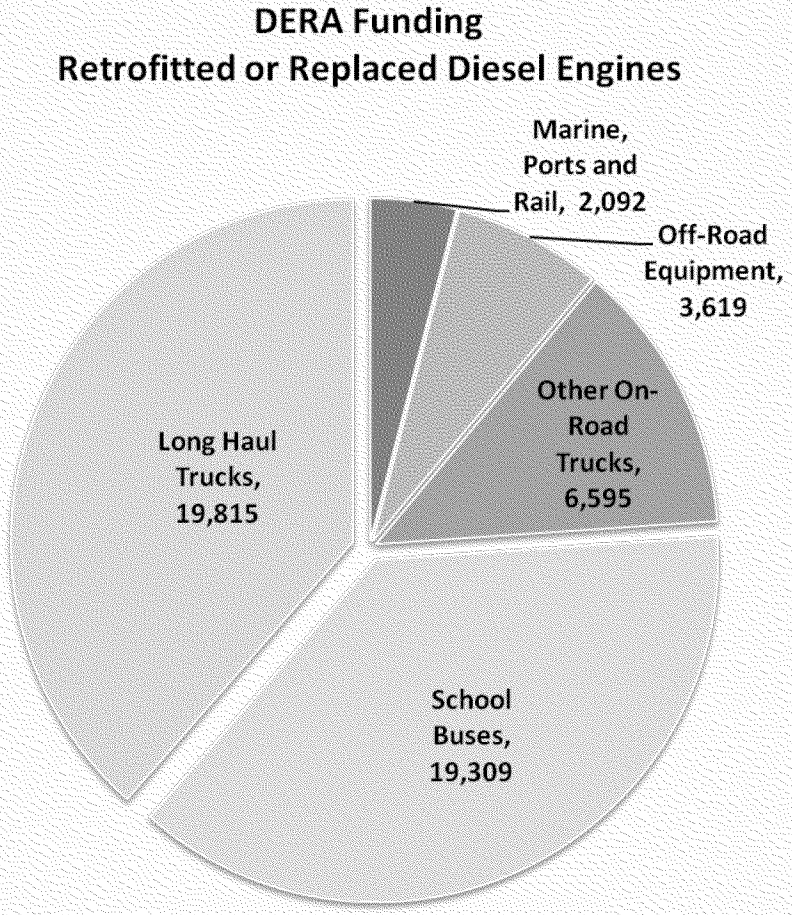
Key Elements of the National Clean Diesel Campaign
国家清洁柴油车行动的关键要素

- Technology Verification
- Competitive Request for Proposals
- Rigorous project review and selection
- Onsite visits, monitoring activities
- Training for Regional EPA staff and Grantees
  - Webinars
  - Technical information
  - Trouble shooting
- Implemented reporting requirements
- Partnerships, Collaboratives and Stakeholder Support

- 技术审核
- 要求出台具备竞争力的方案计划
- 严格的项目审核和选择
- 现场调查和监管行动
- 对地方EPA工作人员和使用者进行培训
  - 网络会议
  - 技术信息
  - 问题答疑
- 实施报告管理要求
- 获得合作伙伴、协作方和相关部门的支持

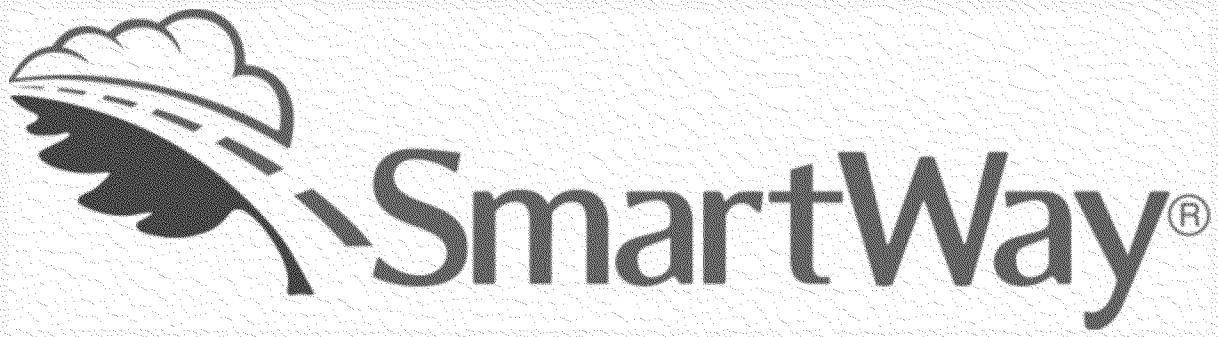
VW FOIA, EPA 06/20/2017 2017-FFP_034047

Results of EPA's National Clean Diesel Campaign
EPA国家清洁柴油机行动的成果



- ❖Over $500 Million funded approximately 420 projects
- ❖花费超过5亿美元资助约420个项目
- ❖Over **50,000 vehicles and equipment** retrofitted, replaced or repowered
- ❖对5万台以上的车辆和机械设备进行了改造、置换或翻新
- ❖For every dollar invested in reducing diesel exhaust, a community may achieve up to $13 in public health benefits
- ❖每花1美元投资柴油车尾气减排，可获得高达13美元的公众健康收益
- ❖For every dollar invested in the program, as many as three dollars are invested by other government agencies, private organizations, industry and non-profit organizations
- ❖每向项目中投入1美元，其他政府部门、私人机构、工业企业和NGO就会投入多达3美元

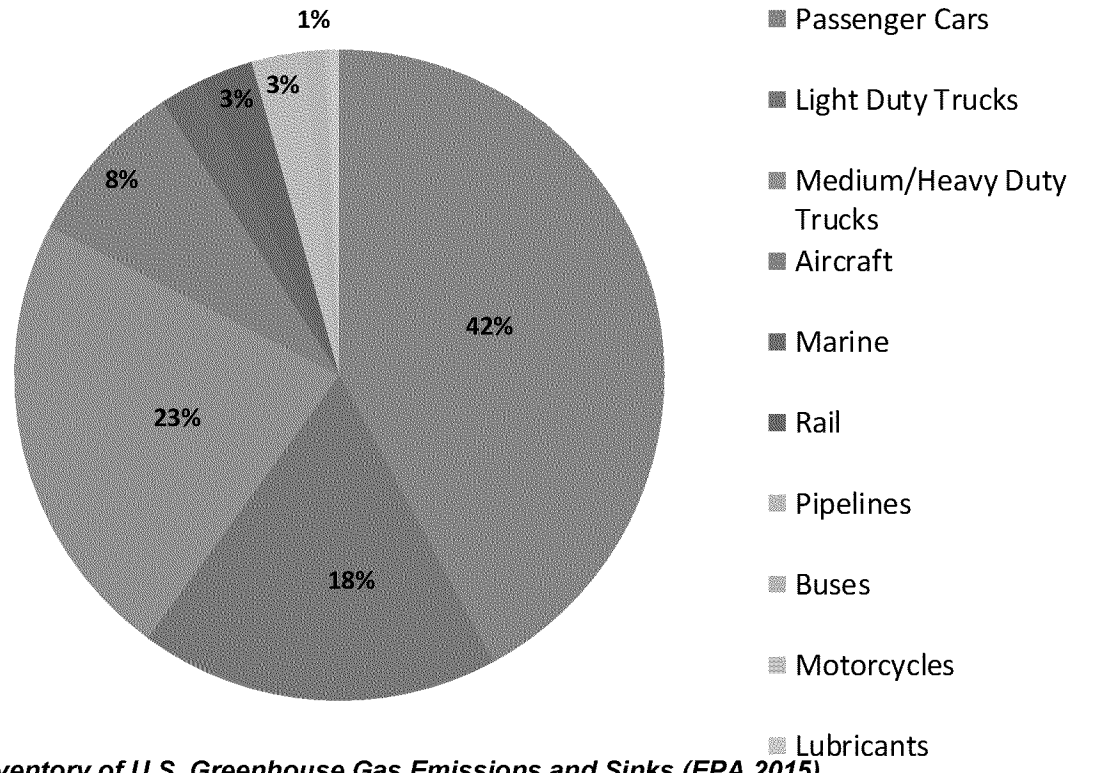
https:\\www.epa.gov/diesel


SmartWay®

SmartWay Drivers:
Freight Sector Environmental Impacts
开展SmartWay的原因：货运部门的环境影响

Transportation in U.S.:
美国的交通部门
- Over 1/4 total GHG emissions
- 占温室气体总排放的1/4
- About 2/3 petroleum-based fuel use
- 占石化燃料使用量的2/3

In Transport Sector:
在交通部门中：
- Freight accounts for over 25% of all fuel consumed and GHGs emitted
- 货运部门占油耗和温室气体排放总量的25%以上
- Freight is fastest growing source of transport GHGs
- 货运部门是增长速度最快的交通温室气体排放源



2013 Data - Inventory of U.S. Greenhouse Gas Emissions and Sinks (EPA 2015)

SmartWay Drivers: Economic Impacts of Freight
开展SmartWay的原因：货运部门的经济影响

- **Freight transportation is cornerstone of U.S. economy**
  - Trucking & rail deliver goods and materials that drive economic growth and development
  - Domestic commodity and consumer goods shipments
  - Exports and Imports
  - Freight system moves:
    - 20 billion tons of freight per year
    - 63 tons of freight per person each year
    - $17 trillion worth of freight yearly
    - $47 billion worth of freight daily
    - 54 million tons of freight daily
- **Transportation logistics costs $836 billion** (5.4% of GDP)

- **货运交通是美国经济的基石**
  - 卡车和铁路运输货品和原料带来了经济增长和发展
  - 国内日用品和消费产品运输
  - 出口和进口
  - 货运系统运输量：
    - 每年200亿吨货运量
    - 每人每年63吨货运量
    - 每年运输货物价值17万亿美元
    - 每天运输货物价值470亿美元
    - 每天运输货物5400万吨
- **交通物流成本为8360亿美元（占GDP5.4%）**

US DOT Transportation Statistics Annual Report, 2013
CSCMP Annual State of Logistics, 2013

VW FOIA, EPA 06/20/2017 2017-FFP_034051

SmartWay Snapshot Today
SmartWay发展现状

- Since 2004, SmartWay has grown to about 3,000 partners with broad freight industry support
  - Top 100 U.S. truck carriers and Major logistics firms
  - All Class 1 rail lines
  - Fortune 500 shippers from every major business sector
- Since 2004, SmartWay Partners saved:
  - 61.7 million metric tons of CO_2
  - 1,070,000 tons NOx and 43,000 tons PM
  - 144.3 million barrels of oil and 6.1 billion gallons of fuel
  - $20.6 billion dollars in fuel costs
- *Equivalent to taking over 13 million cars off the road for 1 year*

- 自2004年起，SmartWay迄今已经发展了约3000个合作伙伴，获得货运行业的广泛支持。
  - 美国前100名卡车运营商和主要物流公司
  - 所有级别1铁路线
  - 来自所有主要商业领域的财富500公司
- 自2004年以来，SmartWay伙伴单位共计实现：
  - 减排CO_2 6170万公吨
  - 减排NOx107万吨，PM4.3万吨
  - 节约1.443亿桶原油和61亿加仑燃油
  - 节约燃油成本$206亿美元
- *相当于避免1300万辆轿车上路行驶1年*

SmartWay Serving as Global Role Model
SmartWay成为全球版本

- In 2012, NRCan adopted SmartWay into Canada
  - Joint US/Canada SmartWay program
- Mexico implemented a green freight program, *Transporte Limpio* ("Clean Transportation") modeled after SmartWay
- Green Freight Europe and Green Freight Asia modeled on SmartWay
- Climate and Clean Air Coalition selected "Green Freight" as key transportation project to reduce climate emissions
  - Global Green Freight Action Plan includes SmartWay methods
  - Green Freight initiative to be modeled after SmartWay
    - EPA produced training curriculum to implement green freight programs
  - Other approaches are low sulfur fuel and cleaner vehicles

- 2012年，NRCan将SmartWay引入加拿大
  - 美加联合SmartWay管理方案
- 墨西哥根据SmartWay实施了清洁交通绿色货运方案
- 欧洲绿色货运行动和亚洲绿色货运行动也是以SmartWay为原型
- 气候与清洁空气联盟（CCAC）选择将“绿色货运”作为减少交通领域气候影响排放的重点项目
  - 全球绿色货运行动计划就包括了SmartWay的模式
  - 绿色货运行动是仿照SmartWay的
    - EPA制作了实施绿色货运方案的培训教程
  - 其他手段则是低硫燃料和更清洁的车辆

SmartWay Collaboration in China
SmartWay在中国的合作

City - Guangzhou Green Truck Pilot 2009-2010

城市-广州绿色卡车试点2009-2010

- Joint collaboration with World Bank, CAI-Asia and EPA OTAQ
- 世界银行、CAI-Asia和EPA交通与空气质量办公室共同协作
- Retrofit six trucks from three companies with SmartWay technologies
- 利用SmartWay技术对3家公司的6辆卡车进行了改造
- Developed driver training program for fuel efficiency
- 对驾驶员进行了燃油能效方面的培训
- Demonstrated 2% - 18% fuel savings
- 证明可节油2%-18%

Province - Green Truck Demonstration Project 2010 – 2015

省级-绿色卡车试点项目2010-2015

- World Bank and Global Environmental Facility (GEF) grant funding to leverage commercial bank lending
- 世界银行和全球环境基金（GEF）提供资助调节商业银行贷款
- Goal – retrofit 1,200 trucks in Guangdong with fuel saving technologies
- 目标-对广东省的1200辆卡车进行节油技术改造
  - Components include driver training, improved logistics, capacity building
  - 重点包括驾驶员培训、改善物流和能力建设
  - US Green Freight study tour, June 2010 for PMO officials' capacity building to learn SmartWay best practices, program development, program tools, etc.
  - 2010年6月，组织PMO官员进行美国绿色货运学习，主要学习SmartWay的经验、管理方案制定和管理实施工具等
  - PMO hosted a workshop and green technology trade fair, November 2011
  - 2011年11月PMO举行了关于绿色技术贸易的研讨会

VW FOIA, EPA 06/20/2017 2017-FFP_034054

SmartWay Collaboration in China
SmartWay在中国的合作

National - Green Freight China Initiative 2011 -

国家-中国绿色货运行动 2011-

- Program design builds upon Guangdong projects and SmartWay
- 方案设计是基于广东省的项目和SmartWay
- MOT, CRTA, CAA, Energy Foundation developed CGFI with key stakeholders
- 交通部、世贸组织区域贸易协议委员会、亚洲清洁空气中心、能源基金会与其他主要相关机构一起制定了中国绿色货运行动方案
- Annual Green Freight Summits with broad stakeholder participation
- 每年相关组织会参加年度绿色货运峰会
- SmartWay program training to share best practices and lessons learned (July 2014)
- 开展SmartWay管理方案培训，分享和学习最佳实践经验（2014年7月）
- EPA supporting CGFI Shipper Day Nov 5, 2015
- EPA将为2015年11月5日的中国绿色货运日提供支持

VW FOIA, EPA 06/20/2017 2017-FFP_034055

For more information please visit:
更多信息请浏览：

www.epa.gov/cleandiesel

www.epa.gov/smartway

EPA Authority Under the Clean Air Act
清洁空气法赋予美国环保局的权力
Regarding Motor Vehicle Emission and Fuel Standards
关于机动车排放和燃油标准

Byron Bunker
Director, Compliance Division
达标管理处 处长
Office of Transportation and Air Quality
交通与空气质量办公室

VW FOIA, EPA 06/20/2017 2017-FFP_034057

Clean Air Act (CAA)
清洁空气法(CAA)

- Can be found at 42 United States Code§7401
- Enacted in 1970 and amended in 1977 and 1990
- Comprehensive federal law that regulates air emissions from stationary and mobile sources
- Law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants

- 可查阅美国法律§7401。
- 1970年颁布，1977年和1990年两次进行修订。
- 是管理固定源和移动源空气排放的综合性联邦法律。
- 法律授权美国环保局(EPA)制定国家空气质量标准(NAAQS)来保护公众健康和公共财产同时管理有害空气污染物排放。

VW FOIA, EPA 06/20/2017 2017-FFP_034058

CAA Section 202
CAA第202节

- Section 202 authorizes EPA to **set standards** and **prescribe regulations** for the emissions of any air pollutant from any **new motor vehicle or new motor vehicle engine**, which in the judgment of the Administrator, cause, or contribute to, air pollution which may endanger public health or welfare.

- Standards apply for the **useful life** of the vehicle or engine.

- **第202节授权EPA根据自己的判断，针对新生产机动车或车辆发动机排放出的任何可能危害公众健康或财产的空气污染物制定排放标准和管理规定。**
- **标准适用于车辆或发动机的整个使用寿命周期。**

VW FOIA, EPA 06/20/2017 2017-FFP_034059

CAA Section 206
CAA第206节

- Section 206 authorizes EPA to **establish test procedures and protocols** and **issue certificates of conformity** to manufacturers if they meet the standards established by EPA under Section 202.

- **第**206节**授**权EPA**制定**测试规**程和**标**准**，**并授**权EPA**向**满**足**EPA**在**202节**下所制定的**标**准的生**产企**业颁发**一致性**认证。

VW FOIA, EPA 06/20/2017 2017-FFP_034060

Regulatory Process
How EPA creates Standards & Test Procedures
管理流程
EPA是如何制定出标准和测试规程的

- Notice of Proposed Rule Making NPRM
  - Formal proposal by EPA that describes the need for regulation, the cost and benefits of regulation, and draft regulatory language.
  - Public processes with public hearings and open docket.
  - Issued under the EPA Administrator's authority from the CAA.
- Final Rule
  - Final decision by EPA including update analyses and public policy considerations from the proposed rule.
  - EPA must consider all relevant comments.
  - Rule becomes effective 60 days after published, unless challenged in court
  - Issued under the EPA Administrator's authority from the CAA.

- 发布即将出台新规的通知(NPRM)
  - 由EPA发布的正式建议书，说明管理需求、管理成本和收益并起草管理规定的内容。
  - 公开流程包括公开听证和公开记录
  - 根据CAA对EPA管理者的授权来发布管理草案
- 最终管理规定
  - 由EPA根据最新的分析结果和公众对管理草案的建议来做出最终的决定。
  - EPA必须考虑所有相关意见。
  - 管理规定将于发布后60日生效，除非遇到法律方面的阻碍。
  - 根据CAA对EPA管理者的授权来发布最终管理规定。

VW FOIA, EPA 06/20/2017 2017-FFP_034061

CAA Section 203
CAA第203节

- Section 203 enumerates specific prohibitions.
  - Prohibition against the sale or introduction into commerce of a new vehicle or engine unless covered by a Certificate of Conformity.
  - Prohibition against tampering – remove or render inoperative any device or element of design.
  - Prohibition against manufacture or sale of a defeat device.
  - Prohibition against failure to perform required tests, or provide required records.

- 第203节中列出了一些专门的禁止令。
  - 除非新生产车辆或发动机获得一致性认证，否则不得销售或进入市场。
  - 禁止作弊干扰-拆除任何装置或设计元件或使其无法使用。
  - 禁止生产或销售失效装置。
  - 必须依照规定进行测试并提供记录。

VW FOIA, EPA 06/20/2017 2017-FFP_034062

CAA Section 207
CAA第207节

- Section 207 authorizes EPA to require a manufacturer to **issue a recall** if a substantial number of any class or category of vehicles or engines do not conform to the regulations prescribed under Section 202 when in actual use

- **根据第**207节**的授**权，**如果**发现**有相当一部分某等**级**或某**类别**的**车辆**或**发动**机在**实际**使用过程中未能符合**202节**中的相关管理规定**，EPA**有权要求生产企业实施召回。**

VW FOIA, EPA 06/20/2017 2017-FFP_034063

CAA Section 205
CAA第205节

- Section 205 authorizes EPA to commence civil actions to assess and recover any **civil penalties for violations** of prohibited acts enumerated under Section 203, as well as 211(d), and 213(d)

- **根据**205节**的授**权，EPA**有**权对违**反**203节、211节(d)节(d)**段和**213节(d)**段中的禁令的行**为进**行民事行**为评**估并处**以民事**罚**款**。

VW FOIA, EPA 06/20/2017 2017-FFP_034064

CAA Section 211
CAA第211节

- Section 211 authorizes the EPA to **regulate any fuel or fuel additive** for use in a motor vehicle, motor vehicle engine, or nonroad engine or nonroad vehicle,
- Require registration of fuels and fuel additives prior to introduction into commerce.

- **第**211节**授**权EPA**管理机**动车、**机**动车发动**机、非道路**发动**机或非道路**车辆**使用的所有燃料或燃料添加**剂。
- **要求所有燃料和燃料添加**剂**在**进**入市**场**之前要**进**行登**记**注册。**

VW FOIA, EPA 06/20/2017 2017-FFP_034065

CAA Section 213
CAA第213节

- Section 213 authorizes EPA to **set standards** and **prescribe regulations** for the emissions from **new nonroad engines and new nonroad vehicles** (other than locomotives or engines used in locomotives)

- **第**213节**授**权EPA针对**新生**产**非道路**发动**机和新生**产**非道路**车辆**制定**标**准及管理**规**定**(**不包括火**车**机**车**或火**车**机**车**用**发动**机**)。

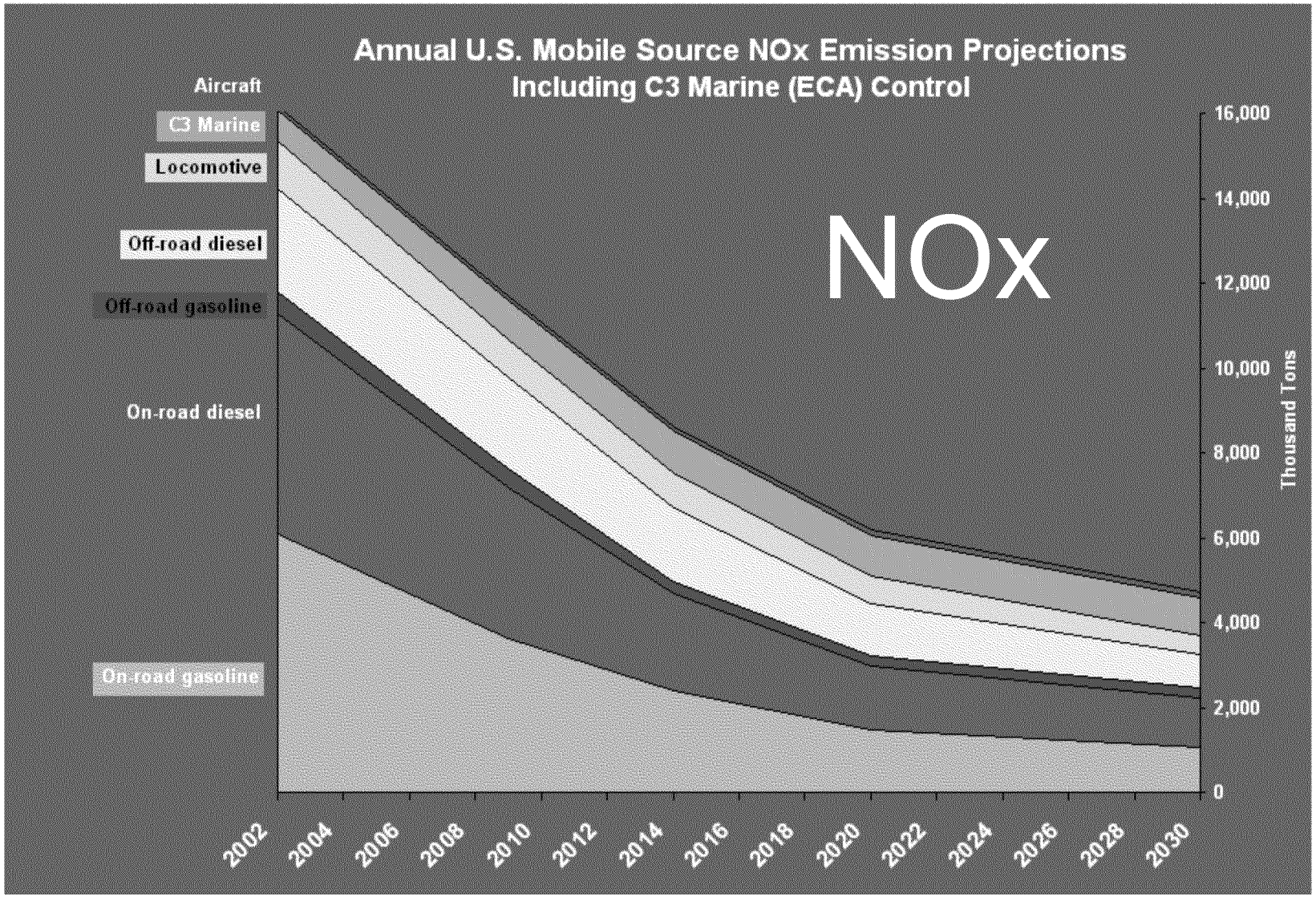
VW FOIA, EPA 06/20/2017 2017-FFP_034066

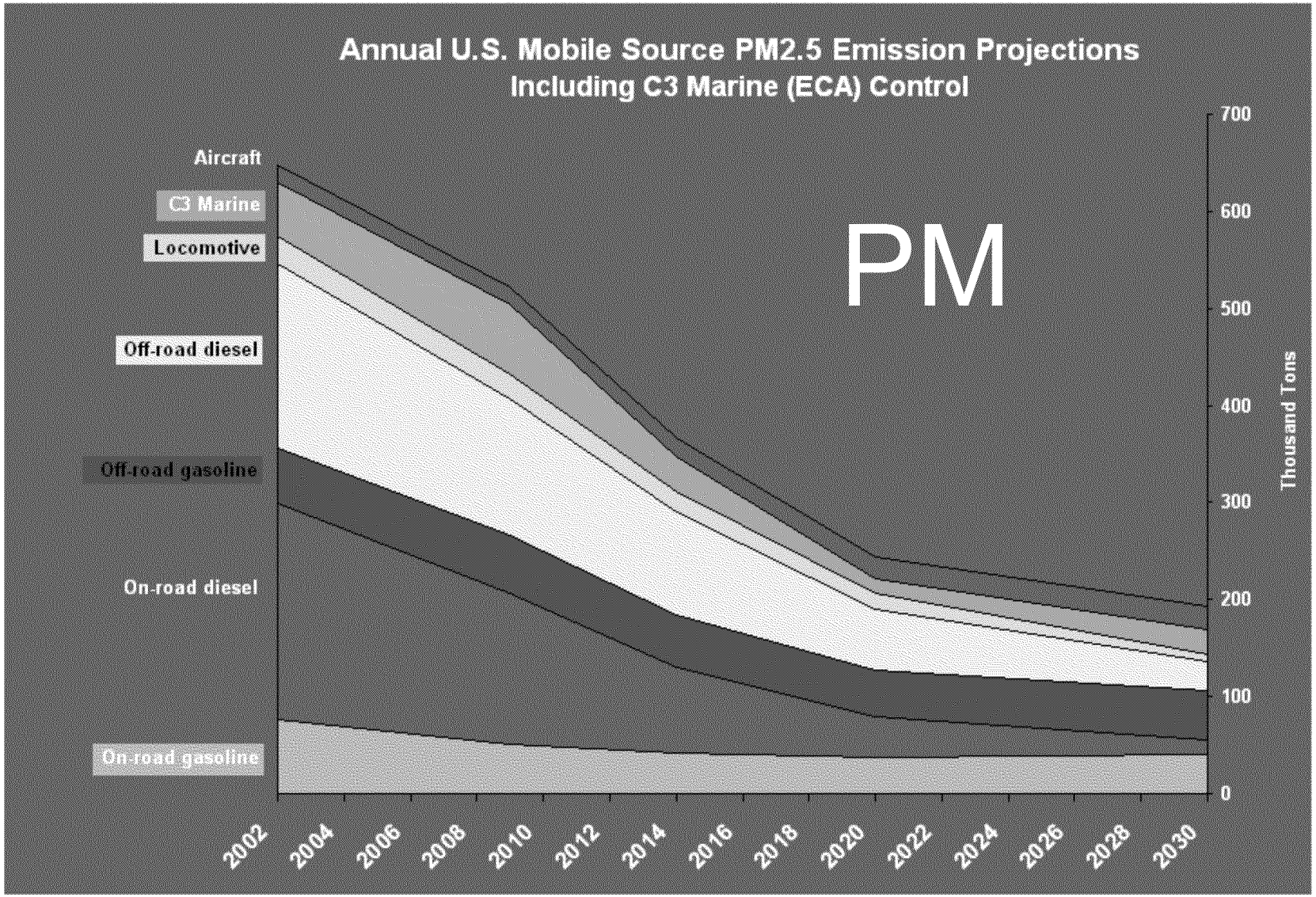
In Summary, CAA Authorizes EPA
CAA对EPA授权情况汇总

- Set standards for vehicles, engines and fuels that apply for the useful life of the product.
- Create test procedures and protocols to evaluate performance against the standards.
- Authority to issue certificates & register fuels prior to their introduction into commerce.
- Require recalls of vehicles and engines that do not comply in use.
- Prohibit noncompliance.
- Enforce for noncompliance.

- 制定车辆、发动机和燃料标准，且标准适用于产品的整个使用寿命周期。
- 开发测试规程和测试标准来评估达标情况。
- 在车辆和燃料产品进入市场前对其发放一致性认证和进行登记注册。
- 要求召回不达标的在用车辆和发动机。
- 禁止不达标行为。
- 针对不达标行为采取执法措施。

VW FOIA, EPA 06/20/2017 2017-FFP_034067


Annual U.S. Mobile Source NOx Emission Projections
Including C3 Marine (ECA) Control
NOx
Aircraft
C3 Marine
Locomotive
Off-road diesel
Off-road gasoline
On-road diesel
On-road gasoline
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Thousand Tons
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030


Annual U.S. Mobile Source PM2.5 Emission Projections
Including C3 Marine (ECA) Control
PM
Aircraft
C3 Marine
Locomotive
Off-road diesel
Off-road gasoline
On-road diesel
On-road gasoline
Thousand Tons
700
600
500
400
300
200
100
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030

Ensuring the Health Benefits We Have Promised
确保实现我们许诺的健康收益

	Light Duty Tier 2 Tier2轻型车	Heavy Duty 2007 2007重型车	Nonroad Diesel Tier 4 Tier4非道路柴油机	Locomotive & Marine Diesel 柴油火车机车&船舶	Ocean Vessel Strategy 远洋船舶	Totals 总计
NOx (short tons) (削减吨数)	2,800,000	2,600,000	738,000	795,000	1,200,000	8,133,000
PM2.5 (short tons) (削减吨数)	36,000	109,000	129,000	27,000	143,000	444,000
VOC (short tons) (削减吨数)	401,000	115,000	34,000	43,000	0	593,000
SOx (short tons) (削减吨数)	281,000	142,000	376,000	0	1,300,000	2,099,000
Total Cost (billion) 总成本(10亿)	$5.3	$4.2	$1.7	$0.7	$3.1	$15
Total Monetized Benefits(billion) 货币化总收益(10亿)	$25	$70	$80	$11	$110	$296
Avoided Premature Mortality 避免提早死亡	4,300	8,300	12,000	1,400	13,000	39,000
Avoided Hospital Admissions 避免就医次数	3,000	7,100	8,900	870	12,400	32,270
Avoided Lost Work Days 避免缺工天数	700,000	1,500,000	1,000,000	120,000	1,400,000	4,720,000

QUESTIONS?
欢迎提问

- http://www.epw.senate.gov/envlaws/cleanair.pdf

VW FOIA, EPA 06/20/2017 2017-FFP_034071

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Thur 10/15/2015 2:43:40 PM
Subject: Etron CD HWY results
2016 Etron CD HWY results.pdf

Still working on UDDS…

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

EPA Gasoline Bag CVS Summary Report

Test Information

Run Number:	1017	Site Name:	d006		
Test Number:	20150359020	Vehicle ID:	AU373-6-0813/16		
Test Date:	08-Oct-2015	Config No.:	0		
Test Init Time:	09:47:02	Engine Number:	G2.5CMC		
Test Type:	hwfet	Requested Dyno Interface:	Write		
Test Procedure:	84 Charge Depleting Highway	Dyno File Used:	20150359020_hwfet.rls		
Requester:	Jim Snyder	Act Inertia Weight:(lbm)	3875	Req Inertia:(lbm)	3875
Operator:	358054	Act Set Coef A:(lbf)	-7.90	Req Set Coeff A:(lbf)	-7.90
Driver:	358054	Act Set Coef B:(lbf/mph)	0.0523	Req Set Coef B:(lbf/mph)	0.0523
Fuel Type:	61 Tier 2 Cert Gasoline	Act Set Coef C:(lbf/mph^2)	0.01836	Req Coef C:(lbf/mph^2)	0.01836
Fuel Container ID:	F00021_25278_CD#9	Act Aug Brake:	N	Req Aug Brake:	N
Tire Pressure Front:	36.00	Shift Table 1:	A0EPA0011		
Tire Pressure Rear:	36.00	Odometer(mi)	0.0		
		Fan Placement:	1 - One Small Fan - Up - Front		
		Validation File Name:	none		
PreTest Remarks:		PostTest Remarks:			
PreTest Remarks:		PostTest Remarks:			

Test Conditions	Bag 1
Start Time:	09:53:10
Phase Time (sec):	765.8
Distance (mi):	10.245
Avg. Cell Temp(°F):	74.5
Avg. Barometer (inHg):	29.13
Avg. Dew Point (°F):	48.8
Avg. Specific Humidity (gr/lbm):	52.32
NOx Hum Correction Factor :	0.904
Avg. CVS Flow Rate (scfm):	317.77
CVS Volume (ft³ 20degC)	4055.18
Dilution Factor(13.4 based):	14.626
Avg. Tailpipe Press.(inaq):	-0.256
Bag Analysis Time (sec):	57.4
Methane Resp. Factor:	1.101

Bag Results	THC (ppmC)	CO (ppm)	NOx (ppm)	CO2 (%)	CH4 (ppm)	NMHC (ppm)
Bag 1						
Sample:	2.714	15.031	0.193	0.914	2.033	0.476
Ambient:	2.761	0.000	0.036	0.046	2.044	0.511
Net Concentration:	0.141	15.031	0.160	0.872	0.129	0.000

Bag Mass Results (gram)	THC	CO	NOx	CO2	CH4	NMHC
Bag 1	0.009	2.009	0.032	1832.244	0.010	0.000

Bag Mass Rates(g/mi)	THC	CO	NOx	CO2	CH4	NMHC
Bag 1	0.001	0.196	0.003	178.842	0.001	0.000

Test Mass Results (g/mi)	AVG_THC	AVG_CO	AVG_NOx	AVG_CO2	AVG_CH4	AVG_NMHC
Test 1	0.001	0.196	0.003	178.842	0.001	0.000

Fuel Economy (mi/gal)	
Bag 1	49.704

Average Test FE (mi/gal)	
Test 1	49.704

VW FOIA, EPA 06/20/2017 2017-FFP_034073

EPA Hybrid Summary Report

Test Information

Run Number:	1017
Test Number:	20150359020
Test Date:	08-Oct-2015
Test Init Time:	09:47:02
Test Type:	hwfet
Test Procedure:	84 Charge Depleting Highway
Requester:	Jim Snyder
Operator:	358054
Driver:	358054
Fuel Type:	61 Tier 2 Cert Gasoline
Fuel Container ID:	F00021_25278_CD#9
Tire Pressure Front:	36.00
Tire Pressure Rear:	36.00

PreTest Remarks:
PreTest Remarks:

Site Name:	d006		
Vehicle ID:	AU373-6-0813/16		
Config No.:	0		
Engine Number:	G2.5CMC		
Requested Dyno Interface:	Write		
Dyno File Used:	20150359020_hwfet.rls		
Act Inertia Weight:(lbm)	3875	Req Inertia:(lbm)	3875
Act Set Coef A:(lbf)	-7.90	Req Set Coeff A:(lbf)	-7.90
Act Set Coef B:(lbf/mph)	0.0523	Req Set Coef B:(lbf/mph)	0.0523
Act Set Coef C:(lbf/mph^2)	0.01836	Req Coef C:(lbf/mph^2)	0.01836
Act Aug Brake:	N	Req Aug Brake:	N
Shift Table 1:	A0EPA0011		
Odometer(mi)	0.0		
Fan Placement:	1 - One Small Fan - Up - Front		
Validation File Name:	none		
PostTest Remarks:			
PostTest Remarks:			

Hybrid-Electric Vehicle with Battery Storage System

Nominal System Voltage ():	350.00
Net SOC Change (Ah):	-0.03
Net Energy Change (kWh):	0.00
Total Distance (mi):	10.25
Total Fuel Mass (kg):	0.43
Total Fuel Energy (kWh):	5.13
Total Cycle Energy (kWh):	5.13
All Electric Range (mi):	N/A

Phase Results	**Phase 1**
Start Time:	09:53:10
Phase Time (sec):	765.800
Phase Distance (mi)	10.245
Average Voltage (V):	350.000
Initial Phase SOC(Ah):	0.000
Final Phase SOC(Ah):	-0.032
Phase SOC Change(Ah):	-0.032
Initial Phase Energy Ch1(kWh):	0.000
Final Phase Energy Ch1(kWh):	0.000
Total Phase Energy Change(kWh):	-0.011
Phase Fuel Energy (kWh):	5.133
Phase Cycle Energy (kWh):	5.144

Test Conditions	**Test 1**
Start Time:	09:53:10
Test Time (sec):	765.900
Test Distance (mi)	10.245
Average Voltage (V):	350.000
Test SOC Change(Ah):	-0.031
Test NE Change(kWh):	0.000
Test Fuel Energy (kWh):	5.133
Test Cycle Energy (kWh):	5.133
PercentFuelEnergy (%):	0.000

VW FOIA, EPA 06/20/2017 2017-FFP_034074

EPA Gasoline Bag CVS Summary Report

Test Information

Run Number:	1016	Site Name:	d006
Test Number:	20150359019	Vehicle ID:	AU373-6-0813/16
Test Date:	08-Oct-2015	Config No.:	0
Test Init Time:	08:22:37	Engine Number:	G2.5CMC
Test Type:	hwfet	Requested Dyno Interface:	Write
Test Procedure:	84 Charge Depleting Highway	Dyno File Used:	20150359019_hwfet.rls
Requester:	Jim Snyder	Act Inertia Weight:(lbm)	3875
Operator:	358054	Act Set Coef A:(lbf)	-7.90
Driver:	358054	Act Set Coef B:(lbf/mph)	0.0523
Fuel Type:	61 Tier 2 Cert Gasoline	Act Set Coef C:(lbf/mph^2)	0.01836
Fuel Container ID:	F00021_25278_CD#9	Act Aug Brake:	N
Tire Pressure Front:	36.00	Shift Table 1:	A0EPA0011
Tire Pressure Rear:	36.00	Odometer(mi)	3280.0
		Fan Placement:	1 - One Small Fan - Up - Front
		Validation File Name:	none
PreTest Remarks:		PostTest Remarks:	
PreTest Remarks:		PostTest Remarks:	

Req Inertia:(lbm)	3875		
Req Set Coeff A:(lbf)	-7.90		
Req Set Coef B:(lbf/mph)	0.0523		
Req Coef C:(lbf/mph^2)	0.01836		
Req Aug Brake:	N		

Test Conditions	Bag 1
Start Time:	08:39:49
Phase Time (sec):	765.8
Distance (mi):	10.244
Avg. Cell Temp(°F):	74.5
Avg. Barometer (inHg):	29.14
Avg. Dew Point (°F):	48.7
Avg. Specific Humidity (gr/lbm):	52.21
NOx Hum Correction Factor :	0.903
Avg. CVS Flow Rate (scfm):	319.50
CVS Volume (ft³ 20degC)	4076.73
Dilution Factor(13.4 based):	295.045
Avg. Tailpipe Press.(inaq):	-0.612
Bag Analysis Time (sec):	56.7
Methane Resp. Factor:	1.101

Test Conditions	Bag 1
Start Time:	08:59:29
Phase Time (sec):	765.8
Distance (mi):	10.241
Avg. Cell Temp(°F):	74.5
Avg. Barometer (inHg):	29.14
Avg. Dew Point (°F):	48.7
Avg. Specific Humidity (gr/lbm):	52.23
NOx Hum Correction Factor :	0.903
Avg. CVS Flow Rate (scfm):	319.25
CVS Volume (ft³ 20degC)	4074.25
Dilution Factor(13.4 based):	295.120
Avg. Tailpipe Press.(inaq):	-0.736
Bag Analysis Time (sec):	57.3
Methane Resp. Factor:	1.101

Test Conditions	Bag 1
Start Time:	09:19:19
Phase Time (sec):	765.8
Distance (mi):	10.248
Avg. Cell Temp(°F):	74.6
Avg. Barometer (inHg):	29.14
Avg. Dew Point (°F):	48.8
Avg. Specific Humidity (gr/lbm):	52.40
NOx Hum Correction Factor :	0.904
Avg. CVS Flow Rate (scfm):	318.63
CVS Volume (ft³ 20degC)	4066.13
Dilution Factor(13.4 based):	17.939
Avg. Tailpipe Press.(inaq):	-0.373
Bag Analysis Time (sec):	57.1
Methane Resp. Factor:	1.101

Bag Results	THC (ppmC)	CO (ppm)	NOx (ppm)	CO2 (%)	CH4 (ppm)	NMHC (ppm)
Bag 1						
Sample:	2.758	0.000	0.036	0.045	2.012	0.542
Ambient:	2.749	0.000	0.038	0.045	2.022	0.523
Net Concentration:	0.018	0.000	0.000	0.000	0.000	0.021

Bag 1

VW FOIA, EPA 06/20/2017 2017-FFP_034075

EPA Gasoline Bag CVS Summary Report

Sample:	2.737	0.000	0.033	0.045	2.017	0.517
Ambient:	2.744	0.000	0.036	0.045	2.025	0.515
Net Concentration:	0.002	0.000	0.000	0.000	0.000	0.003
Bag 1						
Sample:	3.306	10.691	0.397	0.746	2.009	1.094
Ambient:	2.734	0.000	0.036	0.046	2.025	0.505
Net Concentration:	0.724	10.691	0.363	0.702	0.097	0.617
Bag Mass Results (gram)	**THC**	**CO**	**NOx**	**CO2**	**CH4**	**NMHC**
Bag 1	0.001	0.000	0.000	0.623	0.000	0.001
Bag 1	0.000	0.000	0.000	0.183	0.000	0.000
Bag 1	0.048	1.433	0.072	1479.314	0.007	0.041
~~Bag 1~~	~~0.000~~	~~.005~~	~~.006~~	~~.366~~	~~.005~~	~~0.000~~
Bag 1	0.000	0.000	0.000	0.018	0.000	0.000
Bag 1	0.005	0.140	0.007	144.347	0.001	0.004
Test Mass Results (g/mi)	**AVG_THC**	**AVG_CO**	**AVG_NOx**	**AVG_CO2**	**AVG_CH4**	**AVG_NMHC**
Test 1	0.000	0.000	0.000	0.061	0.000	0.000
Test 2	0.000	0.000	0.000	0.018	0.000	0.000
Test 3	0.005	0.140	0.007	144.347	0.001	0.004
Fuel Economy (mi/gal)						
Bag 1	145490.038					
Bag 1	497400.749					
Bag 1	61.589					
Average Test FE (mi/gal)						
Test 1	145489.948					
Test 2	497400.441					
Test 3	61.589					

VW FOIA, EPA 06/20/2017 2017-FFP_034076

EPA Hybrid Summary Report

Test Information

Run Number:	1016
Test Number:	20150359019
Test Date:	08-Oct-2015
Test Init Time:	08:22:37
Test Type:	hwfet
Test Procedure:	84 Charge Depleting Highway
Requester:	Jim Snyder
Operator:	358054
Driver:	358054
Fuel Type:	61 Tier 2 Cert Gasoline
Fuel Container ID:	F00021_25278_CD#9
Tire Pressure Front:	36.00
Tire Pressure Rear:	36.00

PreTest Remarks:
PreTest Remarks:

Site Name:	d006		
Vehicle ID:	AU373-6-0813/16		
Config No.:	0		
Engine Number:	G2.5CMC		
Requested Dyno Interface:	Write		
Dyno File Used:	20150359019_hwfet.rls		
Act Inertia Weight:(lbm)	3875	Req Inertia:(lbm)	3875
Act Set Coef A:(lbf)	-7.90	Req Set Coeff A:(lbf)	-7.90
Act Set Coef B:(lbf/mph)	0.0523	Req Set Coef B:(lbf/mph)	0.0523
Act Set Coef C:(lbf/mph^2)	0.01836	Req Coef C:(lbf/mph^2)	0.01836
Act Aug Brake:	N	Req Aug Brake:	N
Shift Table 1:	A0EPA0011		
Odometer(mi)	3280.0		
Fan Placement:	1 - One Small Fan - Up - Front		
Validation File Name:	none		
PostTest Remarks:			
PostTest Remarks:			

Hybrid-Electric Vehicle with Battery Storage System

Nominal System Voltage ():	350.00
Net SOC Change (Ah):	14.93
Net Energy Change (kWh):	5.22
Total Distance (mi):	30.73
Total Fuel Mass (kg):	0.35
Total Fuel Energy (kWh):	4.15
Total Cycle Energy (kWh):	-1.08
All Electric Range (mi):	22.34

Phase Results	**Phase 1**
Start Time:	08:39:49
Phase Time (sec):	765.800
Phase Distance (mi)	10.244
Average Voltage (V):	350.000
Initial Phase SOC(Ah):	0.000
Final Phase SOC(Ah):	6.683
Phase SOC Change(Ah):	6.683
Initial Phase Energy Ch1(kWh):	0.000
Final Phase Energy Ch1(kWh):	0.000
Total Phase Energy Change(kWh):	2.339
Phase Fuel Energy (kWh):	0.002
Phase Cycle Energy (kWh):	-2.337

Phase Results	**Phase 2**
Start Time:	08:59:29
Phase Time (sec):	765.800
Phase Distance (mi)	10.241
Average Voltage (V):	350.000
Initial Phase SOC(Ah):	0.000
Final Phase SOC(Ah):	6.717
Phase SOC Change(Ah):	6.717
Initial Phase Energy Ch1(kWh):	0.000
Final Phase Energy Ch1(kWh):	0.000
Total Phase Energy Change(kWh):	2.351
Phase Fuel Energy (kWh):	0.001
Phase Cycle Energy (kWh):	-2.350

Phase Results	**Phase 3**
Start Time:	09:19:19

VW FOIA, EPA 06/20/2017 2017-FFP_034077

EPA Hybrid Summary Report

Phase Time (sec):	765.800
Phase Distance (mi)	10.248
Average Voltage (V):	350.000
Initial Phase SOC(Ah):	0.000
Final Phase SOC(Ah):	1.525
Phase SOC Change(Ah):	1.525
Initial Phase Energy Ch1(kWh):	0.000
Final Phase Energy Ch1(kWh):	0.000
Total Phase Energy Change(kWh):	0.534
Phase Fuel Energy (kWh):	4.143
Phase Cycle Energy (kWh):	3.610

Test Conditions	Test 1	Test 2	Test 3
Start Time:	08:39:49	08:59:29	09:19:19
Test Time (sec):	765.800	765.800	765.900
Test Distance (mi)	10.244	10.241	10.248
Average Voltage (V):	350.000	350.000	350.000
Test SOC Change(Ah):	6.683	6.717	1.525
Test NE Change(kWh):	2.339	2.351	0.534
Test Fuel Energy (kWh):	0.002	0.001	4.143
Test Cycle Energy (kWh):	-2.337	-2.350	3.610
PercentFuelEnergy (%):	56.420	56.707	12.875

VW FOIA, EPA 06/20/2017 2017-FFP_034078

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Rodgers, William (EEO)
Sent: Thur 10/15/2015 2:56:38 PM
Subject: RE: Etron CD HWY results

Got it thanks

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, October 15, 2015 10:44 AM
To: Rodgers, William (EEO)
Subject: Etron CD HWY results

Still working on UDDS…

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

Ex. 7

Sent: Thur 10/15/2015 3:25:05 PM
Subject: CANCEL Meeting – In- Use Compliance Section/ARB and VW

Dear all,

This meeting is cancelled. We will reschedule it for next Thursday (10/22) from 9 am to 1 pm (PST).

Thanks,
Ex. 7

-----Original Appointment-----

Ex. 7

Subject: Meeting –In- Use Compliance Section/ARB and VW
When: Thursday, October 15, 2015 9:00 AM-1:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: ARB Conference Room Non-Responsive

Meeting –In- Use Compliance Section/ARB and VW

ORGANIZER: Ex. 7 Non-Responsive

Ex. 7

Non-ARB INVITEES: EPA - Byron Bunker, Linc Wehrly, Joel Ball, Jim Snyder, Joel Dalton; VW - Ex. 7
Ex. 7

MEETING PURPOSE: Meeting to Address Questions Related to VW Recall Action

CONFERENCE ROOM: El Monte – ARB Conference Room Non-Responsive

Agenda and Conference Call Number to be provided

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Thur 10/15/2015 3:38:23 PM
Subject: RE: Etron CD HWY results

I think we're close to resolving the data format. Been promised this afternoon.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Thursday, October 15, 2015 10:57 AM
To: Snyder, Jim
Subject: RE: Etron CD HWY results

Got it thanks

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, October 15, 2015 10:44 AM
To: Rodgers, William (EEO)
Subject: Etron CD HWY results

Still working on UDDS…

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Thur 10/15/2015 3:54:35 PM
Subject: Air & Radiation Law News for October 15, 2015

Air & Radiation Law News for October 15, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

Regulators Dispute Impact of Cross-State Ruling

A coalition of environmental and public health advocacy groups failed to adequately explain how a decision on the legality of emissions budgets established under the Environmental Protection Agency's cross-state air pollution rule...

Air Pollution

Revised Aluminum Facility Standards Effective Oct. 15

Revised emissions standards covering primary aluminum production facilities will go into effect on Oct. 15, upon the rule's scheduled publication in the Federal Register. The standards (RIN 2060-AQ92),

signed in September, require...

Budget

States Hurt by Congressional Budget Impasses, ECOS Says

The failure of Congress to pass a federal budget on time threatens the ability of state environmental regulators to do their jobs properly, the new president of the Environmental Council of the States told Bloomberg BNA. ...

Climate Policy

Development Banks Caught in Debate Over Climate Aid

As the world's finance ministers convened last week in Lima, Peru, one topic divided some lenders and borrowers: If aid money is loaned at market rates, is it still aid?...

Climate Regulation

Mass-Based Plan Pushed at Pa. Clean Power Hearings

Natural gas companies and policy watchers in Pennsylvania are pushing the state to adopt a mass-based credit system that facilitates emissions trading and are also calling for new generation to be included in the state's Clean Power Plan...

Elections

Democrats Proactively Inject Climate Change Into Debate

Four of the five contenders for the Democratic presidential nomination actively created opportunities to discuss their plans to tackle climate change during their party's first presidential debate Oct. 13, naming the issue in their...

Energy Efficiency

Energy Efficiency Making Gains Despite Obstacles

Increasing energy efficiency has been the primary contributor to a flattening and then declining of energy consumption in developed countries over the last 25 years, according to "Energy Efficiency Market Report 2015," a report...

Energy

Supreme Court Questions FERC Demand Response Authority

U.S. Supreme Court justices questioned whether the Federal Energy Regulatory Commission has authority to compensate demand response in the wholesale energy markets during oral arguments (FERC v. Electric Power Supply Ass'n, U.S.,...

Fuel Efficiency

EPA Praises Innovation in Trucking Industry

The Environmental Protection Agency's top air official praised the innovation of truck and trailer manufacturers as the industry plots its compliance strategies with upcoming federal regulations seeking to curb carbon dioxide emissions....

General Policy

Electronics Makers Could Face New Pollution Standards in China

Producers of special electronic materials and devices, printed circuit boards, semiconductor equipment, digital signage and projector equipment, and products using electron and photoelectron technology would have to meet new airborne...

International Climate

Fourteen Companies Add Support for Paris Climate Deal

Alcoa, BP and Intel are among 14 corporations adding their names to the growing list of businesses that support an international agreement to fight climate change, set to be signed in Paris in December....

International Climate

Germany Sees New Carbon Market Boosting Climate Pledges

Climate envoys will probably consider a new carbon market at a United Nations summit in December to bolster countries' emission-reduction strategies, according to a German government official....

International Climate

Paris Climate Accord Within Reach, but More Work Ahead

When a much-anticipated United Nations climate summit comes to a close about eight weeks from now in Paris, it will answer the question that has flummoxed negotiators from nearly 200 nations for more than two decades: Can developed and developing...

International Climate

UN Food Body Wants Agriculture Focus in Paris Climate Deal

The head of the United Nations Food and Agriculture Organization and France's minister of agriculture jointly called Oct. 14 for agriculture-related issues to play a bigger role in the climate change negotiation process....

Ozone Depletion

Methyl Bromide Exemptions Set for 2016

The Environmental Protection Agency has authorized the production and import of 141 metric tons of methyl bromide for approved uses in 2016. The U.S. phased out use of methyl bromide, an ozone-depleting fumigant, in 2005 under the Montreal...

Renewable Energy

Emissions Could Peak by 2030 With Incentives, IEA Says

The International Energy Agency says that global emissions could peak before 2030 if carbon-heavy developing countries are able to switch to cleaner fuels at no extra cost....

Trade

U.S. Industry Divided on Impact of Green Goods Treaty

U.S. industry representatives are divided on the likely economic impacts of the World Trade Organization's proposed Environmental Goods Agreement (EGA)....

Vehicle Fuels

Toyota Targets 90% Emissions Cut by 2050 on Fuel Cells

Toyota Motor Corp. said it is targeting a 90 percent reduction in emissions from its new vehicles by 2050 as it seeks to build on the success of its hybrid autos....

FAA: Keep Baggage Free of Lithium Batteries

The Federal Aviation Administration Oct. 13 urged airlines to warn passengers not to carry or check baggage with lithium batteries that aren't installed in a portable electronic device. The agency issued its safety alert, which allows...

INSIDEEPA.COM
an online news service from the publishers of Inside EPA

Inside EPA's **Weekly Report,** 10/16/2015

http://insideepa.com/newsletters/inside-epa

Latest News

Industry Says EPA Might Expand Types Of Railroad Ties Considered 'Fuel'

The treated wood industry says EPA has signaled it plans to slightly expand the types of railroad ties deemed non-waste fuel when it finalizes a pending rule currently under White House review, but the industry remains concerned the agency is viewing less favorably a petition to deem even more types of treated wood items as non-waste fuel.

News Briefs

EPA, Advocates Defend SO2 NAAQS Designations Pact

EPA and environmentalists are defending from several states' attacks their consent decree to establish an extended schedule for the agency to designate all areas of the country as either attaining or in nonattainment with its 2010 sulfur dioxide (SO2) air standard, a pact the states oppose as they want to force immediate designations.

Greenwire

GRID:

Justices question regulators' reach in fight over energy rule

Robin Bravender, E&E reporter

Published: Wednesday, October 14, 2015

Supreme Court justices today probed whether federal regulators overstepped legal limits with a rule incentivizing energy conservation.

At issue is the scope of the Federal Energy Regulatory Commission's power in a case on a demand-response rule that required that power users be paid for committing to scale back electricity use at times of peak demand.

A lower court threw out the rule last year, agreeing with power generators and other challengers that FERC -- charged with regulating wholesale electricity sales -- had overstepped its authority by wading into the retail electricity market. Retail power sales to businesses and residential customers legally fall under states' jurisdiction.

Justice Anthony Kennedy said it's clear that the wholesale and retail markets affect each other but questioned where to draw the regulatory line. "The statute makes a distinction," he said. "We have to make a distinction."

Chief Justice John Roberts suggested too that a boundary is needed to prevent FERC from broadly expanding its regulatory reach.

"What is the limiting principle that you would suggest?" he asked.

Solicitor General Donald Verrilli, representing FERC, said he was comfortable with the court drawing a line but argued that in this case, the agency was acting well within its authority. All the conduct FERC is regulating "occurs in the wholesale market," he told the court.

Grid operators and power providers -- represented by the Electric Power Supply Association (EPSA), American Public Power Association and others -- led the charge to upend the rule, telling the courts that it sets an unfair compensation scheme and is illegal because it's beyond FERC's jurisdiction.

Justice Antonin Scalia questioned why FERC has the ability to allow states to opt out of the rule if they choose to do so. He asked whether that wasn't an acknowledgement that FERC was "mucking around" in states' business.

Paul Clement, an attorney representing FERC's challengers today, argued that FERC's order was "impermissibly" on the retail side of the line.

FERC's challengers had written in a brief to the court that the agency "cannot expand its own jurisdiction at the expense of the states' exclusive jurisdiction by asserting a need to regulate a 'direct effect' on wholesale rates that FERC has created by inviting retail customers into the wholesale market."

Verrilli argued there is no text explicitly barring FERC from issuing the rule and that the justices should therefore defer to the agency's authority.

At least one justice appeared to agree with that argument, noting he and his colleagues on the court are

not electricity regulators.

"Is what they're doing here unreasonable?" Justice Stephen Breyer asked.

The case has sparked the interest of a broad range of parties across the energy and environmental realm who have weighed in with briefs to the high court (*Greenwire*, Oct. 12).

Adoption of FERC's Order 745 was controversial at the time of its adoption.

Republican Commissioner Philip Moeller at the time issued dissent, in which he argued that organized markets should continue to develop their own rules regarding demand-response compensation. He also expressed concern the rule would grant preferential treatment for demand resources in some cases and discriminate in other cases.

Tony Clark, another Republican FERC commissioner, has also said the rule erred in requiring demand-response providers to be compensated in the energy markets at the same rate as an electric supply offer (*Greenwire*, June 12).

Clark and FERC Chairman Norman Bay were among those present for the arguments today.

Today's arguments were heard by eight justices; Justice Samuel Alito was recused from the case.

A decision in the consolidated cases -- *FERC v. Electric Power Supply Association* and *EnerNOC v. Electric Power Supply Association* -- is due by the end of June.

Reporter Hannah Northey contributed.

TRANSPORTATION:

As hopes for repatriation deal fade, focus shifting to 2017

Sean Reilly, E&E reporter

Published: Wednesday, October 14, 2015

There is one idea with strong, bipartisan consensus in the heated and perennial debate over transportation funding: Build a path to paying for a long-term highway bill by running it through the mountain of cash that U.S. multinationals have stashed overseas out of the IRS's reach.

President Obama likes that game plan; so does House Ways and Means Chairman Paul Ryan (R-Wis.) and a host of other lawmakers on both sides of the aisle.

But while the concept has bipartisan support, hopes for a hard-and-fast deal to tap that estimated $2 trillion trove have withered. With it could go any chance of enacting a major transportation funding package both this year and next, when the politics of the presidential election are likely to pose yet another complication, some observers predict.

"If we don't get anything done between now and the end of the calendar year, we'll be looking at 2017," said Scott Bogren, communications director at the Community Transportation Association of America, an advocacy group whose members include rural and small-town transit agencies.

The latest blow came earlier this month, when Ryan and Sen. Charles Schumer (D-N.Y.) admitted that they were still far from an agreement on using an international tax code overhaul to raise money for road and transit programs. As a result, the House Transportation and Infrastructure Committee, which today announced an Oct. 22 markup for its version of a surface transportation bill, could go forward with no strategy for fully covering the cost.

Although the notion of linking transportation to tax code changes will remain attractive, bridging the political and policy differences to get a bill through Congress is "going to be a real challenge," said Jon Traub, a former Ways and Means staff director who is now managing principal of the tax policy group at Deloitte Tax, a consulting firm.

The scope of the challenge was evident early last year when then-Ways and Means Chairman Dave Camp (R-Mich.) put it on the political map as part of an ambitious blueprint for a broader tax code revamp. Over eight years, his proposal would have raised almost $127 billion for transportation, or roughly enough to end the crises that have repeatedly forced the federal government to the brink of spending cuts and delays.

Camp's plan never got a serious look from his own committee. House Speaker John Boehner (R-Ohio) dismissed its complexities as "Blah, blah, blah." But with Republican leaders dead set against raising the federal gas tax, "repatriation" -- as the concept of bringing home corporate earnings held overseas is known in legal shorthand -- seemed the only politically viable approach to raising more money for road and public transportation projects.

The concept has a special allure for Republicans eager to lower the existing 35 percent corporate income tax rate, which, in their view, hurts the competitiveness of U.S. businesses and encourages all large corporations to leave money off shore.

Camp's plan, for example, would have set the rate on overseas earnings at 8.75 percent, a level incorporated into H.R. 625, a bill by Reps. John Delaney (D-Md.) and Richard Hanna (R-N.Y.) that has 22 other co-sponsors. In his fiscal 2016 budget request, Obama proposed a one-time 14 percent "transitional" tax on earnings currently held off shore as a prelude to a broader restructuring. And in S. 981, Sens. Rand Paul (R-Ky.) and Barbara Boxer (D-Calif.) offer a 6.5 percent rate.

None of those proposals has gained traction; tensions over the repatriation issue ran high enough at a June hearing of the House Ways and Means Subcommittee on Select Revenue Measures that Chairman Dave Reichert (R-Wash.) jokingly recalled his old job as a police officer and hostage negotiator (*E&E Daily*, June 25).

Not only is tackling the tax code a hard assignment, the two parties are sharply at odds over how much money a repatriation plan should raise.

"For Democrats to want to do this deal, we want to see infrastructure funding at levels above where we are now," Delaney said in an interview last week. "Not just like a couple of percentage points, but something a little more material than that."

"We need a really robust transportation number," Schumer, the No. 2 Democrat on the Senate Finance Committee, echoed in a separate conversation. "Chairman Ryan is trying his best to get there, but it's hard given all of their rules."

In an emailed statement, a Ryan aide acknowledged that the level of transportation spending "continues to be a significant issue." Because the current stopgap road and transit funding measure expires Oct. 29, Ryan is encouraging House T&I Chairman Bill Shuster (R-Pa.) to move ahead with a new bill that "does not assume a contribution from international tax reform," the aide said. Talks with Democrats will meanwhile continue.

Democrats are also sensitive to accusations that repatriation will reward wealthy corporations for gaming the existing system. Last year, almost three-quarters of Fortune 500 companies operated subsidiaries in the Cayman Islands and other "tax haven" jurisdictions, according to a report released last week by the U.S. Public Interest Research Group and Citizens for Tax Justice, two liberal-leaning research and advocacy organizations.

California-based Apple, for example, has booked some $181 billion offshore; if the firm had to pay U.S. taxes on those profits, the report said, it would owe more than $59 billion after accounting for foreign levies already paid.

Republicans, however, are more worried by the perception that repatriation would represent a tax increase.

Because the Obama's administration's proposed 14 percent tax would apply to offshore earnings whether or not corporations bring that money back to the United States, "you must know that that has to be a nonstarter on our side of the aisle," Sen. Tim Scott (R-S.C.) told Treasury Secretary Jack Lew at a Finance Committee hearing early this year.

In today's news release announcing the Oct. 22 markup of a surface transportation bill, Shuster did not say how many years the bill would cover or whether he will propose a way to address the cost. The legislation's text will be posted online tomorrow, a spokesman said.

Because there's no chance that lawmakers can send a final long-term bill to Obama in the next two weeks, another stopgap authorization will be needed in the interim to keep federal transportation dollars flowing after this month.

Longer-term key senators are pressing the House to take up H.R. 22, a road, rail and transit authorization measure passed by the Senate in July. The bill contains three years of assured funding, paid for in part by oil sales from the Strategic Petroleum Reserve and reductions in the dividend rate for some banks that belong to the Federal Reserve.

Finance Chairman Orrin Hatch (R-Utah) said last week that he expected the House to accept the Senate bill. In a floor speech, Boxer urged House members to move ahead immediately.

But key House members in both parties have shown no enthusiasm for the Senate legislation. A Ryan spokesman did not reply to an email asking whether his boss now supports the Senate funding package. Rep. Peter DeFazio of Oregon, the T&I committee's top Democrat, contends that the bill's spending levels are too low.

But while House Democrats initially viewed the Senate bill -- and its funding mechanisms -- as "dead on arrival," Delaney said, "it sounds like we're going to have to start looking at them again."

BIOFUELS:

DuPont letter blasts Sen. Toomey's RFS stance

Amanda Reilly, E&E reporter

Published: Wednesday, October 14, 2015

Executives at DuPont today chastised Sen. Pat Toomey (R-Pa.) for his position on the renewable fuel

standard.

In a letter, the DuPont executives said they "absolutely oppose" the senator's efforts to eliminate the corn ethanol portion of the RFS. DuPont, which is aiming to open an advanced biofuel facility in Iowa at the end of the month, argued that eliminating ethanol mandates would hurt the nascent advanced biofuels industry.

"We implore you to reconsider your stance on the RFS and work with us to create the right incentives for the biofuels industry to move beyond current technologies," the letter dated today says.

DuPont Executive Vice President James Collins, Industrial Biosciences President William Feehery and Biorefineries Global Business Director Jan Koninckx led the letter. Nearly 40 other DuPont employees are included as signatories.

Congress enacted the most recent version of the RFS in 2007 to require that refiners blend increasing amounts of ethanol and advanced biofuel into petroleum gasoline and diesel.

Toomey has long opposed the corn ethanol portion of the mandate, arguing that it hurts small refiners in his state. The senator earlier this year introduced bipartisan legislation with California Sen. Dianne Feinstein (D) to strike corn ethanol from the RFS.

"Under government mandates, refiners -- such as ours in Trainer, Pa. -- are forced to make a choice: increase the ethanol content in their fuel blends or pay a penalty by purchasing credits from energy traders," Toomey said earlier this year. "Once again, this is the government using corporate welfare to shower money on a favored industry and then send the bill to the general public."

Toomey was recently unsuccessful at adding the language to a Senate bill to overturn the 40-year-old ban on crude oil exports (*Greenwire*, Oct. 1).

Biofuel producers have strongly objected to the proposed legislation, arguing that it would not only hurt the ethanol industry but also the advanced biofuel industry, which has struggled to stand on solid feet despite the RFS requirements.

"Proposals to modify the RFS will undercut the existing U.S. biofuels industry, preventing all new opportunities for investments in cellulosic ethanol and advanced biofuels," the DuPont officials said in their letter.

DuPont has planned an Oct. 30 grand opening for its new biorefinery in Nevada, Iowa, after being delayed for about a year.

The facility is expected to produce 30 million gallons a year of cellulosic ethanol out of corn crop residues collected from local farmers. Cellulosic ethanol refers to ethanol made from plant materials such as agricultural residue, woody biomass and perennial grass.

Along with warning that repealing the ethanol mandate would undercut investment in advanced biofuels, the DuPont letter also said that Toomey's legislation could adversely affect Pennsylvania. The letter credited the renewable fuels industry with driving $3.6 billion in economic output in the Keystone state.

"Repealing the corn ethanol portion of the RFS would have significantly negative economic impacts for Pennsylvania and the U.S.," DuPont wrote, "and prevent additional growth in biofuels."

CAMPAIGN 2016:

Candidates frame argument for climate action in security terms

Jennifer Yachnin, E&E reporter

Published: Wednesday, October 14, 2015

Democratic presidential primary contenders reiterated their near-unanimous support for taking action to combat climate change in the party's first debate last night, but several candidates also showcased a change in tactics by embracing programs to reduce carbon emissions as a national security issue.

In a two-hour-long debate hosted by CNN, Democratic contenders led by former Secretary of State Hillary Clinton and Vermont Sen. Bernie Sanders (I) repeatedly raised their concerns about the need to address global warming, whether with policies such as a carbon tax or tax benefits for the renewables industries.

"Today, the scientific community is virtually unanimous: Climate change is real, it is caused by human activity, and we have a moral responsibility to transform our energy system away from fossil fuel to energy efficiency and sustainable energy and leave this planet a habitable planet for our children and our grandchildren," said Sanders, one of four candidates along with Clinton, former Maryland Gov. Martin O'Malley and former Rhode Island Gov. Lincoln Chafee to address climate change policy in his opening remarks.

Clinton, the front-runner for the Democratic nomination, hit on the green-jobs argument, saying that the nation must take "the opportunity posed by climate change to grow our economy" in her opening remarks.

The candidates did not mention the Obama administration's Clean Power Plan to address carbon emissions from power plants. But the field also put new emphasis on another pitch for climate change policy: national security.

Both Sanders and O'Malley cited climate change when asked by moderator Anderson Cooper to name the greatest security threat facing the United States.

"The scientific community is telling us that if we do not address the global crisis of climate change, transform our energy system away from fossil fuel to sustainable energy, the planet that we're going to be leaving our kids and our grandchildren may well not be habitable. That is a major crisis," Sanders said.

O'Malley, who has previously asserted that the Syrian civil war and the subsequent rise of the Islamic State group in the Middle East were spurred in large part by a climate-change-induced drought in the region, similarly pointed to climate change in his response.

"Climate change, of course, makes cascading threats even worse," O'Malley said.

While that apparent shift among Democratic presidential contenders to frame climate change policy as a security issue may be a new tact on the campaign trail, League of Conservation Voters Senior Vice President of Campaigns Daniel Weiss noted that it is not a new argument.

"The candidates that talked about climate change as a national security threat are only saying the same thing that the Pentagon and the CIA have been warning for years," Weiss said, pointing to a 2014 Defense Department report that named climate change as an immediate threat to national security.

But Weiss acknowledged that highlighting the connection between global warming and national security could help candidates strengthen the case for climate change policies.

"Americans are generally more focused on domestic impacts and opportunities from climate change, but there is a security element to it," Weiss said.

During the debate, Sanders also sought to link another issue to climate change policies, arguing that until Congress addresses campaign finance reform, lawmakers are unlikely to enact policies aimed at reducing carbon emissions.

"Nothing is gonna happen unless we are prepared to deal with campaign finance reform, because the fossil fuel industry is funding the Republican Party, which denies the reality of climate change and certainly is not prepared to go forward aggressively," Sanders said.

COAL:

Tapes show Don Blankenship knew about Massey safety lapses

Published: Wednesday, October 14, 2015

Recordings that former Massey Energy Co. CEO Don Blankenship made of his phone calls are being used by prosecutors to show him conspiring to break mine safety laws and financial regulations.

In the recordings played yesterday in federal court, Blankenship said he occasionally believed that without federal mine regulators, "we'd blow ourselves up" (*Greenwire*, May 4).

Blankenship is being prosecuted regarding safety practices at West Virginia's Upper Big Branch mine, which killed 29 miners when it exploded in 2010 (*E&ENews PM*, Sept. 30).

The former CEO was also recorded wanting to mention safety efforts in a press release after the explosion as "a chance to do some propaganda there," wanting to suppress a former Massey official's safety memo because it shed a bad light on the company if it resurfaced in a legal case, and not believing that black lung prevention efforts were worth the time and effort.

The defense has argued that Blankenship was not personally running the Upper Big Branch mine and that he was not the kind of person to knowingly violate safety regulations (Jonathan Mattise AP/Minneapolis *Star Tribune*, Oct. 13). **– BTP**

OIL:

Industry lobbyist mum on possible exports-for-renewables deal

Geof Koss, E&E reporter

Published: Wednesday, October 14, 2015

The head of the American Petroleum Institute today repeatedly declined to offer an opinion as to whether the group would support a legislative compromise to lift the crude oil export ban in exchange for extending key renewable energy tax incentives.

API President and CEO Jack Gerard told reporters he was "heartened" by Senate Minority Leader Harry Reid's August comments that the Nevada Democrat was open to talks of lifting the ban if more tax credits for renewables are on the table (*Greenwire*, Aug. 25).

Reid's comments echoed a sentiment expressed by other Senate Democrats, who have argued that a boost for the oil sector should include help for renewables.

"You've heard about a half dozen more who've said, 'Hey, I'm open to this, but I'd like to look at this issue.' Or 'I'd like to look at this issue,'" Gerard said on a conference call. "Very few other issues have as much momentum as this one does."

But after citing Reid's comments, Gerard deflected repeated questions over whether the industry could get behind an agreement built on the top Senate Democrat's suggestion of linking crude oil exports to renewable energy tax breaks.

"I think there's a variety of options out there," Gerard said. "We could probably identify 20 to 30 paths to success here. I do think it is significant that you're hearing more and more say we could work something out here. People see that momentum."

Pressed further, Gerard sought to pass the buck to congressional leaders, while arguing that a change in exports policy should be based on the merits.

"I think we're in the early stages of what will somebody do, what will somebody offer? We're not really focused on that right now," he said. "We'll leave that to the leadership. Our focus is this is good for the American people, it's good for the American economy, it's good for American consumers. We're for it, and we're going to continue to advocate for it."

Gerard's hesitation on the question highlights the intense political pressure that an exports-for-renewables deal entails, given that Democrats would likely target the billions in dollars in tax breaks the oil and gas industry enjoys as a way to pay for extending the production tax credit, the investment tax credit or both.

Asked again about a possible deal, Gerard reiterated comments he made Friday after the House easily passed legislation lifting the ban, when he criticized suggestions that Congress impose new taxes on the industry in exchange for greenlighting exports (*Greenwire*, Oct. 12).

"Let me tell you what we strongly oppose," he said. "There have been some who have suggested we need to go back and put a tax on the domestic oil and gas industry. That's one of the sillier proposals I've heard. Why would you go and raise the cost to the American consumer, to the American producer, to make them noncompetitive in exchange for the ability to be competitive by going into the global marketplace?"

After declining to provide the "yes or no" answer one reporter demanded to a "straightforward" question about a deal, Gerard indicated the industry's preference for a simple legislative repeal.

"The cleanest, clearest path to success is just a straight up-and-down bill that says lift the ban on crude oil exports in the United States," he said.

But Gerard paused when pressed on whether there's enough Democratic votes to move such a bill through the Senate.

"Again the process will determine that, but I think there's strong Democratic support for lifting the ban on crude oil exports," he said.

Nonetheless, Gerard predicted that a repeal will happen before the end of the year, citing a number of must-pass bills as potential vehicles.

"It's our expectation that the crude export ban will be lifted this year," he said.

ENERGY POLICY:

Moniz touts rules, smart grid as boon to U.S. climate goals

Jean Chemnick, E&E reporter

Published: Wednesday, October 14, 2015

Correction appended.

Energy Secretary Ernest Moniz pledged today that his department will spend the next 15 months doing everything it can to improve U.S. energy efficiency, both by promulgating rules and by modernizing the power grid.

"We are scheduled to roll out more than 20 additional efficiency rules in the remainder of this administration, kind of driving the system to the breaking point," Moniz told a Washington, D.C., hotel ballroom full of smart grid experts. "But we think it's really important to go there."

DOE has already introduced numerous efficiency rules for consumer products from refrigerators to fluorescent lamps. Many have been unveiled since President Obama launched his second-term Climate Action Plan two years ago, and the administration's social cost of carbon estimate figures in its cost-benefit analyses.

It is particularly important to cut energy consumption, Moniz noted, because the power sector emits more carbon dioxide than any other sector of the U.S. economy. That fact prompted U.S. EPA to issue its Clean Power Plan to cut utility emissions. But he told those attending the National Summit on Smart Grid and Climate Change that DOE rules and programs would work in tandem with the marquee EPA rule to cut demand for power and facilitate the deployment of low-carbon alternatives to fossil fuels, including distributed solar generation.

"To get our emissions reduction targets and avoid the worst effects of climate change -- we can't avoid all of them, we know -- we certainly need to reduce power-sector emissions significantly," he said. "In fact, most think that as we go to a very low-carbon future, electricity really has to be a leader in decarbonization."

The United States has pledged in a submission to the United Nations that it will cut its greenhouse gas emissions between 26 and 28 percent compared with 2005 levels by 2025. The Clean Power Plan, which would reduce power-sector CO2 by 32 percent by 2030, is a major component of that pledge.

Besides regulation, Moniz also touted DOE's investment in smart grid and grid modernization efforts as a means not only of cutting emissions but of making the grid more resilient. Most of those investments were made with resources from the 2009 economic stimulus package that closed out in fiscal 2015.

But DOE invested $4.5 billion under the act in grid modernization, leveraging an additional $5 billion in private capital for smart grid technologies.

"We believe these investments have already produced tangible benefits," he said. Smart grid tools help improve reliability, allowing system operators to more nimbly manage the grid and facilitating the deployment of more intermittent renewable energy.

Distribution systems that use smart grid technology are 3 percent more efficient, using less fossil fuels

and cutting emissions in the process, Moniz noted.

It is particularly important to improve the resiliency of the grid, he said, because severe weather events are the most common cause of outages and they are on the rise. But he noted that Congress controls whether DOE receives the funds it asks for each year to make those improvements.

The fiscal 2016 budget request includes funds for research and development to improve resilience of large-scale transformers, and $14.5 million to transition to an integrated system at the distribution level and to develop a platform for market-based control systems, among other things.

"We are very committed to the grid of the future, because we think this is absolutely central for our economy, for our environment, climate change as we head to Paris, and for energy security and resilience," Moniz said.

But while prospects for moving funding and authorizing legislation through a GOP-controlled Congress remain uncertain, Moniz noted that DOE's federal Quadrennial Energy Review -- mandated under the Climate Action Plan -- and the Quadrennial Technology Review have both been referenced in energy bills now making their way through the House and Senate.

"We've been very pleased about how the QER in particular, since it came out in April, I think it's fair to say changed the nature of the discussion," he said. "It has done exactly what it was meant to do."

The QER seeks to provide a policy road map for future efforts to modernize the power grid and reduce its emissions (*Greenwire*, April 21).

***Correction**: An earlier version of this article quoted Ernest Moniz as saying there would be "more than 200 additional efficiency rules in the remainder of this administration;" there will be more than 20 additional efficiency rules. Also, the fiscal 2016 budget request was said to include $14.5 billion for several projects; the request was for $14.5 million.*

NEGOTIATIONS:

14 carbon-intensive companies call for 'balanced' Paris deal

Jean Chemnick, E&E reporter

Published: Wednesday, October 14, 2015

Fourteen companies from carbon-intensive industries issued a statement today calling for this year's U.N. climate talks to produce a "more balanced and durable multilateral framework" to guide national efforts to contain warming.

The companies that signed on to the statement coordinated by the Washington, D.C.-based Center for Climate and Energy Solutions (C2ES) ranged from aluminum producers to utilities to petroleum corporations.

All the companies are part of an informal C2ES working group on Paris.

"We recognize the rising environmental, social, economic, and security risks posed by climate change, and that delaying action will result in greater risks and costs," the statement says. "We stand ready to work with governments and our civil society partners to deliver and implement a sensible and effective global climate agreement in Paris."

The French presidency of this year's round of U.N. climate talks, which begins in Paris at the end of November, has said that corporations should play a role in helping to foster an agreement. And many corporations have made new pledges of their own ahead of the conference, including Goldman Sachs Group Inc., Wal-Mart Stores Inc. and seven other U.S. companies that vowed last month to transition to 100 percent renewable electricity use.

The participants in today's statement are based in the United States or have major operations here, but most are multinational corporations that also have interests abroad and face foreign competition. The statement calls for the Paris talks to produce an accord that covers all major economies and that provides for transparency of domestic actions and policies -- both important parts of the U.S. negotiating position.

The list includes Alcoa Inc., a lightweight metals manufacturer that also signed a pledge in July at the White House with a dozen other companies that they would spend a collective $140 billion to combat warming and endorse "a strong outcome in the Paris climate negotiations" (*ClimateWire*, July 27).

Other companies that signed today's C2ES statement included Alstom Inc., BHP Billiton Ltd., BP PLC, Calpine Corp., Hewlett-Packard Co., Intel Corp., LafargeHolcim, National Grid, Pacific Gas and Electric Co., Rio Tinto Group, Schneider Electric, Shell Oil Corp. and Siemens Corp.

The statement is part of ongoing C2ES efforts to focus attention on the opportunity for a meaningful agreement in Paris. Earlier this year, C2ES released a co-chairs report from a yearlong dialogue it held with negotiators from China, the United States and 20 other countries laying out key elements of a balanced and durable agreement.

ALTERNATIVE FUELS:

Toyota plans to eliminate CO2 emissions by 2050

Published: Wednesday, October 14, 2015

Toyota Motor Corp. announced today that it's planning to eliminate carbon emissions from its factories by 2050 through renewable energy and hydrogen-based production.

The company also said it plans to sell more than 30,000 fuel-cell vehicles after 2020 and 1.5 million hybrid vehicles by 2020.

Toyota is looking to boost the sales of its popular Prius model, which has seen declining sales because of low gas prices (Reuters/*Las Vegas Review-Journal*, Oct. 13). **-- BTP**

AIR POLLUTION:

EPA hasn't decided if Volkswagen's new software is legal

Published: Wednesday, October 14, 2015

The legality of a new emissions-control device on Volkswagen's 2016 diesel models hasn't been determined yet, a U.S. EPA official said yesterday.

"We have a long list of questions for VW," said EPA's acting assistant administrator, Janet McCabe, at a press conference in Detroit. "When we have all of the answers, we will be able to make a determination."

Volkswagen revealed last month that it had illegally installed software in its "clean diesel" vehicles to fool emissions tests (*ClimateWire*, Sept. 21).

Michael Horn, Volkswagen's U.S. executive, revealed the existence of the new software last week during his testimony before a congressional subcommittee (*Greenwire*, Oct. 8). He said Volkswagen had withdrawn its application for EPA certification of 2016 diesel models.

The company said Monday that it is "working with regulators to continue the 2016 certification process" for Volkswagen vehicles (Paul Lienert, Reuters, Oct. 13). **-- BTP**

AIR POLLUTION:

EPA rolls out new standards for aluminum producers

Amanda Reilly, E&E reporter

Published: Wednesday, October 14, 2015

Aluminum production facilities will be subject to new standards for several air pollutants, as well as face new work practice and monitoring requirements under a new rule that will be published tomorrow.

The rule represents an update to 1997 standards for primary aluminum production facilities. Those facilities make aluminum out of refined bauxite ore using a "potline" process in which electrolytic reduction takes place in a series of cells, or pots.

U.S. EPA finalized the new standards last month after a risk and technology review. The rule will be published tomorrow in the *Federal Register*.

"Once the final standards are in place," EPA said in a fact sheet, "the public health and environment will be protected with an ample margin of safety."

According to EPA, there are 11 facilities in nine states that produce aluminum from refined bauxite ore.

The new rule sets technology-based standards for particulate matter as a surrogate for hazardous metals. It also sets standards for polycyclic organic matter, carbonyl sulfide, mercury, polychlorinated biphenyl, dioxin and furan emissions.

For older facilities, the rule establishes new risk-based standards for polycyclic organic matter, arsenic and nickel emissions. The emissions limitations included in the rule begin to take effect in one year.

Facilities also will be subject to new work practice standards during startup, shutdown and malfunction events at facilities, as well as new monitoring requirements.

EPA earlier this year updated its air toxic standards for secondary aluminum production, or the production of aluminum out of scrap materials.

AIR POLLUTION:

Port of Los Angeles failed to reduce smog, noise

Published: Wednesday, October 14, 2015

The Port of Los Angeles has not conducted critical pollution-reduction measures that it agreed to in a legal settlement more than a decade ago, according to a document distributed by the port.

The environmental notice released by the port showed that 11 of the 52 measures agreed to by the port to reduce air pollution, noise and traffic had not been completed. The measures came as part of a 2003 settlement with residents and community groups that had sued to block the expansion of the China Shipping terminal (*Greenwire*, March 6, 2003).

Port officials said yesterday that the inaction was the fault of previous administrators and promised to rectify things. "We are committed to ensuring that something like this never happens again," said Executive Director Gene Seroka.

Residents and community groups felt cheated after the revelation, however.

"This whole time we've been led to believe that this is a much cleaner project than it has been," said Mark Lopez, who leads East Yard Communities for Environmental Justice (Tony Barboza, *Los Angeles Times*, Oct. 14). **-- BTP**

INTERNATIONAL:

CCAP's Helme discusses need for private financing to meet Paris goals

Published: Wednesday, October 14, 2015

How will private-sector investments factor in to the overall success of December's anticipated Paris climate agreement? During today's OnPoint, Ned Helme, president of the Center for Clean Air Policy, discusses the financing framework that will be needed to ensure the goals of a Paris agreement are met. He also talks about the role of coal internationally and how its expanding use in some countries impacts efforts to reduce emissions.

Click here to watch today's OnPoint.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Thu., October 15, 2015

READ FULL EDITION

1.NATIONS:

Why wealthy Singapore resists tough domestic climate action

SINGAPORE -- This is a rich island nation, and despite pressures to help combat climate change, it fully intends to stay that way. Standing on the peak of Jurong Hill, looking out across a man-made isle off the mainland bearing the same name, it's easy to see why. Manufacturing facilities crowd the artificial land mass. Silver-colored storage tanks and giant chimneys painted in red and white indicate its status as one of the top three oil refining centers in the world. Under the United Nations' 20-year-old climate change agreement, Singapore is considered a developing country exempt from the emissions cuts that are mandatory for a handful of industrialized nations. But as governments prepare to sign a new accord in Paris in December, those old divisions are fading away.

TODAY'S STORIES

2.AUTOS:

By 2020, Toyota plans to sell 30,000 fuel-cell cars a year, reach 94 mpg with Prius

3.EXTREME WEATHER:

Will climate change and 'devil winds' bring year-round wildfires to Southern Calif.?

4.FOOD SECURITY:

Warming oceans driving East Coast fish to cooler waters -- NOAA

5.REGULATION:

5 states face the highest Clean Power Plan costs -- report

6.FORESTS:

Federal law decreased illegal timber imports by at least one-third -- report

7.RESOURCES:

Researchers turn to Alaskan locals for advice on protecting trees from warming

8.RISK:

Researchers find rising seas may destroy U.S. cities even if emissions are cut

9.PEOPLE:

Bill Gates pushes clean energy R&D, calls divestment 'a false solution'

10.RESEARCH:

Spring may come 3 weeks early because of climate change -- study

11.BUSINESS:

Investors stay out of coal market

E&ETV'S ONPOINT

12.WATER POLICY:

Dawson & Associates' Liebesman talks legal landscape for contentious water rule

AN E&E PUBLISHING SERVICE

GREATER EXPECTATIONS SPECIAL REPORT

Continuing this week, Greater Expectations: The New Geopolitics of Climate Change exposes the on-the-ground reality of developing countries challenged by a world that will require every nation to cut carbon emissions. Go to the special report.

ENERGYWIRE — Thu., October 15, 2015

READ FULL EDITION

1.GRID:

Utility conference ponders ISIL, a mysterious attack and other threats

PHILADELPHIA -- Headlines from a daylong briefing on cyberthreats to the electric power grid: The Islamic State of Iraq and the Levant is now using the Internet to launch cybersecurity attacks at U.S. targets; the startling April 2013 sniper assault that knocked out a Pacific Gas and Electric Co.'s Metcalf substation is looking like the work of an insider; and in just a year, the number of cyberattacks using sophisticated concealment techniques tripled to 90 percent.

TOP STORIES

2.NATURAL GAS:
Alaska company gets first U.S. OK to ship LNG by rail

3.SECURITY:
Utility 'champions' set out to make breaches personal

4.ARCTIC:
Quest for ice-laden cleanups continues despite drilling's end

OIL AND GAS

5.GAS EXPORTS:
Offshore LNG facility awaits verdict from Northeast governors

6.EARTHQUAKES:
Texas hiring another quake scientist to review disposal applications

7.OIL:
Islamic State monopolizing crude in its territories

8.OFFSHORE DRILLING:
Chevron trying to figure out why Big Foot won't work

9.REGULATION:
Decades-old oil rules were long-forgotten in Los Angeles

ELECTRICITY

10.WORKFORCE:
Fossil fuel vets find home in growing renewable market

11.ELECTRICITY:
New England looking to Canada for energy

E&ETV'S ONPOINT

12.WATER POLICY:
Dawson & Associates' Liebesman talks legal landscape for contentious water rule

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

From: Ex. 7 @ARB
Location: ARB Conference Room Non-Responsive
Importance: High
Subject: Canceled: Meeting –In- Use Compliance Section/ARB and VW
Start Date/Time: Thur 10/15/2015 4:00:00 PM
End Date/Time: Thur 10/15/2015 8:00:00 PM

;
Meeting –In- Use Compliance Section/ARB and VW
ORGANIZER: Ex. 7 Non-Responsive
ECARSD INVITEES: Ex. 7
Ex. 7
Non-ARB INVITEES: EPA - Byron Bunker, Linc Wehrly, Joel Ball, Jim Snyder, Joel Dalton; VW - Ex. 7
Ex. 7
MEETING PURPOSE: Meeting to Address Questions Related to VW Recall Action
CONFERENCE ROOM: El Monte – ARB Conference Room Non-Responsive
Agenda and Conference Call Number to be provided

From: Ex. 7 @ARB
Location: ARB Conference Room Non-Responsive
Importance: Normal
Subject: Meeting –In- Use Compliance Section/ARB and VW
Start Date/Time: Wed 10/21/2015 4:00:00 PM
End Date/Time: Wed 10/21/2015 8:00:00 PM

;
Meeting –In- Use Compliance Section/ARB and VW
ORGANIZER: Ex. 7 Non-Responsive
ECARSD INVITEES: Ex. 7

Ex. 7

Non-ARB INVITEES: EPA - Byron Bunker, Linc Wehrly, Joel Ball, Jim Snyder, Joel Dalton; VW - Ex. 7
Ex. 7
MEETING PURPOSE: Meeting to Address Questions Related to VW Recall Action
CONFERENCE ROOM: El Monte – ARB Conference Room Non-Responsive
Agenda and Conference Call Number to be provided

From: Ex. 7 @ARB
Location: ARB Conference Room Non-Responsive
Importance: Normal
Subject: Meeting –In- Use Compliance Section/ARB and VW
Start Date/Time: Wed 10/21/2015 4:00:00 PM
End Date/Time: Wed 10/21/2015 8:00:00 PM

;
Meeting –In- Use Compliance Section/ARB and VW
ORGANIZER: Ex. 7 Non-Responsive

Ex. 7

Non-ARB INVITEES: EPA - Byron Bunker, Linc Wehrly, Joel Ball, Jim Snyder, Joel Dalton; VW - Ex. 7
Ex. 7
MEETING PURPOSE: Meeting to Address Questions Related to VW Recall Action
CONFERENCE ROOM: Non-Responsive
Agenda and Conference Call Number to be provided

From: Ex. 7
Location: ARB Conference Room 100 (AN3)
Importance: Normal
Subject: Meeting –In- Use Compliance Section/ARB and VW
Start Date/Time: Wed 10/21/2015 4:00:00 PM
End Date/Time: Wed 10/21/2015 8:00:00 PM

;
Meeting –In- Use Compliance Section/ARB and VW
ORGANIZER: Ex. 7

Ex. 7

Non-ARB INVITEES: EPA - Byron Bunker, Linc Wehrly, Joel Ball, Jim Snyder, Joel Dalton; VW - Ex. 7
Ex. 7
MEETING PURPOSE: Meeting to Address Questions Related to VW Recall Action
CONFERENCE ROOM: El Monte – ARB Conference Room 100 (AN3)
Agenda and Conference Call Number to be provided

To: Allen, Laura[Allen.Laura@epa.gov]; Abrams, Dan[Abrams.Dan@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Senn, John[Senn.John@epa.gov]; Millett, John[Millett.John@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Hull, George[Hull.George@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Grantham, Nancy[Grantham.Nancy@epa.gov]; StClair, Christie[StClair.Christie@epa.gov]; Davis, Jay[Davis.Jay@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Brooks, Phillip[Brooks.Phillip@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Purchia, Liz[Purchia.Liz@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]
From: Gong, Kristiene
Sent: Thur 10/15/2015 5:45:06 PM
Subject: RE: Volkswagen Clips 10/15/2015

Washington Examiner:

http://www.washingtonexaminer.com/volkswagen-recalls-8.5-million-clean-diesel-vehicles-in-europe/article/2574193

Volkswagen recalls 8.5 million 'clean diesel' vehicles in Europe

By KYLE FELDSCHER

Volkswagen will recall 8.5 million "clean diesel" vehicles in Europe because of software that allows the vehicles to cheat emissions tests, the German automaker announced Thursday morning.

The recall does not include the approximately 482,000 similar vehicles in the United States that have been identified by the Environmental Protection Agency and the California Air Resources Board as containing the same "defeat device" software.

According to a statement from Volkswagen, the recall involves 2.4 million vehicles in Germany and 8.5 million across Europe. Outside of the 28 European Union countries involved in the recall, it will be up to each individual country to work with the company to come up with its own plan for a recall.

"Work on the technical solutions detailed in the plan of measures is currently proceeding at full

speed. Remedial action on the vehicles will begin in January 2016 — at no cost to our customers," the company said. "The technical solutions can involve software as well as hardware measures. These are currently being developed for each affected series and each affected model year."

The EPA and the California Air Resources Board are investigating Volkswagen for installing "defeat devices" that allow vehicles to skirt emissions tests. The devices allowed popular models, such as the Jetta, to tell when they were undergoing emissions testing.

The defeat device is about 100 million lines of software code written into the vehicle's programming.

The software could tell if a test was taking place based on the position of the vehicle's steering wheel, the speed the vehicle was traveling, how long the engine was being used and barometric pressure, according to the EPA. The vehicles would reduce emissions of nitrogen oxide during testing and then spew 40 times the legal limit during normal use.

Volkswagen officials are blaming "rogue software engineers" for the devices.

Two congressional committees are investigating the scam with law enforcement authorities in Germany.

The recall in Europe gives some clues to how a similar recall may work in the United States when it eventually comes about.

European VW owners are currently able to look up whether their vehicle contains a defeat device on the company's website. The company says it will also tell the owners of the affected vehicles over the next weeks and months what measures will have to be taken to fix their vehicles.

The company emphasized, as has the EPA, all of the vehicles are safe to drive and can stay on the road.

Vox:

http://www.vox.com/2015/10/15/9541789/volkswagen-europe-diesel-pollution

Europe's love affair with diesel cars has been a disaster

Updated by Brad Plumer on October 15, 2015, 1:00 p.m. ET @bradplumer brad@vox.com

The recent news that Volkswagen had been illegally rigging its diesel-powered cars to cheat on pollution tests has sparked plenty of outrage. Hearings, lawsuits, fines, general opprobrium. And rightly so; the company's deception was appalling.

But there's a much broader, far more consequential problem here that a lot of coverage has danced around or hinted at only indirectly. So let's say it: Europe's longtime promotion of diesel vehicles as a "green" transportation option has been a complete and total disaster — for reasons that go well beyond the Volkswagen scandal.

Ever since the 1990s, European governments have been encouraging drivers to buy diesel cars as an alternative to traditional gasoline-powered vehicles. The rationale was simple: Diesel engines use fuel more efficiently, so the switch was supposed to reduce carbon dioxide emissions and help stave off global warming. Thanks to tax breaks and other incentives, diesel cars now make up one-third of Europe's fleet, whereas they're a sideshow in the US and Japan:

Europe's diesel push might have seemed sensible once upon a time. But 20 years later, with the benefit of hindsight, it looks like a huge mistake, an impotent climate policy that had all sorts of unintended consequences.

The biggest drawback of diesel cars is that they emit higher levels of other harmful air pollutants like particulates and nitrogen oxides. And those ended up being far harder to clean up than experts initially predicted. We now know that Europe's regulators have failed spectacularly to control diesel pollution, relying on weak rules and flimsy testing procedures. Lots and lots of automakers — not just Volkswagen — have been manufacturing diesel cars that emit far more gunk than they're supposed to. As a result, cities like London and Paris are clogged with dangerously high levels of air pollution, causing thousands of premature deaths each year.

And that's not the worst part. It's now looking like Europe's diesel push didn't even do anything to help global warming, as one 2013 study by Michel Cames and Eckard Helmers found. The CO2 benefits from switching to diesel cars were overrated and offset by the extra soot their engines produced. Plus, Europe's entrenched diesel industry has impeded progress on more promising hybrid and electric car technologies that could've provide deeper emissions cuts.

The whole episode is a sobering case study in how well-intentioned green industrial policy can go horribly wrong. So let's roll the tape and see what lessons we can learn from Europe's decades-long diesel fiasco.

Why Europe embraced diesel cars in the 1980s and '90s

Tributes And Reaction To Paris Terror Attacks After Gunmen Kill 17 People

(David Ramos/Getty Images)

After crude oil gets pumped out of the ground, it's sent to refineries to be turned into usable fuel. Those refineries typically distill the oil into lighter and heavier components. The lightest stuff includes gasoline. On the heavier side is diesel fuel, which contains more energy per gallon.

For most of the 20th century, automakers largely designed cars to run on gasoline, which was more flammable and combusted easily using sparks. Engines that could combust diesel fuel, using air compression, had been invented in the 19th century, but they were noisier and belched more smoke, so they were mostly confined to large ships and trucks. Diesel was often used instead for heating and producing electricity.

But starting in the 1980s, French and German automakers began showing more interest in developing diesel-powered cars. The reasons have always been a little murky, although Cames and Helmers suggest it traces back to the OPEC oil crises of the 1970s. After global crude prices spiked, France decided to swear off using diesel for electricity and built a bunch of nuclear plants instead. Germany, meanwhile, switched from oil to natural gas for heating. When the crisis finally subsided, Europe's refiners were still producing lots of diesel with no buyers. So governments began urging automakers like Peugeot to look into diesel-powered vehicles.

By the late 1990s, diesel technology had improved dramatically, thanks to advances in fuel injection — common rail, especially — that allowed the engines to run more quietly. The newer diesel engines were a technical marvel, operating more efficiently than their gasoline counterparts and using less fuel per mile traveled (and, hence, emitting less carbon dioxide per mile). All they needed was a market.

Rising concern over global warming provided that push. In 1997, the European Union signed the Kyoto Protocol and committed to cutting its heat-trapping carbon dioxide emissions roughly 8 percent by 2012. The next year, the EU reached a landmark agreement with the continent's car manufacturers on reducing CO2.

At the time, there were lots of different paths Europe's automakers could have taken to green itself. They could've pursued direct injection technology for gasoline vehicles, making those engines more fuel-efficient. They could've ramped up R&D of hybrid electric car technology, as Japanese automakers like Toyota were starting to do. But European companies like Peugeot and Volkswagen and BMW had already been making big investments in diesel, and they wanted a climate policy that would allow those bets to pay off.

Europe's policymakers obliged. The EU agreed to a voluntary CO2 target for vehicles that was basically in line with what diesel technology would be able to meet. As researcher Sarah Keay-Bright later noted, these standards were explicitly crafted so as not to force Europe's automakers to develop hybrids, electric vehicles, or other more advanced power trains.

Soon thereafter, European nations — including Britain, France, Germany, Italy, Spain, and Austria — began cutting taxes on diesel fuel and diesel car purchases to promote sales, all in the name of thwarting climate change. Diesel sales soared. Back in 1990, just 10 percent of new car registrations in Europe had run on diesel. By 2011, that had climbed to nearly 60 percent.

Today, Europe's diesel cars are a public health nightmare

Diesel engines do have one big pitfall. They may be more fuel-efficient and emit less CO2, but their engines tend to emit higher levels of other nasty air pollutants, including soot, particulates, and nitrogen oxides (NOx). Heavy exposure to these air pollutants can exacerbate heart and lung disease, trigger asthma attacks, and even cause premature death.

Everyone knew this back in the 1990s. Europe's regulators simply considered the trade-off acceptable. "At the time, the prevailing belief was that climate change was the really hard problem and should be the priority, whereas we'd had experience improving air quality, so everyone assumed we could easily fix that issue later," explains Martin Williams, an air pollution researcher at King's College London who previously worked for Britain's environmental agency.

That assumption turned out to be wrong. When European regulators later moved to clamp down on NOx and other conventional air pollution from diesel vehicles, they failed miserably.

Starting in 2000, the EU began ratcheting down the legal limits for NOx emissions (though Europe's diesel cars have always been allowed to emit NOx at a relatively higher rate than gasoline-powered cars). New vehicles were tested in laboratories, where cars were placed on giant treadmills, spun through a few exercises, and measured for pollution.

Trouble was, these tests turned out to be incredibly flimsy and easily gamed, explains John German of the International Council on Clean Transportation. Automakers could send cars to labs that were optimized for testing: stripped of excess weight, with the air conditioning turned off, and so on. The test cars complied with the pollution limits just fine. But the cars that were actually being sold to consumers were quite different, with much higher emissions. (German says this sort of subtle gaming was technically legal, unlike Volkswagen's more elaborate deception, which involved illegal software that only turned pollution controls on during tests. Still, even if Volkswagen was the most flagrant cheater, it was hardly unique.)

Few realized the EU's pollution tests were badly flawed until 2010, when researchers started studying emissions from vehicles that were actually on the road. In one study, Williams set up

roadside infrared detectors to measure NOx pollution from cars in seven British cities. What he found was shocking: Europe's newest diesel cars were emitting roughly as much NOx as older diesel cars from the 1990s.

In other words, 20 years of increasingly strict air pollution regulations had done absolutely nothing to reduce pollution. "That was the most surprising part," Williams says.

By that point, the damage had been done. Today, Paris occasionally jousts with Beijing for the title of world's most polluted city. London is grappling with unsafe levels of nitrogen dioxide. Germany, Austria, and Ireland have NOx pollution well above the legal limits.

And the health toll has been staggering. One recent study found that diesel pollution from cars, buses, and trucks in Britain caused 9,400 premature deaths in 2010 alone. It's difficult to suss out what fraction of those deaths might have been avoided if emission rules had been properly enforced all along, but that gives some sense of the brutal cost here.

To be fair, European regulators have scrambled to improve the tests now that they've realized what was happening. But it's still unclear whether the diesel car industry can ever clean up its act.

Starting in 2014, the newest, most stringent emissions standard — known as Euro 6 — will require diesel cars to emit no more than 0.08 grams of NOx per kilometer, an 84 percent reduction from 2000-era levels. Europe's regulators will also start requiring on-road testing in addition to laboratory checkups. (That's what the United States EPA does, and it should eliminate most gaming, although, as the Volkswagen scandal showed, truly determined cheaters are hard to detect.)

But here's the fat asterisk: Now that they can no longer easily game the system, Europe's automakers are lobbying hard to relax the pollution standards. That's because it's not very easy to cut NOx pollution from diesel cars. One of the technologies that could meet the most stringent limits, known as selective catalytic reduction, involves running the car's exhaust through a honeycombed chamber that sprays urea and water, which breaks the NOx down into harmless nitrogen, oxygen, and water molecules. But these devices can add about $5,000 to $8,000 to the price of a vehicle, which would make many small cars uneconomical. They can also negatively

affect fuel economy, torque, and other aspects of the car's performance.

So the jury's still out on whether "clean diesel" cars will even be viable in practice. Volkswagen had claimed to have cracked the problem with its most recent diesel models ... except we now know the company was doing it by rigging the cars with software to evade pollution tests.

The grim irony: Europe's diesel push hasn't helped with global warming

If Europe's diesel surge had helped mitigate climate change, then maybe (just maybe) you could argue that all this extra air pollution was worth it. Except here's the grim plot twist: The climate benefits appear to have been negligible.

In their 2013 paper, Cames and Helmers argued that Europe is probably worse off today, from a global warming perspective, than it would have been if automakers had just focused on improving gasoline-powered cars all along. And Europe is arguably much worse off than it would have been if automakers had started investing in hybrid electric technology back in the 1990s.

The authors offer up this chart, showing that Europe's diesel cars may have once had a sizable CO2 advantage over traditional gasoline vehicles. But today that gap has virtually disappeared, as new technologies like turbochargers have made gasoline engines nearly as efficient as diesel cars:

What's more, there are two subtle drawbacks to diesel engines that make them worse for global warming than they seem.

First, even if diesel cars emit less CO2 than gasoline vehicles, they emit a lot more black carbon, or soot, a pollutant that (we've recently learned) also contributes significantly to global warming. The precise accounting here is still subject to some dispute, but Cames and Helmers point out that black carbon emissions from diesel cars likely negate a big chunk of their CO2 advantage.

Second, remember that European countries encouraged diesel car adoption by slashing taxes on the diesel fuel itself (compared with gasoline). But as any Econ 101 student will tell you, cutting fuel prices gives people an incentive to drive more miles — and increase their overall emissions. This further chips away at any climate advantage diesel might have.

Add it up, and Cames and Helmers conclude that "the European diesel car boom did not cool down the atmosphere."

One final coda here. Go back and look at the Japanese cars on the graph above. Back in the late 1990s, Japanese automakers were also thinking about cutting CO2, but they figured that diesel was a dead-end technology, since the cost of cleaning up the extra NOx pollution would be too high. Instead, companies like Toyota started investing in hybrid vehicles, with the first Prius appearing in 1997. By contrast, Europe's automakers initially scoffed at electric powertrains, and none of them even bothered producing hybrids until Mercedes finally rolled one out in 2009.

Japan's decision now looks prescient, and Europe's looks shortsighted. Hybrids proved much greener: The newest Japanese cars now produce roughly 10 percent less CO2 per mile than Europe's diesel vehicles do, on average. And Japan's automakers appear to be better set up for the future. Many experts now think that transportation will eventually have to become electrified if we want truly deep reductions in emissions. But European automakers, stuck on diesel for so long, are scrambling to catch up.

Europe is now struggling to undo its diesel mistake — but it's not easy

Debate Over Vehicle Emissions Intensifies As Volkswagen Scandal Widens

Because of the Volkswagen scandal, and the staggering levels of pollution in cities like Paris and London, Europe's policymakers are now beginning to rethink their fondness for diesel cars. But it's a hard technology to give up. Path dependency is a hell of a drug.

In diesel-loving France, Ségolène Royal, the environment minister, recently said that the country would consider phasing out preferential tax breaks for diesel over the next five years. "We need to start preparing our move out of diesel," she reportedly told France 5 television. But she's also

bristled at any suggestion that France should act too quickly. After all, diesel cars still account for more than 60 percent of all European sales for Renault and Peugeot, two major local manufacturers. They can't just unwind those positions overnight.

Volkswagen, for its part, is also engaged in a bit of soul searching around diesel (at least, when it's not recalling its 11 million law-breaking diesel cars and dealing with criminal investigations). The company recently announced that it would take a major plunge into electric powertrains, creating a standardized architecture for a new wave of plug-in cars. "The Volkswagen brand is repositioning itself for the future," said executive Herbert Diess. Except, of course, this shift won't happen overnight. Because VW spent so many years dreaming up ways to evade regulators and sell diesel cars, it's now playing catch-up to electric car companies like Tesla.

In the meantime, Europe's smoggy cities still have to grapple with the fallout from all those polluting diesel cars that are still on the road — and will likely stick around for years. The EU has started to pressure countries with the worst air pollution. Cities like London, Stockholm, and Milan are already experimenting with emission-free zones. In the future, drivers with old diesel clunkers could have to pay extra to travel downtown in certain cities. But even this cleanup will take years.

Energy bets can sometimes go horribly wrong. So how do we avoid that?

Europe's misadventure with diesel cars is a great case study in how energy policy can go very badly awry, and no doubt there's a long list of lessons to draw. I'll just mention a few big ones:

First, Europe's complete failure to regulate diesel pollution is worth studying. Not only had regulators designed flimsy emissions tests — partly at the behest of industry lobbying — but it took two decades to even realize the tests were failing. Crafting ambitious environmental rules is all well and good, but without ample enforcement and monitoring, those rules are basically pointless. (Note that China is now pursuing ambitious climate policies of its own, but experts keep muttering that enforcement will be a big challenge — a caveat that deserves much more attention.)

Another possible takeaway is that if we really want to reduce greenhouse gas emissions from the transportation sector, liquid fuels are ultimately a dead end and electrification is the best path

forward. There's no shortage of experts who believe that, and certainly that's the lesson Volkswagen seems to be drawing from this fiasco. That said, it's worth noting that Toyota, which was ahead of the pack in developing hybrid electrics in the late 1990s, actually doesn't believe electric cars are the future and is pouring R&D into hydrogen cars instead.

Which brings us to the third takeaway. The future is hard to predict. Diesel cars seemed like a reasonable idea in the 1990s and a disaster today. That suggests that policymakers should have a lot more humility when crafting energy policy. One approach might be to pursue more technology-neutral policies organized around preferred outcomes — say, tightly enforced standards that require lower emissions — rather than favoring specific industries just because they happen to seem promising at that moment in time.

This issue comes up again and again. For years, governments have been laying down big bets on emerging clean energy technologies. France did it with nuclear power in the 1970s and '80s. Germany did it with wind and solar power in the 2000s, through feed-in tariffs. The United States did it with corn ethanol in 2005.

Done right, this sort of government support can be valuable, helping useful new energy options break into the mainstream against entrenched competition. But the biggest risk is that governments end up gambling on badly flawed technologies that then become the entrenched competition and prove impossible to get rid of. The US arguably made that mistake with corn ethanol, which has had unintended ripple effects on the food supply and deforestation and is proving politically difficult to wind down. Now it's clear that Europe made that mistake, too.

From: Gong, Kristiene
Sent: Thursday, October 15, 2015 11:32 AM
To: Allen, Laura <Allen.Laura@epa.gov>; Abrams, Dan <Abrams.Dan@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Senn, John <Senn.John@epa.gov>; Millett, John <Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Hull, George <Hull.George@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Grantham, Nancy <Grantham.Nancy@epa.gov>; StClair, Christie <StClair.Christie@epa.gov>; Davis, Jay <Davis.Jay@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Brooks, Phillip <Brooks.Phillip@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>; Purchia, Liz <Purchia.Liz@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Kaul, Meetu <Kaul.Meetu@epa.gov>
Subject: Volkswagen Clips 10/15/2015

NBC News:

http://www.nbcnews.com/business/autos/let-recalls-begin-germany-tells-vw-fix-2-4-million-n445141

Let the Recalls Begin: Germany Tells VW to Fix 2.4 Million Diesels

by PAUL A. EISENSTEIN

About 2.4 million Volkswagen diesels sold in Germany over the last seven years will be recalled under an order issued Thursday by the Berlin government.

The move marks the first official recall of diesel vehicles that VW surreptitiously outfitted with software designed to meet emissions tests, then switch off pollution controls during real world operation. VW has said it produced about 11 million such vehicles with its EA 189 engine.

The scam was revealed last month by the U.S. Environmental Protection Agency. The EPA has yet to order a formal recall - though one is expected - in part because it has been working with VW to come up with an appropriate fix. The U.S. has some of the world's most stringent diesel emissions standards.

Complicating matters, it now appears that Volkswagen's 2016 diesels may be using a different type of software code to evade emissions mandates.

Thursday's order by German Transport Minister Alexander Dobrindt told VW "to remove the software from all vehicles and to take appropriate measures to ensure that the emissions rules are fulfilled."

The embattled automaker will have to provide German regulators with the code for a software

fix by the end of this month. Repairs aren't scheduled to begin until early in 2016.

The mandatory recall in Germany means other EU countries will follow suit. Europe's biggest carmaker has said up to 8 million vehicles in the EU could contain banned software.

Last week, Volkswagen AG CEO Matthias Mueller said he expected to begin the repair of the 11 million diesel vehicles in January, with a goal of completing the "retrofit" by the end of 2016. Along with changing the software code on VW's EA 189 engine, some versions, especially a smaller 1.6-liter diesel, could require revisions to the engine itself, not just an update to the engine controller's code.

A fix might take longer in the U.S.

For one thing, Volkswagen has to prove to the EPA that any changes will continue to meet emissions standards for 150,000 miles. And because the American standards for smog-causing oxides of nitrogen (NOx) and particulate emissions are tougher than in Europe, VW insiders have said they expect they will have to modify engine hardware, as well.

Further complicating the situation, there have been two major updates to the 2.0-liter U.S. diesel since it was introduced. Earlier models may now require the addition of a urea injection system similar to what most other automakers use on their diesel vehicles. The ammonia-like chemical helps break down NOx into harmless components.

VW Plans to Overhaul Diesel Technology in Scandal's Wake

Meanwhile, the EPA has begun examining the software used on 2016 versions of some diesels that Volkswagen use different software code also aimed at fooling emissions tests.

VW on Tuesday told the Associated Press the "auxiliary emissions control device" on 2016 models operates differently from the so-called "defeat device" used on VW diesels during the

previous seven years.

But so far VW but has provided regulators with few details.

"We have a long list of questions for VW about this," Janet McCabe, acting assistant EPA administrator for air quality, said this week. "We're getting some answers from them, but we do not have all the answers yet."

As a result of the disclosure, VW has withdrawn a request for the EPA to certify some of its 2016 diesel models for sale in the U.S. Whether the new software code actually violates U.S. emissions rules is unclear, however.

Toyota to Phase Out Gas-Powered Vehicles, Doubling Down on Hydrogen

If it does violate the rules, Volkswagen's problems could increase exponentially, some observers warn. The maker already faces potential fines from the EPA of more than $18 billion for the first software cheat. It is also facing a criminal investigation into the scandal by the U.S. Department of Justice. And at least a half-dozen class action lawsuits have now been filed on behalf of VW diesel owners.

Additional civil and criminal probes are underway abroad.

German Transport Minister Dobrindt said that while his agency had an "extraordinarily good" working relationship with VW as it continues its probe, for the moment, at least, it has "no information about who decided where, when at Volkswagen about the use of such software."

Since the diesel scam was revealed last month, VW has ousted its long-time CEO Martin Winterkorn, along with two of its top R&D executives. Meanwhile, Winfried Vahland, who was named just three weeks CEO of the new Volkswagen North America group tendered his resignation on Wednesday. The maker said that departure was "expressly not related" to the

diesel scandal, but provided no other details.

Reuters contributed to this report.

-

-

WIRED:

http://www.wired.com/2015/10/dozens-of-managers-were-involved-in-vws-diesel-scandal/

DOZENS OF MANAGERS WERE INVOLVED IN VW'S DIESEL SCANDAL

ALEX DAVIES GEAR DATE OF PUBLICATION: 10.14.15

AT LEAST 30 Volkswagen managers played a role in using software to cheat on emissions testing on more than 10 million diesel cars, Der Spiegel reports.

The German magazine is citing reports by Volkswagen, as well as by law firm Jones Day, and says the managers will likely be suspended. A VW spokesperson says "This number is without foundation.

Due to the ongoing investigation we will not reveal the number nor the names of possible persons concerned."

Meanwhile, VW's newly chosen head of North America, Winfried Vahland, is leaving the company just two weeks after being designated for the post. According to a Reuters report, Vahland, who's been running VW's Skoda brand, is leaving over differences of opinion with the Board.

This week, VW announced it plans to recover from the scandal by increasing its focus on electric cars, including plans for a plug-in hybrid Phaeton sedan.

Flemingsburg Gazette:

http://fleminggazette.com/5809/vw-scandal-nine-out-of-10-uk-united-kingdom-customers/

VW scandal: Nine out of 10 United Kingdom customers demand compensation

Brittany Kelley | 15 October 2015, 12:15

Volkswagen has disclosed to USA regulators that there is additional suspect software in its 2016 diesel models that would potentially help their exhaust systems run cleaner during government tests. A VW spokesman confirmed that the company reported the device last week to the Environmental Protection Agency, which discovered the initial defeat device that allowed the company to cheat emissions tests. As the reputation of "clean diesel" small-car engines gets tarnished by Volkswagen AG's massive diesel-emissions scandal, the world's top automaker appears to be taking electric cars more seriously.

VW spokeswoman Jeannine Ginivan said the new issue with the 2016 vehicles was first revealed last week to U.S. Environmental Protection Agency and California regulators. The software at situation makes a air pollution-management catalyst warmth up quicker, enhancing efficiency of the system that separates smog-inflicting nitrogen oxide into innocent nitrogen and oxygen gases. During the course of a media briefing on Tuesday, EPA Assistant Administrator Janet McCabe said that the VW diesel vehicles supposedly equipped with the automaker's new emission-control device have not yet been certified for sale by the EPA. EPA's McCabe wouldn't say if VW's failure to disclose the software in its 2016 applications was illegal.

Diesel variations of the Passat sedan manufactured on the firm's plant in Chattanooga, Tennessee, are also on maintain. Earlier this week Volkswagen's United Kingdom boss Paul Willis said it was "premature" to discuss compensation. Asked for additional detail, a VW spokesperson on Monday said the software "has the function of a warmup strategy which is subject to approval" by EPA. It would suggest a deliberate effort by the company to cheat US emissions tests, which continued even after regulators pressed the company about the irregular emissions produced by the older cars previous year. Volkswagen already faced an ongoing criminal inquiry and billions in fines.

The existence of the new software was made public last week by Volkswagen Group of America president and CEO Michael Horn in testimony he gave to a congressional subcommittee investigating the scandal. In another blow to the carmaker on Wednesday, the man Volkswagen lined up less than three weeks ago to head its North American business resigned. Meanwhile, the US Federal Trade Commission, which probes companies accused of deceptive advertising, has joined the EPA and the Justice Department in investigating Volkswagen.

In the wake of the scandal, 86% of VW drivers are concerned about the environmental impact of their auto, while 83% questioned the impact on its resale value and 73% feared the performance of their vehicle would be affected.

Burlington Free Press:

http://www.burlingtonfreepress.com/story/news/2015/10/14/vermonters-sue-over-volkswagens--trickery/73871744/

Vermonters sue over VW's emissions trickery

Dan D'Ambrosio, Free Press Staff Writer 10:19 a.m. EDT October 15, 2015

Two class-action lawsuits have been filed in Vermont against Volkswagen for cheating on emissions testing.

In 2013, Bob Turnau of Charlotte bought a sleek, white Volkswagen Jetta Sportwagen TDI that checked all the boxes for the environmentally and socially aware finance director at Resource in Burlington. The diesel-powered Jetta got great mileage and also met or exceeded all U.S. emission standards. And it had snappy acceleration.

"Around town I was getting 38 to 40 miles per gallon," Turnau said. "I made a big trip one year down South, it was over 50 miles per gallon. I really loved it for that.It was environmentally conscious, it had great fuel mileage and it was fun to drive. Those three things were really the troika of what led me to buy Volkswagen."

Then, in September it all fell apart when Volkswagen admitted to the U.S. Environmental Protection Agency and the California Air Resources Board that it had employed a sophisticated device to cheat U.S. emissions standards in diesel cars including the Audi A3, Beetle, Golf, Jetta and Passat.

"We take this matter very seriously," said Christopher Grundler, director of EPA's Office of Transportation and Air Quality in a press release in early October. "It's not only a violation of the Clean Air Act, it threatens public health and the credibility of the industry."

Boy, did it ever. Turnau, a resident of Charlotte, and thousands of his fellow Volkswagen owners across the country discovered their diesel-powered cars were only meeting emission standards when hooked up to testing equipment — the heart of the ploy implemented by sophisticated software — and they were spewing up to 40 times the allowed levels of nitrogen oxides when actually traveling down the road.

Turnau learned about the deception from news reports.

"It was complete disbelief," he said. "I bought a car that just wasn't what they told me it was."

Soon, disbelief turned to anger, and a determination not to be sidelined, waiting for Volkswagen to respond. Turnau called his friend, Tris Coffin, former U.S. Attorney for Vermont, now working in the private sector for Downs Rachlin Martin, PLLC in Burlington.

Lots of angry Vermonters

Turnau is the lead plaintiff in a class-action lawsuit brought by DRM against Volkswagen of America and its parent company, Volkswagen AG of Germany. Members of the class include all Vermonters who bought or owned diesel-powered Volkswagen Jetta, Golf, Passat or Audi A3 automobiles with model years from 2008 to present.

The lawsuit alleges buyers paid a higher price for the vehicles as compared to gasoline powered cars, in part because of company claims about lower emissions. Additionally, the value of the cars is lower because of the deception, and owners face unknown challenges in bringing the cars into compliance with federal regulations.

Turnau bought his Jetta based on Volkswagen's representations that it was an environmentally friendly, "emissions meeting or beating" car, which turned out to be a lie.

"One of the ways you can recover from that is by bringing a lawsuit," Coffin said.

Turnau agrees.

"I feel that this suit gives me a voice in what the outcome could be," he said.

Coffin said Tuesday that five more Vermonters have joined the lawsuit, including Chuck Lacy, former president and COO of Ben & Jerry's. Nearly 400 people have expressed interest in the lawsuit, he said.

Another class action lawsuit has been filed in Vermont by attorney Patrick Bernal of Witten, Woolmington, Campbell & Bernal, P.C. in Manchester Center. Bernal's lawsuit has two lead plaintiffs, and Bernal said he has been contacted by "scores" more Volkswagen owners in Vermont.

"In my view Volkswagen did a terrible thing and it did it to lots of different people," Bernal said. "I represent a lot of angry Vermonters who feel absolutely betrayed."

The Lance Armstrong of automakers?

Across Vermont, there are about 3,000 affected Volkswagen owners, according to Tris Coffin. That makes Vermont one of the most affected states, per capita, said Attorney General Bill Sorrell, who announced an investigation into the diesel debacle on Sept. 24.

Sorrell said there are several potential issues. Has there been a violation of Vermont's consumer protection act for unfair or deceptive actions in commerce, as the Downs, Rachlin Martin lawsuit alleges? If found guilty, Volkswagen would be liable for triple damages. Has Volkswagen been selling vehicles in Vermont that violate the state's auto emission standards? Vermont has collected millions of dollars in penalties in other such cases alleging environmental violations and consumer fraud.

"We seek to recover monies on behalf of Vermonters who have been scammed, so we've got those issues of trying to see that Vermonters who bought those vehicles, including one of my sisters, are made whole from the losses they've suffered," Sorrell said.

Rep. Peter Welch has also been on the Volkswagen case, grilling the company's U.S. CEO Michael Horn in a House committee hearing last week. Before the hearing, Welch asked for questions and comments from Vermonters on his Facebook page.

"My fear is that VW is the Lance Armstrong of the car industry and they were just the first to be caught," said Shara Tarule.

"Just give me some cash and a new Audi," said Marshall Pierce.

"Fix it, just fix it," implored Kit Burns Wheatley.

"It's so outrageous what Volkswagen did that's it's hard to believe they did it," said Welch in an interview on Tuesday. "It took self-conscious planning and careful execution to install this software that would defeat the testing. There's a part of everybody who learned about this that

was just flabbergasted. Why would a company do that? How did they think they would get away with it?"

No write-offs

One of the comments Welch got from his constituents concerned the potential for Volkswagen to write off part of the federal penalties that might result from the company's actions, which could run into the billions of dollars. Forbes reported last week that in a potential out-of-court settlement regarding the Gulf oil spill, BP would be able to write off $15.3 billion of a $20.8 billion penalty. Only $5.5 billion would be designated as a non-tax-deductible Clean Water Act penalty.

Welch asked Horn in the hearing whether he would agree that Volkswagen wouldn't take advantage of the tax code to shift some of the burden of any penalties to taxpayers.

"He said he didn't know what the law was, but he didn't think taxpayers should share in the burden," Welch said. "That sent a signal to Volkswagen headquarters that not only is this a problem, but it's a real problem."

Welch has introduced a bill, "The Stop Deducting Damages Act of 2015 (H.R. 2456)" that would close the loophole that allows companies like BP to shift some of the burden of their fines to taxpayers. The bill has been referred to House Ways and Means.

Welch also spoke to Bill Shearer, owner of Shearer Volkswagen in South Burlington, to get an idea of the impact the diesel debacle has had on dealers. Welch sympathizes with Shearer, whom he points out had nothing to do with the disastrous decisions that led to the deceit perpetrated on Volkswagen customers.

"Our dealers have relationships with their customers, they tend to be family businesses," Welch said. "He's going to have a hit in his sales and obviously this will affect his bottom line. He's going to keep his trusted and valued employees on, that's what he told me."

Round up the bad guys

Shearer confirmed he was not planning any layoffs. He owns five dealerships, including Volkswagen, GM, Honda, Acura and Audi, with a total of 200 employees. Four of the dealerships are in the Burlington area and one is in Rutland. Shearer said Volkswagen represents 30 percent of his new car sales.

"It's a terrible thing for our customers and for the employees and families that have a big stake in Volkswagen," Shearer said. "I feel terrible for those people, but we'll make it work. We've been through GM bankruptcy and other recalls."

Something went awry at Volkswagen, Shearer said, but he's confident the German company will pull through in the end.

"It's a quality company and something bad happened," he said. "They're going to pick it apart and see who did what. I know these people. I know Michael Horn. They're determined to fix it for every customer. I'm determined to be part of that happening."

Once Volkswagen determines who did what, those people should be fired, said Matthew Dodds of Brandthropology, a marketing firm in Burlington. Martin Winterkorn, CEO since 2007, resigned in September, saying he was not aware of any wrongdoing on his part.

"They got to terminate everybody who either approved or turned a blind eye to what happened," Dodds said. "You have to excise that part of the culture that allowed that to happen. If you don't do that I don't believe it's credible."

That task falls to the new CEO, Matthias Müller, according to Dodds.

"It has to come out of the voice of the new sheriff in town, he has to round up the bad guys," Dodds said.

Second, Volkswagen has to make its customers whole, no matter the cost.

"Take it on the chin and take care of your customer base," Dodds said. "Give until it hurts. Make it painful for yourself because here's the deal: People in love with the brand will reward you with loyalty."

Michael Jager of Solidarity of Unbridled Labour in Burlington, agrees with Dodds that Volkswagen must pay until it hurts. But he worries that the damage goes much deeper than angry customers who must be made whole. He said the "amplified perception" of German engineering, embodying precision and quality, makes the deceit even worse, calling the company's entire culture into question.

"The way they calculatedly did this, to create this lie, takes German engineering and design prowess and amplifies it in the opposite direction," Jager said.

To reverse the damage is going to take an unprecedented response, Jager said.

"Could you imagine something as bold as giving people their money back, taking back the cars, repairing them and giving them to car shares across the country?" he said. "With a move like that, they might win back their customers."

Cc: Bunker, Byron[bunker.byron@epa.gov]; Jackson, Cleophas[jackson.cleophas@epa.gov]
To: Blubaugh, Jim[Blubaugh.Jim@epa.gov]
From: Hui He
Sent: Thur 10/15/2015 6:13:21 PM
Subject: Re: Latest agenda and logistics of Sino-US workshop

Dear Jim,
Thank you for your feedback. I'll pass along these to VECC this evening for them to decide and make the changes accordingly. At this stage, they're in complete control of the agenda.

Meeting in the morning of Oct 21 sounds good! If you're interested in having breakfast together, I (and Drew) will be in breakfast area around 7:30am.

One more thing is that I mentioned to you last time, we've translated the EPA Compliance Report 2009-2011 because VECC thought that would be useful. I understand your team is too busy to proof read the translation. I'll share our translation with VECC and add a note saying: "The translation is provided by ICCT and not approved by EPA, and should not be considered as official translation. All information is subject to EPA's interpretation". I think VECC was planning to print it out and share with a small group of people (MEP officials), but not to share with the general audience at the workshop. Basically VECC will determine how to use the material.

Please let me know if this is ok with you.

Have a safe and good trip. Look forward to seeing you in Beijing!

Hui

Hui He 何卉
Senior Researcher, China Regional Lead
International Council on Clean Transportation
T: +1 415 2025752
F: +1 415 3999172
hui@theicct.org
1 Post St. Ste 2700, San Francisco, USA
visit our web: www.theicct.org

On Oct 15, 2015, at 4:59 AM, Blubaugh, Jim <Blubaugh.Jim@epa.gov> wrote:

Dear Hui,

Thank you for sending along the latest agenda and logistics for the workshop. We are looking forward to working with you, and our MEP counterparts to make this Workshop a success. I noted two items on the agenda that need updated:

1) Part IV: The presentation on the U.S. Clean Diesel Legacy Fleet Program will be delivered by myself. Please delete the TBD note.

2) As we discussed during our conference call a few weeks ago, we are happy to host one of the sessions during the workshop but we believe that VECC or even ICCT should take on a leadership role and host one, or more of the others. Please update the agenda to include EPA as only the host of Part II.

Finally, as you know from the time we land in Beijing the EPA team will be extremely busy throughout the week. Unfortunately we will not be able to attend the speakers welcome dinner on the evening of Tuesday, October 20th. We currently have other meetings scheduled for that time. We will plan to catch-up with you in the morning of Wednesday, October 21st, prior to the start of the Workshop. We look forward to seeing you next week in Beijing.

Thanks again for all your hard work in planning and preparing for the workshop.

Jim

Jim Blubaugh, Director

International Programs

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

(202) 564-5403

From: Hui He [mailto:hui@theicct.org]
Sent: Thursday, October 15, 2015 3:40 AM
To: Blubaugh, Jim; Bunker, Byron; Jackson, Cleophas; Lemieux, Sharon@ARB; Drew Kodjak
Subject: Latest agenda and logistics of Sino-US workshop

Dear speakers,

Please find the attached latest agenda of the workshop and a logistics memo. I checked in with VECC-MEP a couple of hours ago, there is still one unconfirmed speaker from China side. So this version is still not final final, but that should not affect your presentations.

Later, I'll send to each speaker his/her final bilingual slides, and specific airport pick up information (if applicable).

Best,

Hui

To: Allen, Laura[Allen.Laura@epa.gov]; Abrams, Dan[Abrams.Dan@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Senn, John[Senn.John@epa.gov]; Millett, John[Millett.John@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Hull, George[Hull.George@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Grantham, Nancy[Grantham.Nancy@epa.gov]; StClair, Christie[StClair.Christie@epa.gov]; Davis, Jay[Davis.Jay@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Brooks, Phillip[Brooks.Phillip@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Purchia, Liz[Purchia.Liz@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]
From: Gong, Kristiene
Sent: Thur 10/15/2015 8:53:02 PM
Subject: RE: Volkswagen Clips 10/15/2015

NY Times:

http://www.nytimes.com/2015/10/16/business/international/volkswagen-germany-recall.html?_r=0

Volkswagen to Recall 8.5 Million Vehicles in Europe

By MELISSA EDDYOCT. 15, 2015

BERLIN — Germany's automobile regulator on Thursday ordered Volkswagen to recall 2.4 million rigged diesel vehicles in the country, prompting the company later in the day to announce an even bigger recall — of 8.5 million of its diesel cars in Europe.

Volkswagen has been indicating for weeks that it intends to fix the cars it has admitted to deliberately equipping with software meant to cheat on emissions tests. But it wasn't until Thursday, and only after the German government ordered a recall on the grounds that the company's plans so far were insufficient, that the carmaker publicly committed to a program and a timetable.

Volkswagen, indicating that it would adopt the German order Europewide, said it would begin recalling and repairing the cars in January in an effort it expected would stretch beyond the end of 2016.

The company has still not said how it will fix the cars, but the German authorities have set the end of next month as a deadline for spelling out the technical details of the remedy.

Graphic: How Volkswagen Got Away With Diesel Deception

In the United States, where Volkswagen's deception was discovered and was disclosed by the Environmental Protection Agency in September, the E.P.A. has said it plans to order a recall — but it has not yet done so.

"E.P.A. will order a recall once the agency has done testing to confirm that Volkswagen's proposed fix will be effective,'' an agency spokeswoman, Laura Allen, said in an email on Thursday. "E.P.A. will conduct our own testing to confirm this. Then we will order a recall.''

Volkswagen officials have indicated that repairing the nearly half-million cars affected in the United States might require a more extensive solution because American standards on nitrogen oxide emissions are tougher than those in the European Union.

Germany's is the first government-ordered recall anywhere since Volkswagen admitted the deception last month. The government said it was rejecting the automaker's previous proposal to repair the vehicles as insufficient.

Germany's transportation minister, Alexander Dobrindt, said on Wednesday that the mandatory recall would be overseen by the country's automobile regulator, the Federal Motor Transport Authority, known by its German initials K.B.A.

"The K.B.A. believes that the software used in the diesel engines constitutes an illegal defeat device," Mr. Dobrindt said. "The authority has demanded that Volkswagen remove the software and take all steps necessary to ensure that the emissions regulations are met."

Carl Tobias, a law professor at the University of Richmond, in Virginia, who has studied auto safety issues, said the K.B.A.'s recall was a positive development.

"Rather than a proposal, generated by Volkswagen and subject to what they want to do, an authority is now in charge and will dictate what happens," Mr. Tobias said in a telephone interview.

But, "it still depends on how rigorous the authority will be with Volkswagen," Mr. Tobias said. "V.W. has always been very cautious in terms of the timeline, and we won't know for some time."

The crackdown by the German government dealt a blow to the company in one of its most important markets. But Volkswagen's stock rose in morning trading in Frankfurt, despite the recall order.

It was only after the company announced that it would expand the recall to 8.5 million cars across Europe that investors evidently absorbed the sobering scope of the automaker's task. The shares ended the day in Germany down 3.2 percent, having lost more than a quarter of their value since the deception was disclosed on Sept. 18.

"The Federal Motor Transport Authority's decision has created the possibility to proceed with a joint and concerted action across all of the European Union," Matthias Müller, Volkswagen's new chief executive, wrote in a letter on Thursday to Mr. Dobrindt.

The company's decision to announce a broader European recall came as representatives of the K.B.A. and other national authorities were meeting in Brussels to brief the European Commission on investigations into the scandal in their markets. Austria's Transportation Ministry said on Thursday that all Volkswagens with affected engines would be recalled in his country.

Mr. Müller said Volkswagen would provide the German regulator with a plan for the "technical implementation" of the necessary fixes by the end of November.

While vehicles with 1.2- and 2-liter engines appeared to need only replacement software to bring them back into compliance, the 1.6-liter models would most likely require additional hardware to remedy the problem, and such hardware would not be ready until next September, Mr. Dobrindt said.

But he expressed confidence that Volkswagen would be able to meet the authority's demands. "We have the impression that Volkswagen is technically capable of carrying out the technically necessary measures," Mr. Dobrindt said.

Volkswagen said on Thursday that it would directly contact and inform customers who have vehicles with an affected engine, pointing to a website set up this month where customers could enter a vehicle's identification number to check whether it would be part of the recall.

Volkswagen holds near mythical status in the world of German business and is deeply entwined with the emotions of post-World War II recovery.

The company is governed through a unique structure, involving a hybrid of control by members of the Porsche and Piëch families, the state government of Lower Saxony and labor representatives.

In the past, Volkswagen has been dominated by strong personalities with a top-down style of decision-making that some critics have said may have contributed to mistakes that led to the scandal.

At a meeting with top managers in Leipzig on Thursday, Mr. Müller signaled a break with that style of management, saying that future decision-making would be less centralized and that Volkswagen's divisional managers would have more autonomy.

"Volkswagen is not a one-man show," Mr. Müller said in an address.

"It is definitely not my intention to intervene in decisions about products," Mr. Müller said, in what appeared to be a clear break with the obsession of his predecessor, Martin Winterkorn, to be involved in the minutest details of product development. "Whether a windshield sits at a one-degree angle higher or not, I'm not going to concern myself with that."

This week, Volkswagen said it would develop electric vehicles, an offering the company has been slow to adopt, despite a pledge by the German government to get a million electric cars on the road by 2020.

Barbara Hendricks, the German minister for the environment, said in comments to ZDF public television early Thursday that the government should consider scrapping tax subsidies for diesel, shifting them instead to electric vehicles to encourage more environmentally friendly technology.

But she later backtracked, issuing a statement in which she warned against "demonizing" diesel technology, a warning that was also sounded by Mr. Dobrindt. According to a study by Roland Berger consultants, more than 50 percent of all new passenger cars sold in Europe run on diesel, which is favored for its fuel economy, despite its higher emission of pollutants.

WSJ:

http://www.wsj.com/articles/u-s-pursues-several-paths-in-volkswagen-probe-1444938924

U.S. Pursues Several Paths in Volkswagen Probe

Investigators expand review, evaluating pollution rules, official statements and consumer claims

By ARUNA VISWANATHA And MIKE SPECTOR

Oct. 15, 2015

The U.S. attorney's office in Detroit and the Justice Department's Fraud Section joined a

sweeping federal probe of Volkswagen AG over emissions-test cheating, according to people familiar with the matter, signaling the government's intent to cast a broad net and explore numerous paths to a possible criminal case.

The number of federal offices now involved in the Volkswagen case suggests an investigation could target the German auto maker and its employees for alleged offenses ranging from pollution to misleading government officials to claims made to consumers. The Federal Trade Commission, which investigates fraudulent advertising, confirmed its involvement, suggesting a focus on potentially misleading claims regarding the emissions.

A Volkswagen spokeswoman wouldn't comment on developments in the probe, saying only that the auto maker is cooperating with all official inquiries. Justice Department representatives also declined to comment.

The involvement of the U.S. attorney in Detroit, Barbara McQuade, signals her office may take a significant role in what is expected to be a major case. Ms. McQuade has a reputation as an aggressive prosecutor, having won a corruption case against former Detroit Mayor Kwame Kilpatrick. In sprawling investigations like the Volkswagen probe, the Justice Department has a choice of which prosecutor to assign.

David Uhlmann, formerly a top environmental crimes prosecutor who is now a law professor at the University of Michigan, said the number of government offices involved suggested the case would be "of national significance," with any settlement likely to reach into the billions of dollars.

The federal investigation now includes the Detroit office of the Federal Bureau of Investigation and the Justice Department's Environment and Natural Resources Division, which investigated BP PLC after the Deepwater Horizon oil spill, people familiar with the probe said. The Environmental Protection Agency, which in September disclosed the auto maker's cheating, could hit Volkswagen with more than $18 billion in fines based on the number of vehicles involved, though it isn't clear whether the agency will pursue such a large penalty.

The Volkswagen investigation is centered on the auto maker's use of software designed to dupe U.S. emissions tests on nearly 500,000 diesel-powered cars. Volkswagen, which has U.S. offices

in Auburn Hills, Mich., has admitted to using the software, known as a defeat device, to make cars in model years 2009 to 2015 appear cleaner in tests than they were during normal driving conditions.

Volkswagen has set aside $7.3 billion to deal with the fallout, a figure the company's new chief executive has said he expects to rise.

Europe's largest auto maker faces not only aggressive investigations by European and U.S. authorities, but also class-action lawsuits from aggrieved customers. Prosecutors in Germany earlier this month raided Volkswagen offices and private homes as part of a criminal inquiry there.

The EPA alleged last month that Volkswagen had violated two parts of the U.S. Clean Air Act. That law exempts auto makers from criminal penalties for illegal pollution, but it does criminalize the conveying of false information to regulators.

"You can't criminally prosecute auto makers for using the defeat device under the Clean Air Act," said John Walke, a senior attorney at the National Resources Defense Council, an environmental group. "But you can prosecute them for the result of using the defeat device, which is making a false representation to EPA—assuming the facts bear that out."

Federal prosecutors have recently turned to other laws to charge auto makers with crimes. The Justice Department charged General Motors Co. and Toyota Motor Corp. with wire fraud for concealing information on safety defects. In the GM case, prosecutors also used a section of the U.S. code that can hold companies broadly accountable for misleading government officials. GM and Toyota accepted deferred prosecution agreements under which they agreed to pay large sums to the U.S. and retain independent consultants to assess their practices.

The addition of the Detroit U.S. attorney's office to the Volkswagen probe underscores the sometimes vigorous jockeying among federal prosecutors over high-profile cases. The nation's 93 U.S. Attorney's offices handle federal crime in their districts, but many cases involve multiple locales and several prosecutors may try to claim them.

U.S. auto makers are based in Detroit, and some foreign car companies have offices there as well. The EPA has emissions testing facilities in Ann Arbor, Mich., which along with Volkswagen's area offices falls within Ms. McQuade's jurisdiction.

The Fraud Section, which has handled several of the biggest financial fraud cases in the past few years, often coordinates with U.S. attorneys' offices in high-profile cases.

Still, federal prosecutors in Manhattan, arguably the nation's highest-profile U.S. attorney's office, handled the criminal cases against Toyota and GM. Currently, Ms. McQuade's office is conducting a continuing criminal probe of Japan's Takata Corp. over rupture-prone air bags, after the case began with New York federal prosecutors. Takata has said it is cooperating with investigations.

Ms. McQuade, a Detroit native who took over the office in 2010, appears to be carving out a major role for her office in the Volkswagen probe. She previously has sought out large, complex cases since taking over the Detroit office, moving it away from drug crimes and other matters that can be handled by state prosecutors, according to former colleagues.

"A hallmark of her tenure is a shift from the reactive, smaller, arrest-generated cases that overlap with state law, and a focus more on larger, multi-jurisdictional, largely white-collar cases," said Timothy Heaphy, a former U.S. Attorney in Virginia. Mr. Heaphy has worked with Ms. McQuade on a panel of federal prosecutors that advises the U.S. attorney general.

Ms. McQuade's office won high-profile convictions of Mr. Kilpatrick on corruption charges and former Ford Motor Co. and GM engineers accused of stealing trade secrets for Chinese competitors.

Her office has also prosecuted major health care fraud cases, including one involving a Detroit-area doctor who was sentenced in July to 45 years in prison for bilking Medicare and private insurers of $34 million.

Ms. McQuade attended the University of Michigan and worked as a prosecutor in the Detroit office for 12 years before being nominated to the top post. Her family has a long history with the auto industry in Detroit, and she has said her parents met when they worked together at GM.

From: Gong, Kristiene
Sent: Thursday, October 15, 2015 1:45 PM
To: Allen, Laura <Allen.Laura@epa.gov>; Abrams, Dan <Abrams.Dan@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Senn, John <Senn.John@epa.gov>; Millett, John <Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Hull, George <Hull.George@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Grantham, Nancy <Grantham.Nancy@epa.gov>; StClair, Christie <StClair.Christie@epa.gov>; Davis, Jay <Davis.Jay@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Brooks, Phillip <Brooks.Phillip@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>; Purchia, Liz <Purchia.Liz@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Kaul, Meetu <Kaul.Meetu@epa.gov>
Subject: RE: Volkswagen Clips 10/15/2015

Washington Examiner:

http://www.washingtonexaminer.com/volkswagen-recalls-8.5-million-clean-diesel-vehicles-in-europe/article/2574193

Volkswagen recalls 8.5 million 'clean diesel' vehicles in Europe

By KYLE FELDSCHER

Volkswagen will recall 8.5 million "clean diesel" vehicles in Europe because of software that allows the vehicles to cheat emissions tests, the German automaker announced Thursday morning.

The recall does not include the approximately 482,000 similar vehicles in the United States that have been identified by the Environmental Protection Agency and the California Air Resources Board as containing the same "defeat device" software.

According to a statement from Volkswagen, the recall involves 2.4 million vehicles in Germany and 8.5 million across Europe. Outside of the 28 European Union countries involved in the recall, it will be up to each individual country to work with the company to come up with its own plan for a recall.

"Work on the technical solutions detailed in the plan of measures is currently proceeding at full speed. Remedial action on the vehicles will begin in January 2016 — at no cost to our customers," the company said. "The technical solutions can involve software as well as hardware measures. These are currently being developed for each affected series and each affected model year."

The EPA and the California Air Resources Board are investigating Volkswagen for installing "defeat devices" that allow vehicles to skirt emissions tests. The devices allowed popular models, such as the Jetta, to tell when they were undergoing emissions testing.

The defeat device is about 100 million lines of software code written into the vehicle's programming.

The software could tell if a test was taking place based on the position of the vehicle's steering wheel, the speed the vehicle was traveling, how long the engine was being used and barometric pressure, according to the EPA. The vehicles would reduce emissions of nitrogen oxide during testing and then spew 40 times the legal limit during normal use.

Volkswagen officials are blaming "rogue software engineers" for the devices.

Two congressional committees are investigating the scam with law enforcement authorities in Germany.

The recall in Europe gives some clues to how a similar recall may work in the United States when it eventually comes about.

European VW owners are currently able to look up whether their vehicle contains a defeat device on the company's website. The company says it will also tell the owners of the affected vehicles over the next weeks and months what measures will have to be taken to fix their vehicles.

The company emphasized, as has the EPA, all of the vehicles are safe to drive and can stay on the road.

Vox:

http://www.vox.com/2015/10/15/9541789/volkswagen-europe-diesel-pollution

Europe's love affair with diesel cars has been a disaster

Updated by Brad Plumer on October 15, 2015, 1:00 p.m. ET @bradplumer brad@vox.com

The recent news that Volkswagen had been illegally rigging its diesel-powered cars to cheat on pollution tests has sparked plenty of outrage. Hearings, lawsuits, fines, general opprobrium. And rightly so; the company's deception was appalling.

But there's a much broader, far more consequential problem here that a lot of coverage has danced around or hinted at only indirectly. So let's say it: Europe's longtime promotion of diesel vehicles as a "green" transportation option has been a complete and total disaster — for reasons that go well beyond the Volkswagen scandal.

Ever since the 1990s, European governments have been encouraging drivers to buy diesel cars as an alternative to traditional gasoline-powered vehicles. The rationale was simple: Diesel engines use fuel more efficiently, so the switch was supposed to reduce carbon dioxide emissions and help stave off global warming. Thanks to tax breaks and other incentives, diesel cars now make

up one-third of Europe's fleet, whereas they're a sideshow in the US and Japan:

Europe's diesel push might have seemed sensible once upon a time. But 20 years later, with the benefit of hindsight, it looks like a huge mistake, an impotent climate policy that had all sorts of unintended consequences.

The biggest drawback of diesel cars is that they emit higher levels of other harmful air pollutants like particulates and nitrogen oxides. And those ended up being far harder to clean up than experts initially predicted. We now know that Europe's regulators have failed spectacularly to control diesel pollution, relying on weak rules and flimsy testing procedures. Lots and lots of automakers — not just Volkswagen — have been manufacturing diesel cars that emit far more gunk than they're supposed to. As a result, cities like London and Paris are clogged with dangerously high levels of air pollution, causing thousands of premature deaths each year.

And that's not the worst part. It's now looking like Europe's diesel push didn't even do anything to help global warming, as one 2013 study by Michel Cames and Eckard Helmers found. The CO2 benefits from switching to diesel cars were overrated and offset by the extra soot their engines produced. Plus, Europe's entrenched diesel industry has impeded progress on more promising hybrid and electric car technologies that could've provide deeper emissions cuts.

The whole episode is a sobering case study in how well-intentioned green industrial policy can go horribly wrong. So let's roll the tape and see what lessons we can learn from Europe's decades-long diesel fiasco.

Why Europe embraced diesel cars in the 1980s and '90s

Tributes And Reaction To Paris Terror Attacks After Gunmen Kill 17 People

(David Ramos/Getty Images)

After crude oil gets pumped out of the ground, it's sent to refineries to be turned into usable fuel. Those refineries typically distill the oil into lighter and heavier components. The lightest stuff includes gasoline. On the heavier side is diesel fuel, which contains more energy per gallon.

For most of the 20th century, automakers largely designed cars to run on gasoline, which was more flammable and combusted easily using sparks. Engines that could combust diesel fuel, using air compression, had been invented in the 19th century, but they were noisier and belched more smoke, so they were mostly confined to large ships and trucks. Diesel was often used instead for heating and producing electricity.

But starting in the 1980s, French and German automakers began showing more interest in developing diesel-powered cars. The reasons have always been a little murky, although Cames and Helmers suggest it traces back to the OPEC oil crises of the 1970s. After global crude prices spiked, France decided to swear off using diesel for electricity and built a bunch of nuclear plants instead. Germany, meanwhile, switched from oil to natural gas for heating. When the crisis finally subsided, Europe's refiners were still producing lots of diesel with no buyers. So governments began urging automakers like Peugeot to look into diesel-powered vehicles.

By the late 1990s, diesel technology had improved dramatically, thanks to advances in fuel injection — common rail, especially — that allowed the engines to run more quietly. The newer diesel engines were a technical marvel, operating more efficiently than their gasoline counterparts and using less fuel per mile traveled (and, hence, emitting less carbon dioxide per mile). All they needed was a market.

Rising concern over global warming provided that push. In 1997, the European Union signed the Kyoto Protocol and committed to cutting its heat-trapping carbon dioxide emissions roughly 8 percent by 2012. The next year, the EU reached a landmark agreement with the continent's car manufacturers on reducing CO2.

At the time, there were lots of different paths Europe's automakers could have taken to green itself. They could've pursued direct injection technology for gasoline vehicles, making those engines more fuel-efficient. They could've ramped up R&D of hybrid electric car technology, as Japanese automakers like Toyota were starting to do. But European companies like Peugeot and Volkswagen and BMW had already been making big investments in diesel, and they wanted a climate policy that would allow those bets to pay off.

Europe's policymakers obliged. The EU agreed to a voluntary CO2 target for vehicles that was basically in line with what diesel technology would be able to meet. As researcher Sarah Keay-

Bright later noted, these standards were explicitly crafted so as not to force Europe's automakers to develop hybrids, electric vehicles, or other more advanced power trains.

Soon thereafter, European nations — including Britain, France, Germany, Italy, Spain, and Austria — began cutting taxes on diesel fuel and diesel car purchases to promote sales, all in the name of thwarting climate change. Diesel sales soared. Back in 1990, just 10 percent of new car registrations in Europe had run on diesel. By 2011, that had climbed to nearly 60 percent.

Today, Europe's diesel cars are a public health nightmare

Diesel engines do have one big pitfall. They may be more fuel-efficient and emit less CO2, but their engines tend to emit higher levels of other nasty air pollutants, including soot, particulates, and nitrogen oxides (NOx). Heavy exposure to these air pollutants can exacerbate heart and lung disease, trigger asthma attacks, and even cause premature death.

Everyone knew this back in the 1990s. Europe's regulators simply considered the trade-off acceptable. "At the time, the prevailing belief was that climate change was the really hard problem and should be the priority, whereas we'd had experience improving air quality, so everyone assumed we could easily fix that issue later," explains Martin Williams, an air pollution researcher at King's College London who previously worked for Britain's environmental agency.

That assumption turned out to be wrong. When European regulators later moved to clamp down on NOx and other conventional air pollution from diesel vehicles, they failed miserably.

Starting in 2000, the EU began ratcheting down the legal limits for NOx emissions (though Europe's diesel cars have always been allowed to emit NOx at a relatively higher rate than gasoline-powered cars). New vehicles were tested in laboratories, where cars were placed on giant treadmills, spun through a few exercises, and measured for pollution.

Trouble was, these tests turned out to be incredibly flimsy and easily gamed, explains John German of the International Council on Clean Transportation. Automakers could send cars to labs that were optimized for testing: stripped of excess weight, with the air conditioning turned

off, and so on. The test cars complied with the pollution limits just fine. But the cars that were actually being sold to consumers were quite different, with much higher emissions. (German says this sort of subtle gaming was technically legal, unlike Volkswagen's more elaborate deception, which involved illegal software that only turned pollution controls on during tests. Still, even if Volkswagen was the most flagrant cheater, it was hardly unique.)

Few realized the EU's pollution tests were badly flawed until 2010, when researchers started studying emissions from vehicles that were actually on the road. In one study, Williams set up roadside infrared detectors to measure NOx pollution from cars in seven British cities. What he found was shocking: Europe's newest diesel cars were emitting roughly as much NOx as older diesel cars from the 1990s.

In other words, 20 years of increasingly strict air pollution regulations had done absolutely nothing to reduce pollution. "That was the most surprising part," Williams says.

By that point, the damage had been done. Today, Paris occasionally jousts with Beijing for the title of world's most polluted city. London is grappling with unsafe levels of nitrogen dioxide. Germany, Austria, and Ireland have NOx pollution well above the legal limits.

And the health toll has been staggering. One recent study found that diesel pollution from cars, buses, and trucks in Britain caused 9,400 premature deaths in 2010 alone. It's difficult to suss out what fraction of those deaths might have been avoided if emission rules had been properly enforced all along, but that gives some sense of the brutal cost here.

To be fair, European regulators have scrambled to improve the tests now that they've realized what was happening. But it's still unclear whether the diesel car industry can ever clean up its act.

Starting in 2014, the newest, most stringent emissions standard — known as Euro 6 — will require diesel cars to emit no more than 0.08 grams of NOx per kilometer, an 84 percent reduction from 2000-era levels. Europe's regulators will also start requiring on-road testing in addition to laboratory checkups. (That's what the United States EPA does, and it should eliminate most gaming, although, as the Volkswagen scandal showed, truly determined cheaters are hard to detect.)

But here's the fat asterisk: Now that they can no longer easily game the system, Europe's automakers are lobbying hard to relax the pollution standards. That's because it's not very easy to cut NOx pollution from diesel cars. One of the technologies that could meet the most stringent limits, known as selective catalytic reduction, involves running the car's exhaust through a honeycombed chamber that sprays urea and water, which breaks the NOx down into harmless nitrogen, oxygen, and water molecules. But these devices can add about $5,000 to $8,000 to the price of a vehicle, which would make many small cars uneconomical. They can also negatively affect fuel economy, torque, and other aspects of the car's performance.

So the jury's still out on whether "clean diesel" cars will even be viable in practice. Volkswagen had claimed to have cracked the problem with its most recent diesel models ... except we now know the company was doing it by rigging the cars with software to evade pollution tests.

The grim irony: Europe's diesel push hasn't helped with global warming

If Europe's diesel surge had helped mitigate climate change, then maybe (just maybe) you could argue that all this extra air pollution was worth it. Except here's the grim plot twist: The climate benefits appear to have been negligible.

In their 2013 paper, Cames and Helmers argued that Europe is probably worse off today, from a global warming perspective, than it would have been if automakers had just focused on improving gasoline-powered cars all along. And Europe is arguably much worse off than it would have been if automakers had started investing in hybrid electric technology back in the 1990s.

The authors offer up this chart, showing that Europe's diesel cars may have once had a sizable CO2 advantage over traditional gasoline vehicles. But today that gap has virtually disappeared, as new technologies like turbochargers have made gasoline engines nearly as efficient as diesel cars:

What's more, there are two subtle drawbacks to diesel engines that make them worse for global

warming than they seem.

First, even if diesel cars emit less CO2 than gasoline vehicles, they emit a lot more black carbon, or soot, a pollutant that (we've recently learned) also contributes significantly to global warming. The precise accounting here is still subject to some dispute, but Cames and Helmers point out that black carbon emissions from diesel cars likely negate a big chunk of their CO2 advantage.

Second, remember that European countries encouraged diesel car adoption by slashing taxes on the diesel fuel itself (compared with gasoline). But as any Econ 101 student will tell you, cutting fuel prices gives people an incentive to drive more miles — and increase their overall emissions. This further chips away at any climate advantage diesel might have.

Add it up, and Cames and Helmers conclude that "the European diesel car boom did not cool down the atmosphere."

One final coda here. Go back and look at the Japanese cars on the graph above. Back in the late 1990s, Japanese automakers were also thinking about cutting CO2, but they figured that diesel was a dead-end technology, since the cost of cleaning up the extra NOx pollution would be too high. Instead, companies like Toyota started investing in hybrid vehicles, with the first Prius appearing in 1997. By contrast, Europe's automakers initially scoffed at electric powertrains, and none of them even bothered producing hybrids until Mercedes finally rolled one out in 2009.

Japan's decision now looks prescient, and Europe's looks shortsighted. Hybrids proved much greener: The newest Japanese cars now produce roughly 10 percent less CO2 per mile than Europe's diesel vehicles do, on average. And Japan's automakers appear to be better set up for the future. Many experts now think that transportation will eventually have to become electrified if we want truly deep reductions in emissions. But European automakers, stuck on diesel for so long, are scrambling to catch up.

Europe is now struggling to undo its diesel mistake — but it's not easy

Debate Over Vehicle Emissions Intensifies As Volkswagen Scandal Widens

Because of the Volkswagen scandal, and the staggering levels of pollution in cities like Paris and London, Europe's policymakers are now beginning to rethink their fondness for diesel cars. But it's a hard technology to give up. Path dependency is a hell of a drug.

In diesel-loving France, Ségolène Royal, the environment minister, recently said that the country would consider phasing out preferential tax breaks for diesel over the next five years. "We need to start preparing our move out of diesel," she reportedly told France 5 television. But she's also bristled at any suggestion that France should act too quickly. After all, diesel cars still account for more than 60 percent of all European sales for Renault and Peugeot, two major local manufacturers. They can't just unwind those positions overnight.

Volkswagen, for its part, is also engaged in a bit of soul searching around diesel (at least, when it's not recalling its 11 million law-breaking diesel cars and dealing with criminal investigations). The company recently announced that it would take a major plunge into electric powertrains, creating a standardized architecture for a new wave of plug-in cars. "The Volkswagen brand is repositioning itself for the future," said executive Herbert Diess. Except, of course, this shift won't happen overnight. Because VW spent so many years dreaming up ways to evade regulators and sell diesel cars, it's now playing catch-up to electric car companies like Tesla.

In the meantime, Europe's smoggy cities still have to grapple with the fallout from all those polluting diesel cars that are still on the road — and will likely stick around for years. The EU has started to pressure countries with the worst air pollution. Cities like London, Stockholm, and Milan are already experimenting with emission-free zones. In the future, drivers with old diesel clunkers could have to pay extra to travel downtown in certain cities. But even this cleanup will take years.

Energy bets can sometimes go horribly wrong. So how do we avoid that?

Europe's misadventure with diesel cars is a great case study in how energy policy can go very badly awry, and no doubt there's a long list of lessons to draw. I'll just mention a few big ones:

First, Europe's complete failure to regulate diesel pollution is worth studying. Not only had regulators designed flimsy emissions tests — partly at the behest of industry lobbying — but it

took two decades to even realize the tests were failing. Crafting ambitious environmental rules is all well and good, but without ample enforcement and monitoring, those rules are basically pointless. (Note that China is now pursuing ambitious climate policies of its own, but experts keep muttering that enforcement will be a big challenge — a caveat that deserves much more attention.)

Another possible takeaway is that if we really want to reduce greenhouse gas emissions from the transportation sector, liquid fuels are ultimately a dead end and electrification is the best path forward. There's no shortage of experts who believe that, and certainly that's the lesson Volkswagen seems to be drawing from this fiasco. That said, it's worth noting that Toyota, which was ahead of the pack in developing hybrid electrics in the late 1990s, actually doesn't believe electric cars are the future and is pouring R&D into hydrogen cars instead.

Which brings us to the third takeaway. The future is hard to predict. Diesel cars seemed like a reasonable idea in the 1990s and a disaster today. That suggests that policymakers should have a lot more humility when crafting energy policy. One approach might be to pursue more technology-neutral policies organized around preferred outcomes — say, tightly enforced standards that require lower emissions — rather than favoring specific industries just because they happen to seem promising at that moment in time.

This issue comes up again and again. For years, governments have been laying down big bets on emerging clean energy technologies. France did it with nuclear power in the 1970s and '80s. Germany did it with wind and solar power in the 2000s, through feed-in tariffs. The United States did it with corn ethanol in 2005.

Done right, this sort of government support can be valuable, helping useful new energy options break into the mainstream against entrenched competition. But the biggest risk is that governments end up gambling on badly flawed technologies that then become the entrenched competition and prove impossible to get rid of. The US arguably made that mistake with corn ethanol, which has had unintended ripple effects on the food supply and deforestation and is proving politically difficult to wind down. Now it's clear that Europe made that mistake, too.

From: Gong, Kristiene
Sent: Thursday, October 15, 2015 11:32 AM
To: Allen, Laura <Allen.Laura@epa.gov>; Abrams, Dan <Abrams.Dan@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Senn, John <Senn.John@epa.gov>; Millett, John

<Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Hull, George <Hull.George@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Grantham, Nancy <Grantham.Nancy@epa.gov>; StClair, Christie <StClair.Christie@epa.gov>; Davis, Jay <Davis.Jay@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Brooks, Phillip <Brooks.Phillip@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>; Purchia, Liz <Purchia.Liz@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Kaul, Meetu <Kaul.Meetu@epa.gov>
Subject: Volkswagen Clips 10/15/2015

NBC News:

http://www.nbcnews.com/business/autos/let-recalls-begin-germany-tells-vw-fix-2-4-million-n445141

Let the Recalls Begin: Germany Tells VW to Fix 2.4 Million Diesels

by PAUL A. EISENSTEIN

About 2.4 million Volkswagen diesels sold in Germany over the last seven years will be recalled under an order issued Thursday by the Berlin government.

The move marks the first official recall of diesel vehicles that VW surreptitiously outfitted with software designed to meet emissions tests, then switch off pollution controls during real world operation. VW has said it produced about 11 million such vehicles with its EA 189 engine.

The scam was revealed last month by the U.S. Environmental Protection Agency. The EPA has yet to order a formal recall - though one is expected - in part because it has been working with VW to come up with an appropriate fix. The U.S. has some of the world's most stringent diesel emissions standards.

Complicating matters, it now appears that Volkswagen's 2016 diesels may be using a different type of software code to evade emissions mandates.

Thursday's order by German Transport Minister Alexander Dobrindt told VW "to remove the software from all vehicles and to take appropriate measures to ensure that the emissions rules are fulfilled."

The embattled automaker will have to provide German regulators with the code for a software fix by the end of this month. Repairs aren't scheduled to begin until early in 2016.

The mandatory recall in Germany means other EU countries will follow suit. Europe's biggest carmaker has said up to 8 million vehicles in the EU could contain banned software.

Last week, Volkswagen AG CEO Matthias Mueller said he expected to begin the repair of the 11 million diesel vehicles in January, with a goal of completing the "retrofit" by the end of 2016. Along with changing the software code on VW's EA 189 engine, some versions, especially a smaller 1.6-liter diesel, could require revisions to the engine itself, not just an update to the engine controller's code.

A fix might take longer in the U.S.

For one thing, Volkswagen has to prove to the EPA that any changes will continue to meet emissions standards for 150,000 miles. And because the American standards for smog-causing oxides of nitrogen (NOx) and particulate emissions are tougher than in Europe, VW insiders have said they expect they will have to modify engine hardware, as well.

Further complicating the situation, there have been two major updates to the 2.0-liter U.S. diesel since it was introduced. Earlier models may now require the addition of a urea injection system similar to what most other automakers use on their diesel vehicles. The ammonia-like chemical helps break down NOx into harmless components.

VW Plans to Overhaul Diesel Technology in Scandal's Wake

Meanwhile, the EPA has begun examining the software used on 2016 versions of some diesels that Volkswagen use different software code also aimed at fooling emissions tests.

VW on Tuesday told the Associated Press the "auxiliary emissions control device" on 2016 models operates differently from the so-called "defeat device" used on VW diesels during the previous seven years.

But so far VW but has provided regulators with few details.

"We have a long list of questions for VW about this," Janet McCabe, acting assistant EPA administrator for air quality, said this week. "We're getting some answers from them, but we do not have all the answers yet."

As a result of the disclosure, VW has withdrawn a request for the EPA to certify some of its 2016 diesel models for sale in the U.S. Whether the new software code actually violates U.S. emissions rules is unclear, however.

Toyota to Phase Out Gas-Powered Vehicles, Doubling Down on Hydrogen

If it does violate the rules, Volkswagen's problems could increase exponentially, some observers warn. The maker already faces potential fines from the EPA of more than $18 billion for the first software cheat. It is also facing a criminal investigation into the scandal by the U.S. Department of Justice. And at least a half-dozen class action lawsuits have now been filed on behalf of VW diesel owners.

Additional civil and criminal probes are underway abroad.

German Transport Minister Dobrindt said that while his agency had an "extraordinarily good" working relationship with VW as it continues its probe, for the moment, at least, it has "no information about who decided where, when at Volkswagen about the use of such software."

Since the diesel scam was revealed last month, VW has ousted its long-time CEO Martin Winterkorn, along with two of its top R&D executives. Meanwhile, Winfried Vahland, who was named just three weeks CEO of the new Volkswagen North America group tendered his resignation on Wednesday. The maker said that departure was "expressly not related" to the diesel scandal, but provided no other details.

Reuters contributed to this report.

-

-

WIRED:

http://www.wired.com/2015/10/dozens-of-managers-were-involved-in-vws-diesel-scandal/

DOZENS OF MANAGERS WERE INVOLVED IN VW'S DIESEL SCANDAL

ALEX DAVIES GEAR DATE OF PUBLICATION: 10.14.15

AT LEAST 30 Volkswagen managers played a role in using software to cheat on emissions testing on more than 10 million diesel cars, Der Spiegel reports.

The German magazine is citing reports by Volkswagen, as well as by law firm Jones Day, and says the managers will likely be suspended. A VW spokesperson says "This number is without foundation.

Due to the ongoing investigation we will not reveal the number nor the names of possible persons concerned."

Meanwhile, VW's newly chosen head of North America, Winfried Vahland, is leaving the company just two weeks after being designated for the post. According to a Reuters report, Vahland, who's been running VW's Skoda brand, is leaving over differences of opinion with the Board.

This week, VW announced it plans to recover from the scandal by increasing its focus on electric cars, including plans for a plug-in hybrid Phaeton sedan.

Flemingsburg Gazette:

http://fleminggazette.com/5809/vw-scandal-nine-out-of-10-uk-united-kingdom-customers/

VW scandal: Nine out of 10 United Kingdom customers demand compensation

Brittany Kelley | 15 October 2015, 12:15

Volkswagen has disclosed to USA regulators that there is additional suspect software in its 2016 diesel models that would potentially help their exhaust systems run cleaner during government tests. A VW spokesman confirmed that the company reported the device last week to the Environmental Protection Agency, which discovered the initial defeat device that allowed the company to cheat emissions tests. As the reputation of "clean diesel" small-car engines gets tarnished by Volkswagen AG's massive diesel-emissions scandal, the world's top automaker appears to be taking electric cars more seriously.

VW spokeswoman Jeannine Ginivan said the new issue with the 2016 vehicles was first revealed last week to U.S. Environmental Protection Agency and California regulators. The software at situation makes a air pollution-management catalyst warmth up quicker, enhancing efficiency of the system that separates smog-inflicting nitrogen oxide into innocent nitrogen and oxygen gases. During the course of a media briefing on Tuesday, EPA Assistant Administrator Janet McCabe said that the VW diesel vehicles supposedly equipped with the automaker's new emission-control device have not yet been certified for sale by the EPA. EPA's McCabe wouldn't say if VW's failure to disclose the software in its 2016 applications was illegal.

Diesel variations of the Passat sedan manufactured on the firm's plant in Chattanooga, Tennessee, are also on maintain. Earlier this week Volkswagen's United Kingdom boss Paul Willis said it was "premature" to discuss compensation. Asked for additional detail, a VW spokesperson on Monday said the software "has the function of a warmup strategy which is subject to approval" by EPA. It would suggest a deliberate effort by the company to cheat US emissions tests, which continued even after regulators pressed the company about the irregular emissions produced by the older cars previous year. Volkswagen already faced an ongoing criminal inquiry and billions in fines.

The existence of the new software was made public last week by Volkswagen Group of America president and CEO Michael Horn in testimony he gave to a congressional subcommittee investigating the scandal. In another blow to the carmaker on Wednesday, the man Volkswagen lined up less than three weeks ago to head its North American business resigned. Meanwhile, the US Federal Trade Commission, which probes companies accused of deceptive advertising, has joined the EPA and the Justice Department in investigating Volkswagen.

In the wake of the scandal, 86% of VW drivers are concerned about the environmental impact of their auto, while 83% questioned the impact on its resale value and 73% feared the performance of their vehicle would be affected.

Burlington Free Press:

http://www.burlingtonfreepress.com/story/news/2015/10/14/vermonters-sue-over-volkswagens--trickery/73871744/

Vermonters sue over VW's emissions trickery

Dan D'Ambrosio, Free Press Staff Writer 10:19 a.m. EDT October 15, 2015

Two class-action lawsuits have been filed in Vermont against Volkswagen for cheating on emissions testing.

In 2013, Bob Turnau of Charlotte bought a sleek, white Volkswagen Jetta Sportwagen TDI that

checked all the boxes for the environmentally and socially aware finance director at Resource in Burlington. The diesel-powered Jetta got great mileage and also met or exceeded all U.S. emission standards. And it had snappy acceleration.

"Around town I was getting 38 to 40 miles per gallon," Turnau said. "I made a big trip one year down South, it was over 50 miles per gallon. I really loved it for that.It was environmentally conscious, it had great fuel mileage and it was fun to drive. Those three things were really the troika of what led me to buy Volkswagen."

Then, in September it all fell apart when Volkswagen admitted to the U.S. Environmental Protection Agency and the California Air Resources Board that it had employed a sophisticated device to cheat U.S. emissions standards in diesel cars including the Audi A3, Beetle, Golf, Jetta and Passat.

"We take this matter very seriously," said Christopher Grundler, director of EPA's Office of Transportation and Air Quality in a press release in early October. "It's not only a violation of the Clean Air Act, it threatens public health and the credibility of the industry."

Boy, did it ever. Turnau, a resident of Charlotte, and thousands of his fellow Volkswagen owners across the country discovered their diesel-powered cars were only meeting emission standards when hooked up to testing equipment — the heart of the ploy implemented by sophisticated software — and they were spewing up to 40 times the allowed levels of nitrogen oxides when actually traveling down the road.

Turnau learned about the deception from news reports.

"It was complete disbelief," he said. "I bought a car that just wasn't what they told me it was."

Soon, disbelief turned to anger, and a determination not to be sidelined, waiting for Volkswagen to respond. Turnau called his friend, Tris Coffin, former U.S. Attorney for Vermont, now working in the private sector for Downs Rachlin Martin, PLLC in Burlington.

Lots of angry Vermonters

Turnau is the lead plaintiff in a class-action lawsuit brought by DRM against Volkswagen of America and its parent company, Volkswagen AG of Germany. Members of the class include all Vermonters who bought or owned diesel-powered Volkswagen Jetta, Golf, Passat or Audi A3 automobiles with model years from 2008 to present.

The lawsuit alleges buyers paid a higher price for the vehicles as compared to gasoline powered cars, in part because of company claims about lower emissions. Additionally, the value of the cars is lower because of the deception, and owners face unknown challenges in bringing the cars into compliance with federal regulations.

Turnau bought his Jetta based on Volkswagen's representations that it was an environmentally friendly, "emissions meeting or beating" car, which turned out to be a lie.

"One of the ways you can recover from that is by bringing a lawsuit," Coffin said.

Turnau agrees.

"I feel that this suit gives me a voice in what the outcome could be," he said.

Coffin said Tuesday that five more Vermonters have joined the lawsuit, including Chuck Lacy, former president and COO of Ben & Jerry's. Nearly 400 people have expressed interest in the lawsuit, he said.

Another class action lawsuit has been filed in Vermont by attorney Patrick Bernal of Witten, Woolmington, Campbell & Bernal, P.C. in Manchester Center. Bernal's lawsuit has two lead plaintiffs, and Bernal said he has been contacted by "scores" more Volkswagen owners in

Vermont.

"In my view Volkswagen did a terrible thing and it did it to lots of different people," Bernal said. "I represent a lot of angry Vermonters who feel absolutely betrayed."

The Lance Armstrong of automakers?

Across Vermont, there are about 3,000 affected Volkswagen owners, according to Tris Coffin. That makes Vermont one of the most affected states, per capita, said Attorney General Bill Sorrell, who announced an investigation into the diesel debacle on Sept. 24.

Sorrell said there are several potential issues. Has there been a violation of Vermont's consumer protection act for unfair or deceptive actions in commerce, as the Downs, Rachlin Martin lawsuit alleges? If found guilty, Volkswagen would be liable for triple damages. Has Volkswagen been selling vehicles in Vermont that violate the state's auto emission standards? Vermont has collected millions of dollars in penalties in other such cases alleging environmental violations and consumer fraud.

"We seek to recover monies on behalf of Vermonters who have been scammed, so we've got those issues of trying to see that Vermonters who bought those vehicles, including one of my sisters, are made whole from the losses they've suffered," Sorrell said.

Rep. Peter Welch has also been on the Volkswagen case, grilling the company's U.S. CEO Michael Horn in a House committee hearing last week. Before the hearing, Welch asked for questions and comments from Vermonters on his Facebook page.

"My fear is that VW is the Lance Armstrong of the car industry and they were just the first to be caught," said Shara Tarule.

"Just give me some cash and a new Audi," said Marshall Pierce.

"Fix it, just fix it," implored Kit Burns Wheatley.

"It's so outrageous what Volkswagen did that's it's hard to believe they did it," said Welch in an interview on Tuesday. "It took self-conscious planning and careful execution to install this software that would defeat the testing. There's a part of everybody who learned about this that was just flabbergasted. Why would a company do that? How did they think they would get away with it?"

No write-offs

One of the comments Welch got from his constituents concerned the potential for Volkswagen to write off part of the federal penalties that might result from the company's actions, which could run into the billions of dollars. Forbes reported last week that in a potential out-of-court settlement regarding the Gulf oil spill, BP would be able to write off $15.3 billion of a $20.8 billion penalty. Only $5.5 billion would be designated as a non-tax-deductible Clean Water Act penalty.

Welch asked Horn in the hearing whether he would agree that Volkswagen wouldn't take advantage of the tax code to shift some of the burden of any penalties to taxpayers.

"He said he didn't know what the law was, but he didn't think taxpayers should share in the burden," Welch said. "That sent a signal to Volkswagen headquarters that not only is this a problem, but it's a real problem."

Welch has introduced a bill, "The Stop Deducting Damages Act of 2015 (H.R. 2456)" that would close the loophole that allows companies like BP to shift some of the burden of their fines to taxpayers. The bill has been referred to House Ways and Means.

Welch also spoke to Bill Shearer, owner of Shearer Volkswagen in South Burlington, to get an

idea of the impact the diesel debacle has had on dealers. Welch sympathizes with Shearer, whom he points out had nothing to do with the disastrous decisions that led to the deceit perpetrated on Volkswagen customers.

"Our dealers have relationships with their customers, they tend to be family businesses," Welch said. "He's going to have a hit in his sales and obviously this will affect his bottom line. He's going to keep his trusted and valued employees on, that's what he told me."

Round up the bad guys

Shearer confirmed he was not planning any layoffs. He owns five dealerships, including Volkswagen, GM, Honda, Acura and Audi, with a total of 200 employees. Four of the dealerships are in the Burlington area and one is in Rutland. Shearer said Volkswagen represents 30 percent of his new car sales.

"It's a terrible thing for our customers and for the employees and families that have a big stake in Volkswagen," Shearer said. "I feel terrible for those people, but we'll make it work. We've been through GM bankruptcy and other recalls."

Something went awry at Volkswagen, Shearer said, but he's confident the German company will pull through in the end.

"It's a quality company and something bad happened," he said. "They're going to pick it apart and see who did what. I know these people. I know Michael Horn. They're determined to fix it for every customer. I'm determined to be part of that happening."

Once Volkswagen determines who did what, those people should be fired, said Matthew Dodds of Brandthropology, a marketing firm in Burlington. Martin Winterkorn, CEO since 2007, resigned in September, saying he was not aware of any wrongdoing on his part.

"They got to terminate everybody who either approved or turned a blind eye to what happened," Dodds said. "You have to excise that part of the culture that allowed that to happen. If you don't do that I don't believe it's credible."

That task falls to the new CEO, Matthias Müller, according to Dodds.

"It has to come out of the voice of the new sheriff in town, he has to round up the bad guys," Dodds said.

Second, Volkswagen has to make its customers whole, no matter the cost.

"Take it on the chin and take care of your customer base," Dodds said. "Give until it hurts. Make it painful for yourself because here's the deal: People in love with the brand will reward you with loyalty."

Michael Jager of Solidarity of Unbridled Labour in Burlington, agrees with Dodds that Volkswagen must pay until it hurts. But he worries that the damage goes much deeper than angry customers who must be made whole. He said the "amplified perception" of German engineering, embodying precision and quality, makes the deceit even worse, calling the company's entire culture into question.

"The way they calculatedly did this, to create this lie, takes German engineering and design prowess and amplifies it in the opposite direction," Jager said.

To reverse the damage is going to take an unprecedented response, Jager said.

"Could you imagine something as bold as giving people their money back, taking back the cars, repairing them and giving them to car shares across the country?" he said. "With a move like that, they might win back their customers."

To: Grundler, Christopher[grundler.christopher@epa.gov]; Charmley, William[charmley.william@epa.gov]; Simon, Karl[Simon.Karl@epa.gov]; Haugen, David[haugen.david@epa.gov]; Cook, Leila[cook.leila@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
From: Bunker, Byron
Sent: Fri 10/16/2015 1:06:45 AM
Subject: Article on Europe's diesel experience - I found this to be a particularly interesting read

Vox:

http://www.vox.com/2015/10/15/9541789/volkswagen-europe-diesel-pollution

Europe's love affair with diesel cars has been a disaster

Updated by Brad Plumer on October 15, 2015, 1:00 p.m. ET @bradplumer brad@vox.com

The recent news that Volkswagen had been illegally rigging its diesel-powered cars to cheat on pollution tests has sparked plenty of outrage. Hearings, lawsuits, fines, general opprobrium. And rightly so; the company's deception was appalling.

But there's a much broader, far more consequential problem here that a lot of coverage has danced around or hinted at only indirectly. So let's say it: Europe's longtime promotion of diesel vehicles as a "green" transportation option has been a complete and total disaster — for reasons that go well beyond the Volkswagen scandal.

Ever since the 1990s, European governments have been encouraging drivers to buy diesel cars as an alternative to traditional gasoline-powered vehicles. The rationale was simple: Diesel engines use fuel more efficiently, so the switch was supposed to reduce carbon dioxide emissions and help stave off global warming. Thanks to tax breaks and other incentives, diesel cars now make up one-third of Europe's fleet, whereas they're a sideshow in the US and Japan:

Europe's diesel push might have seemed sensible once upon a time. But 20 years later, with the benefit of hindsight, it looks like a huge mistake, an impotent climate policy that had all sorts of unintended consequences.

The biggest drawback of diesel cars is that they emit higher levels of other harmful air pollutants like particulates and nitrogen oxides. And those ended up being far harder to clean up than experts initially predicted. We now know that Europe's regulators have failed spectacularly to control diesel pollution, relying on weak rules and flimsy testing procedures. Lots and lots of automakers — not just Volkswagen — have been manufacturing diesel cars that emit far more gunk than they're supposed to. As a result, cities like London and Paris are clogged with dangerously high levels of air pollution, causing thousands of premature deaths each year.

And that's not the worst part. It's now looking like Europe's diesel push didn't even do anything to help global warming, as one 2013 study by Michel Cames and Eckard Helmers found. The CO2 benefits from switching to diesel cars were overrated and offset by the extra soot their engines produced. Plus, Europe's entrenched diesel industry has impeded progress on more promising hybrid and electric car technologies that could've provide deeper emissions cuts.

The whole episode is a sobering case study in how well-intentioned green industrial policy can go horribly wrong. So let's roll the tape and see what lessons we can learn from Europe's decades-long diesel fiasco.

Why Europe embraced diesel cars in the 1980s and '90s

After crude oil gets pumped out of the ground, it's sent to refineries to be turned into usable fuel. Those refineries typically distill the oil into lighter and heavier components. The lightest stuff includes gasoline. On the heavier side is diesel fuel, which contains more energy per gallon.

For most of the 20th century, automakers largely designed cars to run on gasoline, which was more flammable and combusted easily using sparks. Engines that could combust diesel fuel, using air compression, had been invented in the 19th century, but they were noisier and belched more smoke, so they were mostly confined to large ships and trucks. Diesel was often used instead for heating and producing electricity.

But starting in the 1980s, French and German automakers began showing more interest in developing diesel-powered cars. The reasons have always been a little murky, although Cames

and Helmers suggest it traces back to the OPEC oil crises of the 1970s. After global crude prices spiked, France decided to swear off using diesel for electricity and built a bunch of nuclear plants instead. Germany, meanwhile, switched from oil to natural gas for heating. When the crisis finally subsided, Europe's refiners were still producing lots of diesel with no buyers. So governments began urging automakers like Peugeot to look into diesel-powered vehicles.

By the late 1990s, diesel technology had improved dramatically, thanks to advances in fuel injection — common rail, especially — that allowed the engines to run more quietly. The newer diesel engines were a technical marvel, operating more efficiently than their gasoline counterparts and using less fuel per mile traveled (and, hence, emitting less carbon dioxide per mile). All they needed was a market.

Rising concern over global warming provided that push. In 1997, the European Union signed the Kyoto Protocol and committed to cutting its heat-trapping carbon dioxide emissions roughly 8 percent by 2012. The next year, the EU reached a landmark agreement with the continent's car manufacturers on reducing CO2.

At the time, there were lots of different paths Europe's automakers could have taken to green itself. They could've pursued direct injection technology for gasoline vehicles, making those engines more fuel-efficient. They could've ramped up R&D of hybrid electric car technology, as Japanese automakers like Toyota were starting to do. But European companies like Peugeot and Volkswagen and BMW had already been making big investments in diesel, and they wanted a climate policy that would allow those bets to pay off.

Europe's policymakers obliged. The EU agreed to a voluntary CO2 target for vehicles that was basically in line with what diesel technology would be able to meet. As researcher Sarah Keay-Bright later noted, these standards were explicitly crafted so as not to force Europe's automakers to develop hybrids, electric vehicles, or other more advanced power trains.

Soon thereafter, European nations — including Britain, France, Germany, Italy, Spain, and Austria — began cutting taxes on diesel fuel and diesel car purchases to promote sales, all in the name of thwarting climate change. Diesel sales soared. Back in 1990, just 10 percent of new car registrations in Europe had run on diesel. By 2011, that had climbed to nearly 60 percent.

Today, Europe's diesel cars are a public health nightmare

Diesel engines do have one big pitfall. They may be more fuel-efficient and emit less CO2, but their engines tend to emit higher levels of other nasty air pollutants, including soot, particulates, and nitrogen oxides (NOx). Heavy exposure to these air pollutants can exacerbate heart and lung disease, trigger asthma attacks, and even cause premature death.

Everyone knew this back in the 1990s. Europe's regulators simply considered the trade-off acceptable. "At the time, the prevailing belief was that climate change was the really hard problem and should be the priority, whereas we'd had experience improving air quality, so everyone assumed we could easily fix that issue later," explains Martin Williams, an air pollution researcher at King's College London who previously worked for Britain's environmental agency.

That assumption turned out to be wrong. When European regulators later moved to clamp down on NOx and other conventional air pollution from diesel vehicles, they failed miserably.

Starting in 2000, the EU began ratcheting down the legal limits for NOx emissions (though Europe's diesel cars have always been allowed to emit NOx at a relatively higher rate than gasoline-powered cars). New vehicles were tested in laboratories, where cars were placed on giant treadmills, spun through a few exercises, and measured for pollution.

Trouble was, these tests turned out to be incredibly flimsy and easily gamed, explains John German of the International Council on Clean Transportation. Automakers could send cars to labs that were optimized for testing: stripped of excess weight, with the air conditioning turned off, and so on. The test cars complied with the pollution limits just fine. But the cars that were actually being sold to consumers were quite different, with much higher emissions. (German says this sort of subtle gaming was technically legal, unlike Volkswagen's more elaborate deception, which involved illegal software that only turned pollution controls on during tests. Still, even if Volkswagen was the most flagrant cheater, it was hardly unique.)

Few realized the EU's pollution tests were badly flawed until 2010, when researchers started studying emissions from vehicles that were actually on the road. In one study, Williams set up roadside infrared detectors to measure NOx pollution from cars in seven British cities. What he found was shocking: Europe's newest diesel cars were emitting roughly as much NOx as older

diesel cars from the 1990s.

In other words, 20 years of increasingly strict air pollution regulations had done absolutely nothing to reduce pollution. "That was the most surprising part," Williams says.

By that point, the damage had been done. Today, Paris occasionally jousts with Beijing for the title of world's most polluted city. London is grappling with unsafe levels of nitrogen dioxide. Germany, Austria, and Ireland have NOx pollution well above the legal limits.

And the health toll has been staggering. One recent study found that diesel pollution from cars, buses, and trucks in Britain caused 9,400 premature deaths in 2010 alone. It's difficult to suss out what fraction of those deaths might have been avoided if emission rules had been properly enforced all along, but that gives some sense of the brutal cost here.

To be fair, European regulators have scrambled to improve the tests now that they've realized what was happening. But it's still unclear whether the diesel car industry can ever clean up its act.

Starting in 2014, the newest, most stringent emissions standard — known as Euro 6 — will require diesel cars to emit no more than 0.08 grams of NOx per kilometer, an 84 percent reduction from 2000-era levels. Europe's regulators will also start requiring on-road testing in addition to laboratory checkups. (That's what the United States EPA does, and it should eliminate most gaming, although, as the Volkswagen scandal showed, truly determined cheaters are hard to detect.)

But here's the fat asterisk: Now that they can no longer easily game the system, Europe's automakers are lobbying hard to relax the pollution standards. That's because it's not very easy to cut NOx pollution from diesel cars. One of the technologies that could meet the most stringent limits, known as selective catalytic reduction, involves running the car's exhaust through a honeycombed chamber that sprays urea and water, which breaks the NOx down into harmless nitrogen, oxygen, and water molecules. But these devices can add about $5,000 to $8,000 to the price of a vehicle, which would make many small cars uneconomical. They can also negatively affect fuel economy, torque, and other aspects of the car's performance.

So the jury's still out on whether "clean diesel" cars will even be viable in practice. Volkswagen had claimed to have cracked the problem with its most recent diesel models ... except we now know the company was doing it by rigging the cars with software to evade pollution tests.

The grim irony: Europe's diesel push hasn't helped with global warming

If Europe's diesel surge had helped mitigate climate change, then maybe (just maybe) you could argue that all this extra air pollution was worth it. Except here's the grim plot twist: The climate benefits appear to have been negligible.

In their 2013 paper, Cames and Helmers argued that Europe is probably worse off today, from a global warming perspective, than it would have been if automakers had just focused on improving gasoline-powered cars all along. And Europe is arguably much worse off than it would have been if automakers had started investing in hybrid electric technology back in the 1990s.

The authors offer up this chart, showing that Europe's diesel cars may have once had a sizable CO2 advantage over traditional gasoline vehicles. But today that gap has virtually disappeared, as new technologies like turbochargers have made gasoline engines nearly as efficient as diesel cars:

What's more, there are two subtle drawbacks to diesel engines that make them worse for global warming than they seem.

First, even if diesel cars emit less CO2 than gasoline vehicles, they emit a lot more black carbon, or soot, a pollutant that (we've recently learned) also contributes significantly to global warming. The precise accounting here is still subject to some dispute, but Cames and Helmers point out that black carbon emissions from diesel cars likely negate a big chunk of their CO2 advantage.

Second, remember that European countries encouraged diesel car adoption by slashing taxes on

the diesel fuel itself (compared with gasoline). But as any Econ 101 student will tell you, cutting fuel prices gives people an incentive to drive more miles — and increase their overall emissions. This further chips away at any climate advantage diesel might have.

Add it up, and Cames and Helmers conclude that "the European diesel car boom did not cool down the atmosphere."

One final coda here. Go back and look at the Japanese cars on the graph above. Back in the late 1990s, Japanese automakers were also thinking about cutting CO2, but they figured that diesel was a dead-end technology, since the cost of cleaning up the extra NOx pollution would be too high. Instead, companies like Toyota started investing in hybrid vehicles, with the first Prius appearing in 1997. By contrast, Europe's automakers initially scoffed at electric powertrains, and none of them even bothered producing hybrids until Mercedes finally rolled one out in 2009.

Japan's decision now looks prescient, and Europe's looks shortsighted. Hybrids proved much greener: The newest Japanese cars now produce roughly 10 percent less CO2 per mile than Europe's diesel vehicles do, on average. And Japan's automakers appear to be better set up for the future. Many experts now think that transportation will eventually have to become electrified if we want truly deep reductions in emissions. But European automakers, stuck on diesel for so long, are scrambling to catch up.

Europe is now struggling to undo its diesel mistake — but it's not easy

Debate Over Vehicle Emissions Intensifies As Volkswagen Scandal Widens

Because of the Volkswagen scandal, and the staggering levels of pollution in cities like Paris and London, Europe's policymakers are now beginning to rethink their fondness for diesel cars. But it's a hard technology to give up. Path dependency is a hell of a drug.

In diesel-loving France, Ségolène Royal, the environment minister, recently said that the country would consider phasing out preferential tax breaks for diesel over the next five years. "We need to start preparing our move out of diesel," she reportedly told France 5 television. But she's also bristled at any suggestion that France should act too quickly. After all, diesel cars still account for more than 60 percent of all European sales for Renault and Peugeot, two major local

manufacturers. They can't just unwind those positions overnight.

Volkswagen, for its part, is also engaged in a bit of soul searching around diesel (at least, when it's not recalling its 11 million law-breaking diesel cars and dealing with criminal investigations). The company recently announced that it would take a major plunge into electric powertrains, creating a standardized architecture for a new wave of plug-in cars. "The Volkswagen brand is repositioning itself for the future," said executive Herbert Diess. Except, of course, this shift won't happen overnight. Because VW spent so many years dreaming up ways to evade regulators and sell diesel cars, it's now playing catch-up to electric car companies like Tesla.

In the meantime, Europe's smoggy cities still have to grapple with the fallout from all those polluting diesel cars that are still on the road — and will likely stick around for years. The EU has started to pressure countries with the worst air pollution. Cities like London, Stockholm, and Milan are already experimenting with emission-free zones. In the future, drivers with old diesel clunkers could have to pay extra to travel downtown in certain cities. But even this cleanup will take years.

Energy bets can sometimes go horribly wrong. So how do we avoid that?

Europe's misadventure with diesel cars is a great case study in how energy policy can go very badly awry, and no doubt there's a long list of lessons to draw. I'll just mention a few big ones:

First, Europe's complete failure to regulate diesel pollution is worth studying. Not only had regulators designed flimsy emissions tests — partly at the behest of industry lobbying — but it took two decades to even realize the tests were failing. Crafting ambitious environmental rules is all well and good, but without ample enforcement and monitoring, those rules are basically pointless. (Note that China is now pursuing ambitious climate policies of its own, but experts keep muttering that enforcement will be a big challenge — a caveat that deserves much more attention.)

Another possible takeaway is that if we really want to reduce greenhouse gas emissions from the transportation sector, liquid fuels are ultimately a dead end and electrification is the best path forward. There's no shortage of experts who believe that, and certainly that's the lesson Volkswagen seems to be drawing from this fiasco. That said, it's worth noting that Toyota, which

was ahead of the pack in developing hybrid electrics in the late 1990s, actually doesn't believe electric cars are the future and is pouring R&D into hydrogen cars instead.

Which brings us to the third takeaway. The future is hard to predict. Diesel cars seemed like a reasonable idea in the 1990s and a disaster today. That suggests that policymakers should have a lot more humility when crafting energy policy. One approach might be to pursue more technology-neutral policies organized around preferred outcomes — say, tightly enforced standards that require lower emissions — rather than favoring specific industries just because they happen to seem promising at that moment in time.

This issue comes up again and again. For years, governments have been laying down big bets on emerging clean energy technologies. France did it with nuclear power in the 1970s and '80s. Germany did it with wind and solar power in the 2000s, through feed-in tariffs. The United States did it with corn ethanol in 2005.

Done right, this sort of government support can be valuable, helping useful new energy options break into the mainstream against entrenched competition. But the biggest risk is that governments end up gambling on badly flawed technologies that then become the entrenched competition and prove impossible to get rid of. The US arguably made that mistake with corn ethanol, which has had unintended ripple effects on the food supply and deforestation and is proving politically difficult to wind down. Now it's clear that Europe made that mistake, too.

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Olechiw, Michael[olechiw.michael@epa.gov]; Nam, Ed[nam.ed@epa.gov]; Spears, Matthew[spears.matthew@epa.gov]
From: Charmley, William
Sent: Fri 10/16/2015 1:49:48 AM
Subject: Re: Article on Europe's diesel experience - I found this to be a particularly interesting read

Byron

Thanks you for sending this. I agree it was very worth reading.

Bill

Bill Charmley
Assessment and Standards Division
Office of Transportation and Air Quality
National Vehicle & Fuel Emissions Laboratory
US Environmental Protection Agency
Ann Arbor, Michigan
Desk phone 734-214-4466
Mobile phone 734-545-0333
Email charmley.william@epa.gov

On Oct 15, 2015, at 9:06 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Vox:

http://www.vox.com/2015/10/15/9541789/volkswagen-europe-diesel-pollution

Europe's love affair with diesel cars has been a disaster

Updated by Brad Plumer on October 15, 2015, 1:00 p.m. ET @bradplumer brad@vox.com

The recent news that Volkswagen had been illegally rigging its diesel-powered cars to cheat on pollution tests has sparked plenty of outrage. Hearings, lawsuits, fines, general opprobrium. And rightly so; the company's deception was appalling.

But there's a much broader, far more consequential problem here that a lot of coverage has danced around or hinted at only indirectly. So let's say it: Europe's longtime promotion of diesel vehicles as a "green" transportation option has been a complete and total disaster — for reasons that go well beyond the Volkswagen scandal.

Ever since the 1990s, European governments have been encouraging drivers to buy diesel cars as an alternative to traditional gasoline-powered vehicles. The rationale was simple: Diesel engines use fuel more efficiently, so the switch was supposed to reduce carbon dioxide emissions and help stave off global warming. Thanks to tax breaks and other incentives, diesel cars now make up one-third of Europe's fleet, whereas they're a sideshow in the US and Japan:

Europe's diesel push might have seemed sensible once upon a time. But 20 years later, with the benefit of hindsight, it looks like a huge mistake, an impotent climate policy that had all sorts of unintended consequences.

The biggest drawback of diesel cars is that they emit higher levels of other harmful air pollutants like particulates and nitrogen oxides. And those ended up being far harder to clean up than experts initially predicted. We now know that Europe's regulators have failed spectacularly to control diesel pollution, relying on weak rules and flimsy testing procedures. Lots and lots of automakers — not just Volkswagen — have been manufacturing diesel cars that emit far more gunk than they're supposed to. As a result, cities like London and Paris are clogged with dangerously high levels of air pollution, causing thousands of premature deaths each year.

And that's not the worst part. It's now looking like Europe's diesel push didn't even do anything to help global warming, as one 2013 study by Michel Cames and Eckard Helmers found. The CO2 benefits from switching to diesel cars were overrated and offset by the extra soot their engines produced. Plus, Europe's entrenched diesel industry has impeded progress on more promising hybrid and electric car technologies that could've provide deeper emissions cuts.

The whole episode is a sobering case study in how well-intentioned green industrial policy can go horribly wrong. So let's roll the tape and see what lessons we can learn from Europe's decades-long diesel fiasco.

Why Europe embraced diesel cars in the 1980s and '90s

After crude oil gets pumped out of the ground, it's sent to refineries to be turned into usable fuel. Those refineries typically distill the oil into lighter and heavier components. The lightest stuff includes gasoline. On the heavier side is diesel fuel, which contains more energy per gallon.

For most of the 20th century, automakers largely designed cars to run on gasoline, which was more flammable and combusted easily using sparks. Engines that could combust diesel fuel, using air compression, had been invented in the 19th century, but they were noisier and belched more smoke, so they were mostly confined to large ships and trucks. Diesel was often used instead for heating and producing electricity.

But starting in the 1980s, French and German automakers began showing more interest in developing diesel-powered cars. The reasons have always been a little murky, although Cames and Helmers suggest it traces back to the OPEC oil crises of the 1970s. After global crude prices spiked, France decided to swear off using diesel for electricity and built a bunch of nuclear plants instead. Germany, meanwhile, switched from oil to natural gas for heating. When the crisis finally subsided, Europe's refiners were still producing lots of diesel with no buyers. So governments began urging automakers like Peugeot to look into diesel-powered vehicles.

By the late 1990s, diesel technology had improved dramatically, thanks to advances in fuel injection — common rail, especially — that allowed the engines to run more quietly. The newer diesel engines were a technical marvel, operating more efficiently than their gasoline counterparts and using less fuel per mile traveled (and, hence, emitting less carbon dioxide per mile). All they needed was a market.

Rising concern over global warming provided that push. In 1997, the European Union signed the Kyoto Protocol and committed to cutting its heat-trapping carbon dioxide emissions roughly 8 percent by 2012. The next year, the EU reached a landmark agreement with the continent's car manufacturers on reducing CO2.

At the time, there were lots of different paths Europe's automakers could have taken to green itself. They could've pursued direct injection technology for gasoline vehicles, making those engines more fuel-efficient. They could've ramped up R&D of hybrid electric car technology, as Japanese automakers like Toyota were starting to do. But European companies like Peugeot and Volkswagen and BMW had already been making big investments in diesel, and they wanted a climate policy that would allow those bets to pay off.

Europe's policymakers obliged. The EU agreed to a voluntary CO2 target for vehicles that was basically in line with what diesel technology would be able to meet. As researcher Sarah Keay-Bright later noted, these standards were explicitly crafted so as not to force Europe's automakers to develop hybrids, electric vehicles, or other more advanced power trains.

Soon thereafter, European nations — including Britain, France, Germany, Italy, Spain, and Austria — began cutting taxes on diesel fuel and diesel car purchases to promote sales, all in the name of thwarting climate change. Diesel sales soared. Back in 1990, just 10 percent of new car registrations in Europe had run on diesel. By 2011, that had climbed to nearly 60 percent.

Today, Europe's diesel cars are a public health nightmare

Diesel engines do have one big pitfall. They may be more fuel-efficient and emit less CO2, but their engines tend to emit higher levels of other nasty air pollutants, including soot, particulates, and nitrogen oxides (NOx). Heavy exposure to these air pollutants can exacerbate heart and lung disease, trigger asthma attacks, and even cause premature death.

Everyone knew this back in the 1990s. Europe's regulators simply considered the trade-off acceptable. "At the time, the prevailing belief was that climate change was the really hard problem and should be the priority, whereas we'd had experience improving air quality, so everyone assumed we could easily fix that issue later," explains Martin Williams, an air pollution researcher at King's College London who previously worked for Britain's environmental agency.

That assumption turned out to be wrong. When European regulators later moved to clamp down on NOx and other conventional air pollution from diesel vehicles, they failed miserably.

Starting in 2000, the EU began ratcheting down the legal limits for NOx emissions (though Europe's diesel cars have always been allowed to emit NOx at a relatively higher rate than gasoline-powered cars). New vehicles were tested in laboratories, where cars were placed on giant treadmills, spun through a few exercises, and measured for pollution.

Trouble was, these tests turned out to be incredibly flimsy and easily gamed, explains John German of the International Council on Clean Transportation. Automakers could send cars to labs that were optimized for testing: stripped of excess weight, with the air conditioning turned off, and so on. The test cars complied with the pollution limits just fine. But the cars that were actually being sold to consumers were quite different, with much higher emissions. (German says this sort of subtle gaming was technically legal, unlike Volkswagen's more elaborate deception, which involved illegal software that only turned pollution controls on during tests. Still, even if Volkswagen was the most flagrant cheater, it was hardly unique.)

Few realized the EU's pollution tests were badly flawed until 2010, when researchers started studying emissions from vehicles that were actually on the road. In one study, Williams set up roadside infrared detectors to measure NOx pollution from cars in seven British cities. What he found was shocking: Europe's newest diesel cars were emitting roughly as much NOx as older diesel cars from the 1990s.

In other words, 20 years of increasingly strict air pollution regulations had done absolutely nothing to reduce pollution. "That was the most surprising part," Williams says.

By that point, the damage had been done. Today, Paris occasionally jousts with Beijing for the title of world's most polluted city. London is grappling with unsafe levels of nitrogen dioxide. Germany, Austria, and Ireland have NOx pollution well above the legal limits.

And the health toll has been staggering. One recent study found that diesel pollution from cars, buses, and trucks in Britain caused 9,400 premature deaths in 2010 alone. It's difficult to suss out what fraction of those deaths might have been avoided if emission rules had been properly enforced all along, but that gives some sense of the brutal cost here.

To be fair, European regulators have scrambled to improve the tests now that they've realized what was happening. But it's still unclear whether the diesel car industry can ever clean up its act.

Starting in 2014, the newest, most stringent emissions standard — known as Euro 6 — will require diesel cars to emit no more than 0.08 grams of NOx per kilometer, an 84 percent reduction from 2000-era levels. Europe's regulators will also start requiring on-road testing in addition to laboratory checkups. (That's what the United States EPA does, and it should eliminate most gaming, although, as the Volkswagen scandal showed, truly determined cheaters are hard to detect.)

But here's the fat asterisk: Now that they can no longer easily game the system, Europe's automakers are lobbying hard to relax the pollution standards. That's because it's not very easy to cut NOx pollution from diesel cars. One of the technologies that could meet the most stringent limits, known as selective catalytic reduction, involves running the car's exhaust through a honeycombed chamber that sprays urea and water, which breaks the NOx down into harmless nitrogen, oxygen, and water molecules. But these devices can add about $5,000 to $8,000 to the price of a vehicle, which would make many small cars uneconomical. They can also negatively affect fuel economy, torque, and other aspects of the car's performance.

So the jury's still out on whether "clean diesel" cars will even be viable in practice. Volkswagen had claimed to have cracked the problem with its most recent diesel models ... except we now know the company was doing it by rigging the cars with software to evade pollution tests.

The grim irony: Europe's diesel push hasn't helped with global warming

If Europe's diesel surge had helped mitigate climate change, then maybe (just maybe) you

could argue that all this extra air pollution was worth it. Except here's the grim plot twist: The climate benefits appear to have been negligible.

In their 2013 paper, Cames and Helmers argued that Europe is probably worse off today, from a global warming perspective, than it would have been if automakers had just focused on improving gasoline-powered cars all along. And Europe is arguably much worse off than it would have been if automakers had started investing in hybrid electric technology back in the 1990s.

The authors offer up this chart, showing that Europe's diesel cars may have once had a sizable CO2 advantage over traditional gasoline vehicles. But today that gap has virtually disappeared, as new technologies like turbochargers have made gasoline engines nearly as efficient as diesel cars:

What's more, there are two subtle drawbacks to diesel engines that make them worse for global warming than they seem.

First, even if diesel cars emit less CO2 than gasoline vehicles, they emit a lot more black carbon, or soot, a pollutant that (we've recently learned) also contributes significantly to global warming. The precise accounting here is still subject to some dispute, but Cames and Helmers point out that black carbon emissions from diesel cars likely negate a big chunk of their CO2 advantage.

Second, remember that European countries encouraged diesel car adoption by slashing taxes on the diesel fuel itself (compared with gasoline). But as any Econ 101 student will tell you, cutting fuel prices gives people an incentive to drive more miles — and increase their overall emissions. This further chips away at any climate advantage diesel might have.

Add it up, and Cames and Helmers conclude that "the European diesel car boom did not cool down the atmosphere."

One final coda here. Go back and look at the Japanese cars on the graph above. Back in the

late 1990s, Japanese automakers were also thinking about cutting CO2, but they figured that diesel was a dead-end technology, since the cost of cleaning up the extra NOx pollution would be too high. Instead, companies like Toyota started investing in hybrid vehicles, with the first Prius appearing in 1997. By contrast, Europe's automakers initially scoffed at electric powertrains, and none of them even bothered producing hybrids until Mercedes finally rolled one out in 2009.

Japan's decision now looks prescient, and Europe's looks shortsighted. Hybrids proved much greener: The newest Japanese cars now produce roughly 10 percent less CO2 per mile than Europe's diesel vehicles do, on average. And Japan's automakers appear to be better set up for the future. Many experts now think that transportation will eventually have to become electrified if we want truly deep reductions in emissions. But European automakers, stuck on diesel for so long, are scrambling to catch up.

Europe is now struggling to undo its diesel mistake — but it's not easy

Debate Over Vehicle Emissions Intensifies As Volkswagen Scandal Widens

Because of the Volkswagen scandal, and the staggering levels of pollution in cities like Paris and London, Europe's policymakers are now beginning to rethink their fondness for diesel cars. But it's a hard technology to give up. Path dependency is a hell of a drug.

In diesel-loving France, Ségolène Royal, the environment minister, recently said that the country would consider phasing out preferential tax breaks for diesel over the next five years. "We need to start preparing our move out of diesel," she reportedly told France 5 television. But she's also bristled at any suggestion that France should act too quickly. After all, diesel cars still account for more than 60 percent of all European sales for Renault and Peugeot, two major local manufacturers. They can't just unwind those positions overnight.

Volkswagen, for its part, is also engaged in a bit of soul searching around diesel (at least, when it's not recalling its 11 million law-breaking diesel cars and dealing with criminal investigations). The company recently announced that it would take a major plunge into electric powertrains, creating a standardized architecture for a new wave of plug-in cars. "The Volkswagen brand is repositioning itself for the future," said executive Herbert Diess. Except, of course, this shift won't happen overnight. Because VW spent so many years dreaming up ways to evade regulators and sell diesel cars, it's now playing catch-up to

electric car companies like Tesla.

In the meantime, Europe's smoggy cities still have to grapple with the fallout from all those polluting diesel cars that are still on the road — and will likely stick around for years. The EU has started to pressure countries with the worst air pollution. Cities like London, Stockholm, and Milan are already experimenting with emission-free zones. In the future, drivers with old diesel clunkers could have to pay extra to travel downtown in certain cities. But even this cleanup will take years.

Energy bets can sometimes go horribly wrong. So how do we avoid that?

Europe's misadventure with diesel cars is a great case study in how energy policy can go very badly awry, and no doubt there's a long list of lessons to draw. I'll just mention a few big ones:

First, Europe's complete failure to regulate diesel pollution is worth studying. Not only had regulators designed flimsy emissions tests — partly at the behest of industry lobbying — but it took two decades to even realize the tests were failing. Crafting ambitious environmental rules is all well and good, but without ample enforcement and monitoring, those rules are basically pointless. (Note that China is now pursuing ambitious climate policies of its own, but experts keep muttering that enforcement will be a big challenge — a caveat that deserves much more attention.)

Another possible takeaway is that if we really want to reduce greenhouse gas emissions from the transportation sector, liquid fuels are ultimately a dead end and electrification is the best path forward. There's no shortage of experts who believe that, and certainly that's the lesson Volkswagen seems to be drawing from this fiasco. That said, it's worth noting that Toyota, which was ahead of the pack in developing hybrid electrics in the late 1990s, actually doesn't believe electric cars are the future and is pouring R&D into hydrogen cars instead.

Which brings us to the third takeaway. The future is hard to predict. Diesel cars seemed like a reasonable idea in the 1990s and a disaster today. That suggests that policymakers should have a lot more humility when crafting energy policy. One approach might be to pursue

more technology-neutral policies organized around preferred outcomes — say, tightly enforced standards that require lower emissions — rather than favoring specific industries just because they happen to seem promising at that moment in time.

This issue comes up again and again. For years, governments have been laying down big bets on emerging clean energy technologies. France did it with nuclear power in the 1970s and '80s. Germany did it with wind and solar power in the 2000s, through feed-in tariffs. The United States did it with corn ethanol in 2005.

Done right, this sort of government support can be valuable, helping useful new energy options break into the mainstream against entrenched competition. But the biggest risk is that governments end up gambling on badly flawed technologies that then become the entrenched competition and prove impossible to get rid of. The US arguably made that mistake with corn ethanol, which has had unintended ripple effects on the food supply and deforestation and is proving politically difficult to wind down. Now it's clear that Europe made that mistake, too.

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Charmley, William[charmley.william@epa.gov]; Simon, Karl[Simon.Karl@epa.gov]; Haugen, David[haugen.david@epa.gov]; Cook, Leila[cook.leila@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
From: Grundler, Christopher
Sent: Fri 10/16/2015 3:04:05 AM
Subject: Re: Article on Europe's diesel experience - I found this to be a particularly interesting read

Wow. Thanks for sharing

Sent from my iPhone

On Oct 15, 2015, at 9:06 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Vox:

http://www.vox.com/2015/10/15/9541789/volkswagen-europe-diesel-pollution

Europe's love affair with diesel cars has been a disaster

Updated by Brad Plumer on October 15, 2015, 1:00 p.m. ET @bradplumer brad@vox.com

The recent news that Volkswagen had been illegally rigging its diesel-powered cars to cheat on pollution tests has sparked plenty of outrage. Hearings, lawsuits, fines, general opprobrium. And rightly so; the company's deception was appalling.

But there's a much broader, far more consequential problem here that a lot of coverage has danced around or hinted at only indirectly. So let's say it: Europe's longtime promotion of diesel vehicles as a "green" transportation option has been a complete and total disaster — for reasons that go well beyond the Volkswagen scandal.

Ever since the 1990s, European governments have been encouraging drivers to buy diesel cars as an alternative to traditional gasoline-powered vehicles. The rationale was simple: Diesel engines use fuel more efficiently, so the switch was supposed to reduce carbon dioxide emissions and help stave off global warming. Thanks to tax breaks and other

incentives, diesel cars now make up one-third of Europe's fleet, whereas they're a sideshow in the US and Japan:

Europe's diesel push might have seemed sensible once upon a time. But 20 years later, with the benefit of hindsight, it looks like a huge mistake, an impotent climate policy that had all sorts of unintended consequences.

The biggest drawback of diesel cars is that they emit higher levels of other harmful air pollutants like particulates and nitrogen oxides. And those ended up being far harder to clean up than experts initially predicted. We now know that Europe's regulators have failed spectacularly to control diesel pollution, relying on weak rules and flimsy testing procedures. Lots and lots of automakers — not just Volkswagen — have been manufacturing diesel cars that emit far more gunk than they're supposed to. As a result, cities like London and Paris are clogged with dangerously high levels of air pollution, causing thousands of premature deaths each year.

And that's not the worst part. It's now looking like Europe's diesel push didn't even do anything to help global warming, as one 2013 study by Michel Cames and Eckard Helmers found. The CO2 benefits from switching to diesel cars were overrated and offset by the extra soot their engines produced. Plus, Europe's entrenched diesel industry has impeded progress on more promising hybrid and electric car technologies that could've provide deeper emissions cuts.

The whole episode is a sobering case study in how well-intentioned green industrial policy can go horribly wrong. So let's roll the tape and see what lessons we can learn from Europe's decades-long diesel fiasco.

Why Europe embraced diesel cars in the 1980s and '90s

After crude oil gets pumped out of the ground, it's sent to refineries to be turned into usable fuel. Those refineries typically distill the oil into lighter and heavier components. The lightest stuff includes gasoline. On the heavier side is diesel fuel, which contains more energy per gallon.

For most of the 20th century, automakers largely designed cars to run on gasoline, which was more flammable and combusted easily using sparks. Engines that could combust diesel fuel, using air compression, had been invented in the 19th century, but they were noisier and belched more smoke, so they were mostly confined to large ships and trucks. Diesel was often used instead for heating and producing electricity.

But starting in the 1980s, French and German automakers began showing more interest in developing diesel-powered cars. The reasons have always been a little murky, although Cames and Helmers suggest it traces back to the OPEC oil crises of the 1970s. After global crude prices spiked, France decided to swear off using diesel for electricity and built a bunch of nuclear plants instead. Germany, meanwhile, switched from oil to natural gas for heating. When the crisis finally subsided, Europe's refiners were still producing lots of diesel with no buyers. So governments began urging automakers like Peugeot to look into diesel-powered vehicles.

By the late 1990s, diesel technology had improved dramatically, thanks to advances in fuel injection — common rail, especially — that allowed the engines to run more quietly. The newer diesel engines were a technical marvel, operating more efficiently than their gasoline counterparts and using less fuel per mile traveled (and, hence, emitting less carbon dioxide per mile). All they needed was a market.

Rising concern over global warming provided that push. In 1997, the European Union signed the Kyoto Protocol and committed to cutting its heat-trapping carbon dioxide emissions roughly 8 percent by 2012. The next year, the EU reached a landmark agreement with the continent's car manufacturers on reducing CO2.

At the time, there were lots of different paths Europe's automakers could have taken to green itself. They could've pursued direct injection technology for gasoline vehicles, making those engines more fuel-efficient. They could've ramped up R&D of hybrid electric car technology, as Japanese automakers like Toyota were starting to do. But European companies like Peugeot and Volkswagen and BMW had already been making big investments in diesel, and they wanted a climate policy that would allow those bets to pay off.

Europe's policymakers obliged. The EU agreed to a voluntary CO2 target for vehicles that was basically in line with what diesel technology would be able to meet. As researcher Sarah Keay-Bright later noted, these standards were explicitly crafted so as not to force Europe's automakers to develop hybrids, electric vehicles, or other more advanced power trains.

Soon thereafter, European nations — including Britain, France, Germany, Italy, Spain, and Austria — began cutting taxes on diesel fuel and diesel car purchases to promote sales, all in the name of thwarting climate change. Diesel sales soared. Back in 1990, just 10 percent of new car registrations in Europe had run on diesel. By 2011, that had climbed to nearly 60 percent.

Today, Europe's diesel cars are a public health nightmare

Diesel engines do have one big pitfall. They may be more fuel-efficient and emit less CO2, but their engines tend to emit higher levels of other nasty air pollutants, including soot, particulates, and nitrogen oxides (NOx). Heavy exposure to these air pollutants can exacerbate heart and lung disease, trigger asthma attacks, and even cause premature death.

Everyone knew this back in the 1990s. Europe's regulators simply considered the trade-off acceptable. "At the time, the prevailing belief was that climate change was the really hard problem and should be the priority, whereas we'd had experience improving air quality, so everyone assumed we could easily fix that issue later," explains Martin Williams, an air pollution researcher at King's College London who previously worked for Britain's environmental agency.

That assumption turned out to be wrong. When European regulators later moved to clamp down on NOx and other conventional air pollution from diesel vehicles, they failed miserably.

Starting in 2000, the EU began ratcheting down the legal limits for NOx emissions (though Europe's diesel cars have always been allowed to emit NOx at a relatively higher rate than gasoline-powered cars). New vehicles were tested in laboratories, where cars were placed on giant treadmills, spun through a few exercises, and measured for pollution.

Trouble was, these tests turned out to be incredibly flimsy and easily gamed, explains John German of the International Council on Clean Transportation. Automakers could send cars to labs that were optimized for testing: stripped of excess weight, with the air conditioning turned off, and so on. The test cars complied with the pollution limits just fine. But the cars that were actually being sold to consumers were quite different, with much higher emissions. (German says this sort of subtle gaming was technically legal, unlike Volkswagen's more elaborate deception, which involved illegal software that only turned pollution controls on during tests. Still, even if Volkswagen was the most flagrant cheater, it was hardly unique.)

Few realized the EU's pollution tests were badly flawed until 2010, when researchers started studying emissions from vehicles that were actually on the road. In one study, Williams set up roadside infrared detectors to measure NOx pollution from cars in seven British cities. What he found was shocking: Europe's newest diesel cars were emitting roughly as much NOx as older diesel cars from the 1990s.

In other words, 20 years of increasingly strict air pollution regulations had done absolutely nothing to reduce pollution. "That was the most surprising part," Williams says.

By that point, the damage had been done. Today, Paris occasionally jousts with Beijing for the title of world's most polluted city. London is grappling with unsafe levels of nitrogen dioxide. Germany, Austria, and Ireland have NOx pollution well above the legal limits.

And the health toll has been staggering. One recent study found that diesel pollution from cars, buses, and trucks in Britain caused 9,400 premature deaths in 2010 alone. It's difficult to suss out what fraction of those deaths might have been avoided if emission rules had been properly enforced all along, but that gives some sense of the brutal cost here.

To be fair, European regulators have scrambled to improve the tests now that they've realized what was happening. But it's still unclear whether the diesel car industry can ever clean up its act.

Starting in 2014, the newest, most stringent emissions standard — known as Euro 6 — will require diesel cars to emit no more than 0.08 grams of NOx per kilometer, an 84 percent reduction from 2000-era levels. Europe's regulators will also start requiring on-road testing in addition to laboratory checkups. (That's what the United States EPA does, and it should eliminate most gaming, although, as the Volkswagen scandal showed, truly determined cheaters are hard to detect.)

But here's the fat asterisk: Now that they can no longer easily game the system, Europe's automakers are lobbying hard to relax the pollution standards. That's because it's not very easy to cut NOx pollution from diesel cars. One of the technologies that could meet the most stringent limits, known as selective catalytic reduction, involves running the car's exhaust through a honeycombed chamber that sprays urea and water, which breaks the NOx down into harmless nitrogen, oxygen, and water molecules. But these devices can add about $5,000 to $8,000 to the price of a vehicle, which would make many small cars uneconomical. They can also negatively affect fuel economy, torque, and other aspects of the car's performance.

So the jury's still out on whether "clean diesel" cars will even be viable in practice. Volkswagen had claimed to have cracked the problem with its most recent diesel models ... except we now know the company was doing it by rigging the cars with software to evade pollution tests.

The grim irony: Europe's diesel push hasn't helped with global warming

If Europe's diesel surge had helped mitigate climate change, then maybe (just maybe) you could argue that all this extra air pollution was worth it. Except here's the grim plot twist: The climate benefits appear to have been negligible.

In their 2013 paper, Cames and Helmers argued that Europe is probably worse off today, from a global warming perspective, than it would have been if automakers had just focused on improving gasoline-powered cars all along. And Europe is arguably much worse off than it would have been if automakers had started investing in hybrid electric technology back in the 1990s.

The authors offer up this chart, showing that Europe's diesel cars may have once had a sizable CO2 advantage over traditional gasoline vehicles. But today that gap has virtually disappeared, as new technologies like turbochargers have made gasoline engines nearly as efficient as diesel cars:

What's more, there are two subtle drawbacks to diesel engines that make them worse for global warming than they seem.

First, even if diesel cars emit less CO2 than gasoline vehicles, they emit a lot more black carbon, or soot, a pollutant that (we've recently learned) also contributes significantly to global warming. The precise accounting here is still subject to some dispute, but Cames and Helmers point out that black carbon emissions from diesel cars likely negate a big chunk of their CO2 advantage.

Second, remember that European countries encouraged diesel car adoption by slashing taxes on the diesel fuel itself (compared with gasoline). But as any Econ 101 student will tell you, cutting fuel prices gives people an incentive to drive more miles — and increase their overall emissions. This further chips away at any climate advantage diesel might have.

Add it up, and Cames and Helmers conclude that "the European diesel car boom did not cool down the atmosphere."

One final coda here. Go back and look at the Japanese cars on the graph above. Back in the late 1990s, Japanese automakers were also thinking about cutting CO2, but they figured that diesel was a dead-end technology, since the cost of cleaning up the extra NOx pollution would be too high. Instead, companies like Toyota started investing in hybrid vehicles, with the first Prius appearing in 1997. By contrast, Europe's automakers initially scoffed at electric powertrains, and none of them even bothered producing hybrids until Mercedes finally rolled one out in 2009.

Japan's decision now looks prescient, and Europe's looks shortsighted. Hybrids proved much greener: The newest Japanese cars now produce roughly 10 percent less CO2 per mile than Europe's diesel vehicles do, on average. And Japan's automakers appear to be better set

up for the future. Many experts now think that transportation will eventually have to become electrified if we want truly deep reductions in emissions. But European automakers, stuck on diesel for so long, are scrambling to catch up.

Europe is now struggling to undo its diesel mistake — but it's not easy

Debate Over Vehicle Emissions Intensifies As Volkswagen Scandal Widens

Because of the Volkswagen scandal, and the staggering levels of pollution in cities like Paris and London, Europe's policymakers are now beginning to rethink their fondness for diesel cars. But it's a hard technology to give up. Path dependency is a hell of a drug.

In diesel-loving France, Ségolène Royal, the environment minister, recently said that the country would consider phasing out preferential tax breaks for diesel over the next five years. "We need to start preparing our move out of diesel," she reportedly told France 5 television. But she's also bristled at any suggestion that France should act too quickly. After all, diesel cars still account for more than 60 percent of all European sales for Renault and Peugeot, two major local manufacturers. They can't just unwind those positions overnight.

Volkswagen, for its part, is also engaged in a bit of soul searching around diesel (at least, when it's not recalling its 11 million law-breaking diesel cars and dealing with criminal investigations). The company recently announced that it would take a major plunge into electric powertrains, creating a standardized architecture for a new wave of plug-in cars. "The Volkswagen brand is repositioning itself for the future," said executive Herbert Diess. Except, of course, this shift won't happen overnight. Because VW spent so many years dreaming up ways to evade regulators and sell diesel cars, it's now playing catch-up to electric car companies like Tesla.

In the meantime, Europe's smoggy cities still have to grapple with the fallout from all those polluting diesel cars that are still on the road — and will likely stick around for years. The EU has started to pressure countries with the worst air pollution. Cities like London, Stockholm, and Milan are already experimenting with emission-free zones. In the future, drivers with old diesel clunkers could have to pay extra to travel downtown in certain cities. But even this cleanup will take years.

Energy bets can sometimes go horribly wrong. So how do we avoid that?

Europe's misadventure with diesel cars is a great case study in how energy policy can go very badly awry, and no doubt there's a long list of lessons to draw. I'll just mention a few big ones:

First, Europe's complete failure to regulate diesel pollution is worth studying. Not only had regulators designed flimsy emissions tests — partly at the behest of industry lobbying — but it took two decades to even realize the tests were failing. Crafting ambitious environmental rules is all well and good, but without ample enforcement and monitoring, those rules are basically pointless. (Note that China is now pursuing ambitious climate policies of its own, but experts keep muttering that enforcement will be a big challenge — a caveat that deserves much more attention.)

Another possible takeaway is that if we really want to reduce greenhouse gas emissions from the transportation sector, liquid fuels are ultimately a dead end and electrification is the best path forward. There's no shortage of experts who believe that, and certainly that's the lesson Volkswagen seems to be drawing from this fiasco. That said, it's worth noting that Toyota, which was ahead of the pack in developing hybrid electrics in the late 1990s, actually doesn't believe electric cars are the future and is pouring R&D into hydrogen cars instead.

Which brings us to the third takeaway. The future is hard to predict. Diesel cars seemed like a reasonable idea in the 1990s and a disaster today. That suggests that policymakers should have a lot more humility when crafting energy policy. One approach might be to pursue more technology-neutral policies organized around preferred outcomes — say, tightly enforced standards that require lower emissions — rather than favoring specific industries just because they happen to seem promising at that moment in time.

This issue comes up again and again. For years, governments have been laying down big bets on emerging clean energy technologies. France did it with nuclear power in the 1970s and '80s. Germany did it with wind and solar power in the 2000s, through feed-in tariffs. The United States did it with corn ethanol in 2005.

Done right, this sort of government support can be valuable, helping useful new energy options break into the mainstream against entrenched competition. But the biggest risk is that governments end up gambling on badly flawed technologies that then become the entrenched competition and prove impossible to get rid of. The US arguably made that mistake with corn ethanol, which has had unintended ripple effects on the food supply and deforestation and is proving politically difficult to wind down. Now it's clear that Europe made that mistake, too.

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Giles, Michael (EEO)[michael.giles@vw.com]; Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Wright, DavidA[Wright.DavidA@epa.gov]; Sigelko, Jenny (EEO)[Jenny.Sigelko@vw.com]
From: Rodgers, William (EEO)
Sent: Fri 10/16/2015 1:35:39 PM
Subject: 2107 VECI labels

Hello Jim,

1) We are developing 2017 VECI labels which identify interim Tier 3 standards. Does the abbreviation used below adequately describe the interim standard in your view?

	AUDI AG VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations:		2017 MY
U.S. EPA: IntT3B125 LDV	OBD: CA II	Fuel: Gasoline
California: ULEV II PC	OBD: CA II	Fuel: Gasoline
I stments needed.		DFI/AIR/2TC/CAC/2TWC/2WR-HO2S/2HO2S
Group: HVGAV04.0NUA Evap: HVGAR0155NAH		079 010 533 ?

Note – the Audi logo is misplaced in the label and I was unable to edit the drawing.

2) Can you update us on the progress of the A3 e-tron and A3 e-tron ultra Certificate of Conformity?

Regards,

Bill Rodgers

EEO

To: Belser, Evan[Belser.Evan@epa.gov]
From: Brooks, Phillip
Sent: Fri 10/16/2015 2:08:59 PM
Subject: have you seen this?
Bourn v Volkswagen Complaint (Class Action).pdf

FILED

2015 OCT -6 P 5:00

CLERK US DISTRICT COURT
ALEXANDRIA, VIRGINIA

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

MARIA BOURN, DAVID WATSON, STEPHEN VERNER, and MARK SCHUMACHER, on behalf of themselves and all others similarly situated,

Plaintiffs,

v.

VOLKSWAGEN AG, VOLKSWAGEN OF AMERICA GROUP, INC., VOLKSWAGEN OF AMERICA, INC., AUDI OF AMERICA, LLC, and AUDI AG,

Defendants.

Case No. 1:15cv1295

JURY TRIAL DEMANDED

LOG/MSN

CLASS ACTION COMPLAINT

Plaintiffs Maria Bourn, David Watson, Steven Verner, and Mark Schumacher bring this action on their own behalf and on behalf of a class of similarly situated persons against Volkswagen AG ("VWAG"), Volkswagen of America Group, Inc. and Volkswagen of America, Inc. (collectively, "VWoA"), and Audi of America, LLC and Audi AG (collectively, "Audi").[1] Plaintiffs seek injunctive relief and to recover damages caused by Volkswagen's violations of Section 2 of the Sherman Antitrust Act (15 U.S.C. § 2), the Racketeer Influenced and Corrupt Organizations Act ("RICO") (18 U.S.C. § 1961 *et seq.*), the Magnuson-Moss Warranty Act (15 U.S.C. § 2301 *et seq.*), the common law of fraud and unjust enrichment. and the statutory laws of California and Virginia. Plaintiffs make the following allegations upon information and belief,

[1] Unless otherwise indicated herein, all of these defendants will be referred to collectively as "Volkswagen."

VW FOIA, EPA 06/20/2017 2017-FFP_034200

except as to those allegations pertaining to the named plaintiffs, which are made on personal knowledge.

I. NATURE OF THE ACTION.

1. Four years ago, Martin Winterkorn ("Winterkorn"), Volkswagen's former Chief Executive Officer ("CEO"), announced Volkswagen's goal to become the world's largest automaker. "By 2018," he told U.S. politicians gathered for the opening of a Volkswagen plant in Chattanooga, Tennessee, "we want to take our group to the very top of the global car industry."[2] With only a relatively small share of the gigantic United States market, Winterkorn's ambitious plan required a dramatic increase in sales in that market. And the way to increase sales here, Volkswagen decided, was to convince American consumers that its diesel-powered cars were a superior alternative, with better fuel efficiency, lower emissions, and uncompromised performance.

2. Between 2009 and September 18, 2015, Volkswagen aggressively marketed its so-called Clean Diesel Turbocharged Direct Injection ("TDI") light passenger vehicles in the United States, spending millions of dollars on print, television, internet and point-of-sale advertising aimed at convincing American consumers that its cars were environmentally-friendly, fuel-efficient, powerful, and reasonably priced. In order to increase its market share, Volkswagen's cars needed all those attributes to win over a skeptical American public. Compared with Europe, with its higher fuel costs, expensive cars and less stringent tailpipe emission standards, the United States market was a tough sell for diesel-powered passenger cars.

3. Until September 18, 2015, it looked as if Winterkorn's ambitious plan had succeeded. In July of 2015, Volkswagen surpassed Toyota Corporation ("Toyota") as the world's largest automaker, selling 5.04 million vehicles in the first six months of this year, compared to

[2] http://www.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?_r=0.

VW FOIA, EPA 06/20/2017 2017-FFP_034201

Toyota's 5.02 million.[3]

4. As noted above, the United States was a key part of this global strategy. As reported in *Automotive News*:

> Back in 2007, the automaker vowed to crank up U.S. sales of its VW brand to 800,000 vehicles a year by 2018. It was a dizzying sum, requiring more than a tripling of its volume at that time. Many in the industry scoffed.
>
> But with steady precision, VW got the skeptics to take a second look. It launched a lower-priced, Mexico-made Jetta and built a plant in Chattanooga that began churning out a new Passat that better fit American tastes and budgets. VW sales doubled between 2009 and 2012, to nearly 440,000, lifting hopes that 800,000 was doable.[4]

By October 1, 2015, VWoA had reported sales of 264, 215 passenger vehicles in the United States through September 15, indicating that before the scandal that is the subject of this Complaint surfaced, it was expecting another excellent sales year.[5]

5. Unfortunately for American consumers, Volkswagen's success in capturing market share was based on a lie. On September 18, 2015, the United States Environmental Protection Agency ("EPA") and the California Air Resources Board ("CARB") both notified Volkswagen that it had violated federal and state laws and regulations by using a "defeat device"--software specifically intended to circumvent emission test procedures established by the EPA and by CARB. Those notices are attached as Exhibits 1 and 2 to this complaint.

6. Volkswagen's "defeat device" is a "sophisticated software algorithm"[6] that detects

---

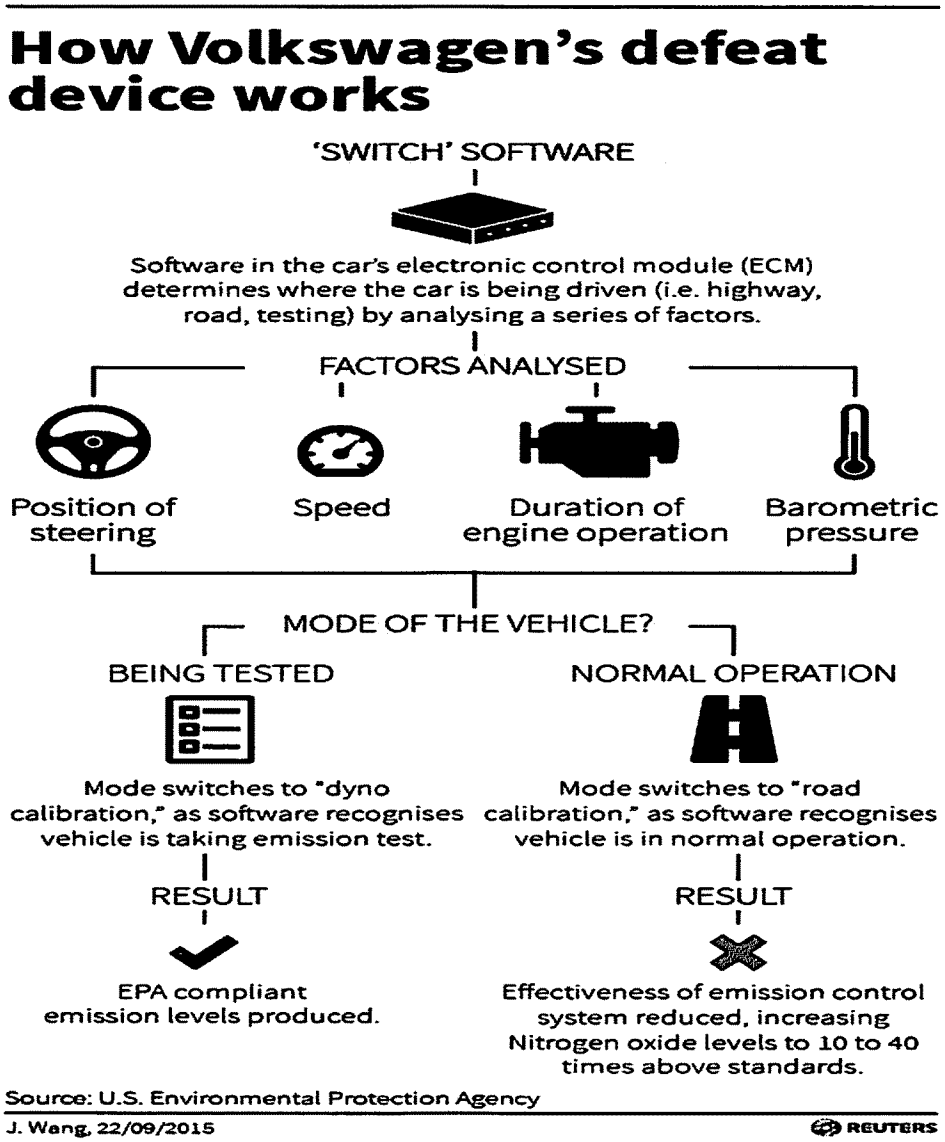
[3] http://www.usatoday.com/story/money/2015/07/28/volkswagen-surpasses-toyota-worlds-largest-automaker-first-half-2015/30772509/.

[4] http://www.autonews.com/article/20150126/RETAIL01/301269949/how-vw-veered--off-target.

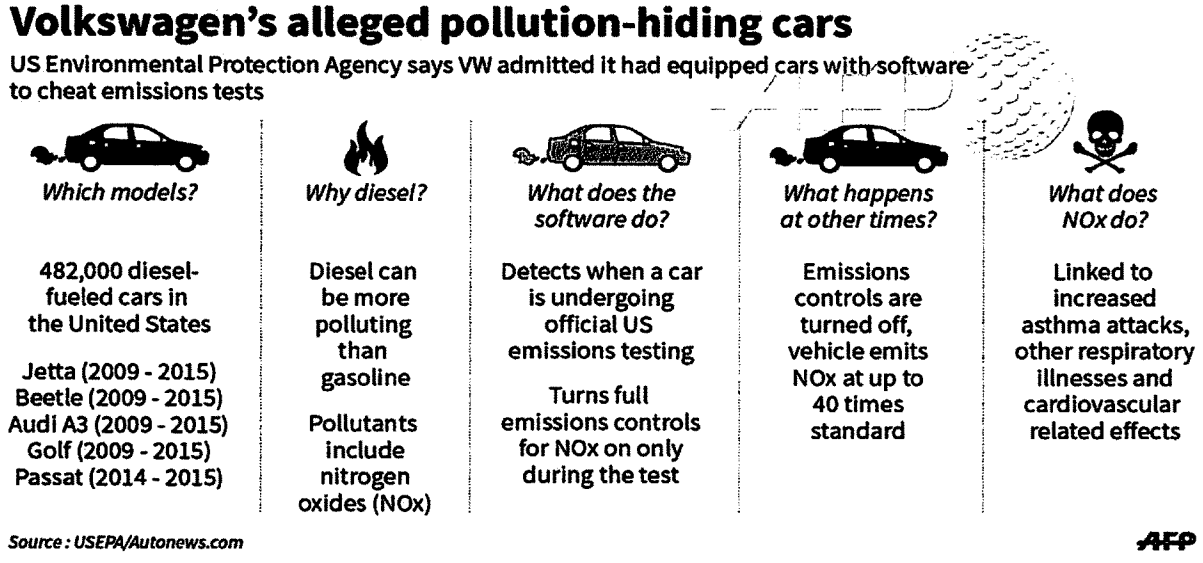
[5] http://media.vw.com/release/1080/.

[6] http://www.theguardian.com/business/2015/sep/18/epa-california-investigate-volkswagen-clean-air-violations.

when the car is undergoing emissions testing. Under such laboratory test conditions, Volkswagen's vehicles pass the EPA and CARB emissions tests with flying colors. Under normal driving situations, however, the software algorithm ***turns off*** the emissions control systems, allowing the cars to spew as much as 40 times the allowable amount of pollutants--specifically nitrogen oxides ("NOx")--into the air. Elevated NOx contributes to the creation of ozone and smog, and is linked to asthma attacks, other respiratory diseases such as emphysema and bronchitis, and causes premature death. A diagram published in Reuters depicts its operation:



7. The chart below, published by *Agence France Press*, provides a useful and concise primer on the known facts:



8. As noted below, dozens of fatalities in the United States over the last seven years have been attributed to the illegal use of this "defeat device." The scandal has been popularly referred to as "Dieselgate."

9. Volkswagen has admitted to installing these "defeat devices" in 11 million diesel vehicles that have been sold around the world, including the 482,000 in the United States. As Michael Horn ("Horn"), the President and CEO of VWoA, candidly admitted: "[l]et's be clear about this. **Our company was dishonest. With the EPA, and the California Air Resources Board, and with all of you. And in my German words, we have totally screwed up.**"[7] (Emphases added). Horn further stated in a video on VWAG's website that **"[o]ur company**

[7] http://www.roadandtrack.com/new-cars/car-technology/news/a26774/volkswagen-ceo-we-screwed-up/. A YouTube video of this extraordinary concession can be found here: www.youtube.com/watch?v=Q6z8uUJE-jE.

betrayed the trust of you, our customers, our employees, our dealers and the public."[8] (Emphases added). And as VWAG has posted on its website: "[g]overnment regulations limit the use of engine software that reduces the effectiveness of a vehicle's emissions control systems. **Those are the 'defeat device' regulations, and regrettably, VW violated those regulations. We take full responsibility** – and deeply regret that this happened."[9] (Emphases added). In a September 23, 2015 press release available on VWAG's website, the Executive Committee of VWAG's Supervisory Board ("Board") stated: "[t]he Executive Committee takes this matter extremely seriously. **The Executive Committee recognizes not only the economic damage caused, but also the loss of trust among many customers worldwide.**"[10] (Emphases added). Or, as Berthold Huber ("Huber"), Deputy Chairman of the Board, was quoted as saying in a September 25 press release, **"[t]he test manipulations are a moral and political disaster for Volkswagen. The unlawful behavior of engineers and technicians involved in engine development shocked Volkswagen just as much as it shocked the public."** [11] (Emphases added).

10. In light of the scandal, VWAG's Board forced Winterkorn to resign as CEO of VWAG on September 23.[12] In doing so, he stated that "**I accept responsibility for the irregularities that have been found in diesel engines.**" (Emphases added). [13] He further observed

[8] https://www.vwdieselinfo.com/.

[9] http://www.vwdieselinfo.com/faqs/.

[10] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2015/09/AR_Erklaerung.html.

[11] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2015/09/Erklaerung.html.

[12] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html

[13] http://www.nytimes.com/2015/09/24/business/international/volkswagen-chief-martin-winterkorn-resigns-amid-emissions-scandal.html. Notably, however, Winterkorn plans to stay as the Chairman of the Board of Directors of Porsche Automobil Holding SE, which owns a 52% controlling stake in VWAG; he is also still demanding payment of the ten million Euros owed to him under his employment contract, which does not expire until 2016.

that "**[m]illions of people across the world trust our brands, our cars and our technologies. I am endlessly sorry that we have disappointed this trust. I apologize in every way to our customers, to authorities and the whole public for the wrongdoing.**"[14] (Emphases added). He professed surprise that "**misconduct on such a scale**" (emphases added) occurred within the Volkswagen group, suggesting that he had no knowledge of it.[15] It has been reported that Winterkorn was being investigated for fraud in connection with the conduct at issue here by prosecutors in Lower Saxony; however, more recently, those prosecutors have stated that any prosecution will await further factual information.[16]

11. Volkswagen has ordered its authorized dealers ("Volkswagen Authorized Dealers") to cease selling the vehicles in which the defeat devices are installed. These include at least the VW Jetta TDI (Model Years 2009-15), the VW Jetta SportWagen TDI (Model Years 2009-14), the VW Golf TDI (Model Years 2010-15), the VW Golf SportWagen TDI (Model Year 2015), the VW Beetle TDI and VW Beetle Convertible TDI (Model Years 2012-15), the VW Passat TDI (Model Years 2012-15) and the Audi A3 TDI (Model Years 2010-15).[17] These affected vehicles will be referred to in this Complaint as the "Class Vehicles."

12. Volkswagen's internal investigation has resulted so far in the suspension of three

---

http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

[14] http://www.chicagotribune.com/business/ct-volkswagen-emissions-scandal-20150922-story.html.

[15] http://www.salon.com/2015/09/24/i_am_stunned_that_misconduct_on_such_a_scale_was_possible_what_you_need_to_know_about_the_volkswagen_mega_scandal/.

[16] http://www.autonews.com/article/20151001/COPY01/310019972/german-prosecutors-backtrack-on-winterkorns-role-in-vw-probe.

[17] http://www.thetruthaboutcars.com/2015/09/vw-audi-canada-halting-sales-tdi-cars-following-us-inquiry/; http://www.vwdieselinfo.com/faqs/.

VW FOIA, EPA 06/20/2017 2017-FFP_034206

executives: (a) Heinz-Jakob Neusser ("Neusser"); (b) Ulrich Hackenberg ("Hackenberg"); and (c) Wolfgang Hatz ("Hatz").[18] Spiegel Online described Hackenberg's departure, which was also typical of the others: "[h]e received news of his immediate suspension from the personnel department and was asked to turn in his company phone and leave his office. He has also been told not to set foot on company premises."[19]

13. None of these people are mere obscure midlevel engineers. Hackenberg is a VWAG Board member for Technical Development.[20] The same Spiegel Online article described Hackenberg as "a long-time confidant of Winterkorn and, up until just a few days ago, one of the most powerful men at VW." Hatz is a Porsche AG ("Porsche") Board of Management member in charge of Research and Development and is additionally Head of Engines and Transmissions Development for the Volkswagen Group.[21] Neusser was responsible for engine development at Porsche commencing in 1998 and drivetrain development commencing in 2011; in October of 2012, he succeeded Hatz as Head of Powertrain Development at the Volkswagen Group.[22]

14. The same Spiegel Online article notes that Hans-Dieter Pötsch ("Pötsch"), the VWAG Finance Chief and Board Chairman of VWAG, may also be under investigation by regulatory authorities. As discussed below, Volkswagen told the EPA about the use of a defeat device on September 3, but disclosed it publicly only on September 20. "[T]he finance chief

[18] http://uk.reuters.com/article/2015/09/29/uk-volkswagen-emissions-idUKKCN0RS0U620150929.

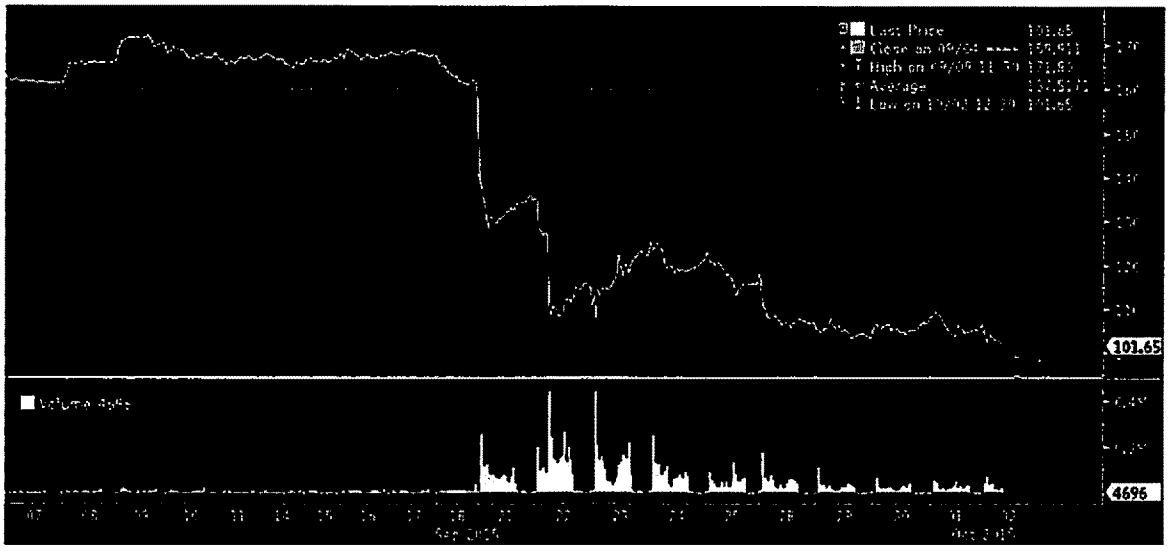
[19] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

[20] http://www.audi.com/corporate/en/company/corporate-management/members-of-the-board/ulrich-hackenberg.html.

[21] http://press.porsche.com/more_about/executives/pag/hatz.php.

[22] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2012/09/Dr_Heinz_Jakob_Neusser.html.

remained silent for 17 days. During these 17 days, hundreds of thousands of investors bought VW stock. When the scandal was finally made public on Sept. 20, the price of VW shares plunged by 40 percent, costing stockholders €35 billion."[23] VWAG's shares have been on a steady decline ever since, as reflected in this graphic from the *Telegraph* in the United Kingdom:



15. According to an October 3 article from Reuters, "[a]t an internal company meeting this week at the VW headquarters in Wolfsburg, Pötsch described the situation as an 'existence-threatening crisis for the company', Germany's Welt am Sonntag reported in a release ahead of Sunday's publication."[24]

[23] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

[24] http://mobile.reuters.com/article/idUSKCN0RX0GQ20151004. Pötsch's accession to the VWAG Board has been criticized. Hans-Christoph Hirt, a director of Hermes Equity Ownership Services, an adviser to pension fund investors in companies including Volkswagen, said the appointment created a "serious conflict of interest": "[Pötsch] was a key VW executive for more than a decade and under German law the management board has a collective responsibility . . . The lawyers will surely demand that he recuse himself from any supervisory board meetings when management's role is discussed."

16. As explained below, and contrary to the suggestions of some of Volkswagen's spokespersons, the unlawful conduct here was not the action of renegade lower-level employees. It was instead the product of a concerted scheme by top executives at Volkswagen to save costs through use of the TDI technology, break into the United States diesel passenger car market by concealing from regulators and the public the inability of cars using that technology to meet federal and state emissions standards, market the TDI cars through an elaborate seven-year long campaign of false advertising and lying to state and federal officials, and thereby obtain a monopoly share of the United States Clean Diesel passenger car market.

17. The German periodical *Bild am Sonntag* revealed that Robert Bosch GmbH ("Bosch"), the supplier of some components of the emissions control system, used by Volkswagen in TDI diesel vehicles, also supplied Volkswagen with diesel software for test purposes. Bosch reportedly told VWAG in 2007 that using that software in vehicles on the road would be illegal.[25] Similarly, *Süddeutsche Zeitung* has reported that Neusser had ignored least one Volkswagen engineer's warnings over "possibly illegal" practices in 2011.[26] Spiegel Online reported that groups within Volkswagen knew of potential issues as far back as 2005 or 2006.[27] Olaf Lies, a VWAG Board member, has stated publicly that **"[t]hose people who allowed this to happen, or who made the decision to install this software--they acted criminally. They must take personal responsibility**."[28] (Emphases added).

---

http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html.

[25] http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says.

[26] http://www.sueddeutsche.de/politik/abgas-affaere-vw-topmanager-schwer-belastet-1.2669920.

[27] http://www.spiegel.de/wirtschaft/unternehmen/volkswagen-aufsichtsrat-lies-macht-managern-vorwuerfe-a-1055381.html.

[28] http://www.bbc.com/news/business-3439.7426.

18. As discussed in further detail below, Volkswagen has set aside the inadequate sum of 6.5 billion Euros (approximately $7.2 billion) to deal with the fallout from this fraud. Numerous countries across the world are investigating the matter and here, in the United States, probes are being conducted by the United States Department of Justice ("DOJ"), a coalition of state attorneys general ("AGs"), and members of the United States House of Representatives. The EPA has ordered a recall.

II. THE PARTIES.

A. Plaintiffs.

19. Plaintiffs Maria Bourn ("Bourn") and David Watson ("Watson") are residents of South San Francisco, California. Bourn is a lawyer in San Francisco. Watson is a teacher. In 2015, Bourn and Watson, who are married, purchased a certified, pre-owned 2010 Model Year Jetta SportsWagen from Stevens Creek Volkswagen in San Jose, California. Stevens Creek Volkswagen is a Volkswagen Authorized Dealer. Plaintiffs purchased the SportsWagen in reliance on Volkswagen's representations that the car was an environmentally-friendly "clean diesel" vehicle that was highly efficient, high-performance, and fun to drive. They would not have purchased the vehicle in the absence of Volkswagen's misrepresentations about the car's environmental impact, its fuel efficiency, and performance.

20. Plaintiff Mark Schumacher ("Schumacher") resides in Gainesville, Virginia. In 2012, he purchased a 2012 Model Year Volkswagen Passat SE TDI. Schumacher purchased the Passat from Lindsay Volkswagen in Sterling, Virginia. That company is a Volkswagen Authorized Dealer.Plaintiff Schumacher purchased the Passat in reliance on Volkswagen's representations that the car was an environmentally-friendly "clean diesel" vehicle that was highly efficient, high-performance, and fun to drive. He would not have purchased the vehicle in the absence of Volkswagen's misrepresentations about the car's environmental impact, its fuel efficiency, and performance.

21. Plaintiff Stephen Verner ("Verner") is an architect and resident of Oakland,

VW FOIA, EPA 06/20/2017 2017-FFP_034210

California. In 2013, he purchased a TDI Golf four door from Royal Motor Sales in San Francisco, California. Royal Motor Sales is an Authorized Volkswagen Dealer. Verner purchased the Golf in reliance on Volkswagen's representations that the car was an environmentally friendly "clean diesel" vehicle that was highly efficient, high-performance, and fun to drive. He would not have purchased the vehicle in the absence of Volkswagen's misrepresentations about the car's environmental impact, its fuel efficiency, and performance.

B. Defendants.

22. Defendant VWAG is a car corporation organized and existing under German law, with its principal place of business in Wolfsburg, Germany. VWAG is the parent company of Defendants VWoA and Audi.

23. Defendant Audi AG is a car corporation organized and existing under German law, with its principal place of business in Ingolstadt, Germany. Audi was created when VWAG merged two of its companies, Auto Union and NSU Motorenwerke AG. Audi is a 99.55%-owned subsidiary of the Volkswagen Group. Audi is now Volkswagen's luxury vehicle brand, and uses the slogan "Truth in Engineering".

24. Defendant the Volkswagen Group of America, Inc. is a corporation organized and existing under New Jersey law. Its headquarters are in Herndon, Virginia. The Volkswagen Group of America, Inc. is a wholly-owned subsidiary of VWAG. It is one of the world's largest producers of passenger cars. It sells the Beetle, Beetle Convertible, CC, Eos, e-Golf, Golf, Golf GTI, Golf SportWagen, Jetta, Passat, Tiguan, and Touareg vehicles through Volkswagen Authorized Dealers located in the United States. Volkswagen Group of America, Inc.'s operations in the United States include research and development; parts and vehicle processing; parts distribution; sales, marketing and service offices; financial service centers; and manufacturing.

25. Defendant Volkswagen of America, Inc. is owned and operated by the Volkswagen Group of America, Inc. and sells Volkswagen vehicles in the United States. Its United States headquarters are at the same address as Volkswagen Group of America, Inc. in Herndon, Virginia.

VW FOIA, EPA 06/20/2017 2017-FFP_034211

26. Defendant Audi of America, LLC is a subsidiary of Audi AG that sells Audi vehicles in the United States. Its United States headquarters are at the same address as Volkswagen Group of America, Inc. in Herndon, Virginia.

III. JURISDICTION AND VENUE.

27. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1332(d), 1337(a) and 1367. This court also has supplemental jurisdiction pursuant to 28 U.S.C. §1367(a).

28. Venue is proper in this judicial district and in the Alexandria Division thereof pursuant to 15 U.S.C. §§ 15 and 22, and 28 U.S.C. § 1391(b) and (c), in that at least one of the Defendants resides in this judicial district, is licensed to do business or is doing business in this judicial district.

IV. TRADE AND COMMERCE.

29. Approximately 482,000 Class Vehicles have been sold or leased in the United States in a continuous and uninterrupted flow of interstate commerce and foreign commerce during the last seven years, including through and into this judicial district. The business activities of the Defendants substantially affected interstate trade and commerce in the United States and caused antitrust injury in the United States.

V. FACTUAL ALLEGATIONS.

A. Automobile Emissions Regulations in the United States.

30. Congress enacted the first major Clean Air Act ("CAA") and established the EPA in 1970. The CAA, amended in 1975 and 1990, requires vehicle manufacturers to certify to the EPA that their cars and trucks will meet applicable federal emission standards.[29] The EPA administers a certification program to ensure that every vehicle complies with its emission standards. EPA-issued certificates of conformity are required for every vehicle sold in the United States, and the EPA must approve every vehicle entering United States commerce. In these

[29] http://www2.epa.gov/laws-regulations/summary-clean-air-act.

VW FOIA, EPA 06/20/2017 2017-FFP_034212

certification efforts, the EPA relies on test data submitted by automobile manufacturers, which submit the vehicles to the agency's testing procedures in their own laboratories. The EPA audits a small fraction of the new vehicles each year to ensure compliance.[30]

31. The Class Vehicles, like any other car sold in the United States, were required to satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. §86.1811-4; Clean Air Act §101(b)(1) – (2), 42 U.S.C. §7401(b)(1)(2).

32. Section 203(a)(3)(b) of the CAA prohibits the manufacture, selling, or installation of any device that bypasses, defeats or renders inoperative a required element of a vehicle's emissions control system. 42 U.S.C. §7522(a)(3)(b). Section 203(a)(10 of the same statute also prohibits the sale of motor vehicles or engines that are not covered by valid certificates of conformity with applicable emissions standards. 42 U.S.C. §7522(a)(1). The regulatory requirements for defeat devices are set forth in 40 C.F.R. Part 86.

33. The EPA has been rigorous in punishing automobile manufacturers or engine makers that utilize defeat devices. For example, in late 1995, it entered into a $45 million dollar settlement with General Motors Corporation regarding the use of defeat devices on 470,000 Cadillac cars.[31] Likewise, in August of 1998, it fined Honda $267 million and Ford $7.8 million for selling vehicles equipped with defeat devices that prevented emission control systems from working properly.[32] Similarly, in October of that year, it and the DOJ fined seven truck and heavy duty equipment manufacturers $83.4 million for engaging in similar conduct.[33]

---

[30] http://www.autonews.com/article/20151004/OEM11/310059955/vw-emissions-violations-put-self-certification-under-new-scrutiny.

[31] http://www.autosafety.org/sites/default/files/imce_staff_uploads/Cadillac%20%2445%20Million%20Defeat%20Device%20Penalty%2011-31-95.pdf.

[32] http://www.autosafety.org/sites/default/files/imce_staff_uploads/defeat.pdf

[33] http://www2.epa.gov/enforcement/cummins-engine-company-diesel-engine-clean-air-act-settlement.

VW FOIA, EPA 06/20/2017 2017-FFP_034213

34. Volkswagen was or should have been aware of these precedents. Indeed, the company itself is a recidivist violator of the CAA. In July of 1973, the EPA referred to DOJ for legal action a claim that defeat devices were installed on 1973 Volkswagens. A copy of that referral is attached as Exhibit 3 to this complaint. The matter was settled for $120,000 in March of 1974.[34] Similarly, in June of 2005, Volkswagen entered into a consent decree with DOJ whereby it paid a $1.1 million penalty concerning its failure to notify the EPA of emissions defects in certain vehicles manufactured at its facility in Mexico.[35] A copy of that decree is attached as Exhibit 4 to this Complaint.

35. CARB is a department of the California Environmental Protection Agency. It was created in 1967. California is the only state permitted to have such a regulatory agency, because it was created prior to the enactment of the CAA. CARB's mission is to "[t]o promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state."[36]

36. The EPA introduced phased in Tier 2 emissions standards from 2004 to 2009. California has similar standards in its CA LEV II standard. The Tier 2 Bin rating system applied to all passenger vehicles regardless of fuel type. Tier 2 Bin 5 standards--the ones applicable to the Class Vehicles--imposed an emission rate for NOx of 0.07 grams per mile.[37]

37. New cars that are sold bear stickers indicating that they are EPA-and/or CARB compliant. Here is a photograph of such a sticker on the inside of the hood of a TDI Audi A3, one of the Class Vehicles.

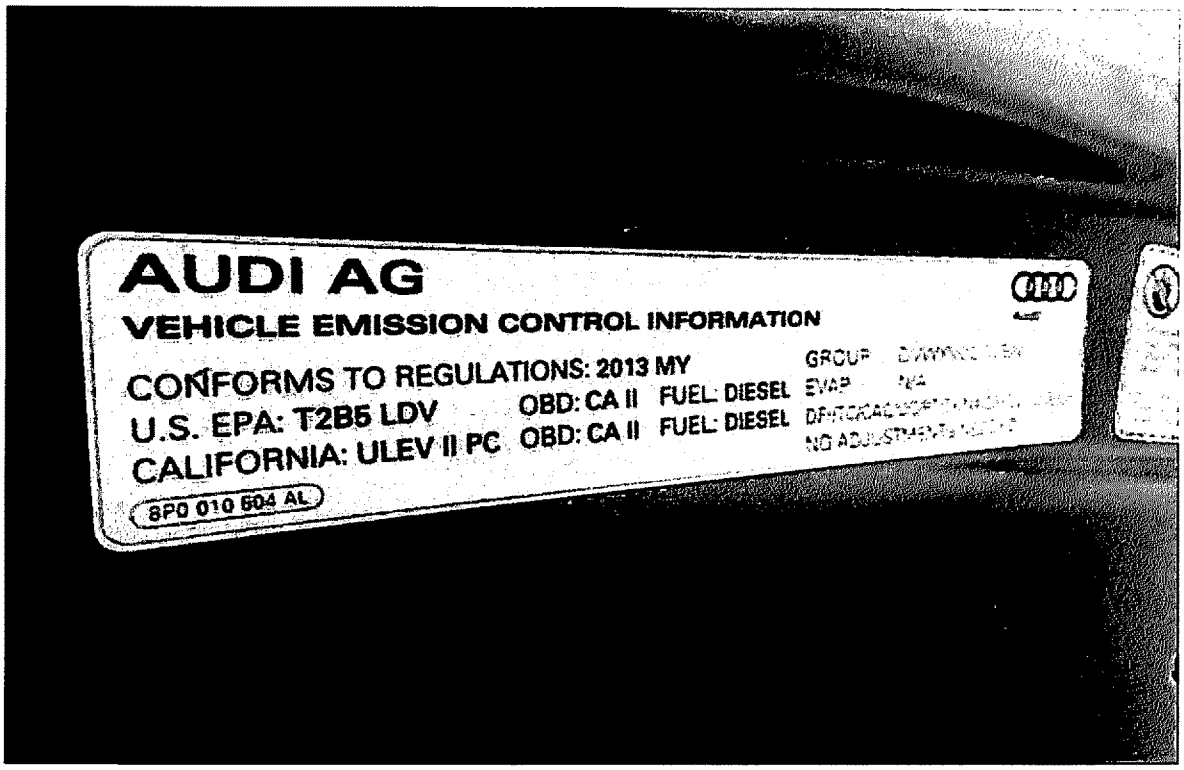
---

[34] http://www.autosafety.org/sites/default/files/imce_staff_uploads/VW%20Defeat%20Device%20%24120%2C00%20fine%203-12-74%20Pr.pdf.

[35] http://www.autosafety.org/sites/default/files/imce_staff_uploads/volkswagen-cd.pdf.

[36] http://www.arb.ca.gov/html/mission.htm.

[37] http://www.nctcog.org/TRANS/air/vehicles/tech/compliance/index.asp.

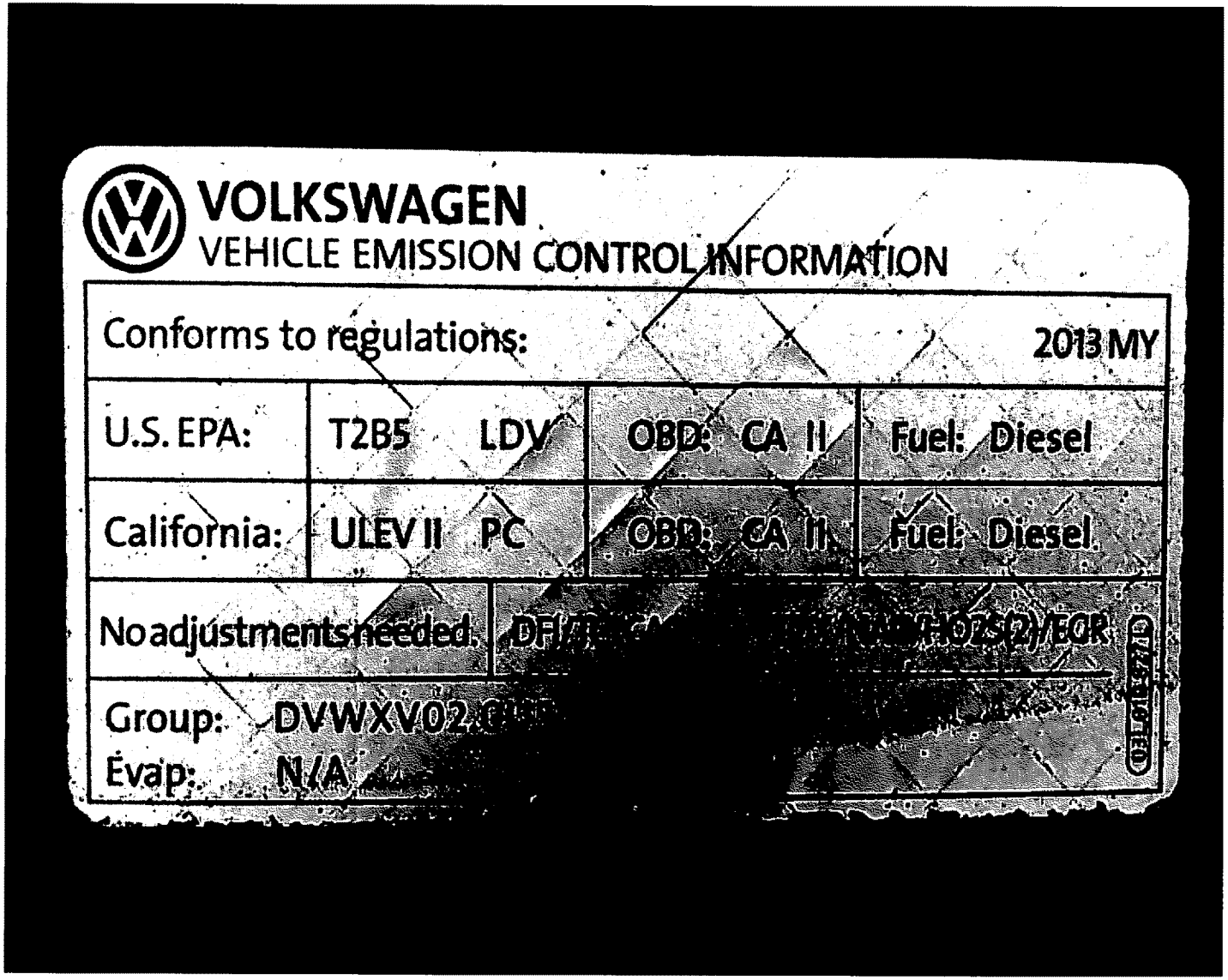


And here is a similar sticker for a 2013 TDI Volkswagen Golf:

//

//

//



VOLKSWAGEN
VEHICLE EMISSION CONTROL INFORMATION

Conforms to regulations:			2013 MY
U.S. EPA:	T2B5 LDV	OBD: CA II	Fuel: Diesel
California:	ULEV II PC	OBD: CA II	Fuel: Diesel
No adjustments needed.	DPF/	HO2S(2)/EGR	
Group: DVWXV02			
Evap: N/A			

Through these types of notice, Volkswagen was representing to customers that the Class Vehicles complied with federal and state emissions laws. This was an outright lie.

B. Diesel Cars And Control of NOx Emissions.

38. Diesel-powered cars, like gasoline-powered cars, must also meet the emissions standards established by the EPA and CARB. With diesel-powered engines, car manufacturers must use different--and more expensive--emission control systems than are used in gasoline-powered cars.

39. Diesel fuel has a greater energy density than gasoline. It converts heat into energy more efficiently than gasoline, sending less heat out of the tailpipe than gas-powered vehicles. Because it has greater energy density, diesel also is more efficient: diesel vehicles can get up to 30% more miles per gallon than similar gasoline-powered cars. In addition, because of their higher compression, diesel engines can generate a lot of torque, providing strong acceleration and additional power needed for towing.

40. While diesel vehicles have certain advantages over gasoline, they also have some disadvantages. Because diesel fuel is heavier and oilier than gasoline, it can generate more pollution. While diesel engines emit lower amounts of carbon monoxide than gasoline-powered engines, they emit more NOx.

41. Diesel fuel exhaust has been recognized by the World Health Organization to be a carcinogen for humans.[38]

42. Automakers have faced significant challenges in controlling NOx emissions sufficiently to meet environmental standards, particularly with smaller vehicles, and particularly in the United States, which has some of the strictest emission controls in the world. The website of greencongress.com explains the two types of approaches diesel automobile manufacturers have used to deal with NOx emissions:

[38] http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034217

> Broadly, there have been two catalytic approaches used to reduce exhaust NO_x: urea-based selective catalytic reduction (SCR) and lean NO_x trap (LNT) catalysts.
>
> --The urea-SCR (urea=AdBlue) approach requires on-board storage of the reductant fluid which is introduced into the exhaust upstream of the SCR catalyst. It is then converted to ammonia which interacts with NO_x on the SCR catalyst to form water and nitrogen.
>
> --LNT technology utilizes fuel from the vehicle and advanced engine controls to enable periodic operation of the engine at rich air-to-fuel ratios to produce oxygen-depleted exhaust suitable for reducing NO_x stored on the LNT catalyst surface.[39]

43. The article indicates that Volkswagen had planned to use both technologies as of 2007, but elected to go with the LNT approach (which it referred to as TDI). As explained below, the deciding factor was apparently cost. Because of the extra equipment (including a urea tank) and technology required to clean the NOx emissions from the diesel exhaust, SCRs can add significantly to the cost of producing the engine. They also make diesel cars heavier than they otherwise would be, thus potentially decreasing fuel efficiency, torque and power.

44. Honda, which sells diesel cars in markets other than the United States, never tried to sell them here. That is because, according to Honda's research, "[t]he market would not bear the costs of doing diesel correctly." In order to meet the stringent United States emissions standards, Honda would have had to add costly emissions controls to every diesel model, which would make them more expensive than gasoline-powered competitors. "At such a high premium, customers simply wouldn't buy them."[40]

C. Volkswagen's Decision To Use TDI Technology.

45. Volkswagen has been selling cars in the United States since 1949, when it introduced the iconic Volkswagen Beetle. Although it was for many years the top-selling imported car in the United States, Japanese imports overtook Volkswagen and other European imports in

---

[39] http://www.greencarcongress.com/2015/09/20150921-vw2l.html.

[40] http://mashable.com/2015/09/27/vw-dieselgate/#2VosDbcL7iqT.

the 1990s.

46. The decisive factor in the decision to use TDI technology in 2007-08 was the appointment of Winterkorn as CEO of VWAG in January of 2007. Winterkorn was involved in overseeing research and development and had that responsibility at the time he resigned as CEO. In 1995, he took over as the head of Volkswagen Group Product management and a year later, he assumed the role of Member of the Board of Management for "Technical Development" at the Volkswagen brand. He assumed a similar role when he became Chairman of the Board of Management at Audi.[41]

47. Before Winterkorn took over as VWAG's CEO on January in 2007, Volkswagen had partnered with Bosch and Daimler to explore the use of a diesel emissions control system called BlueTec.[42] BlueTec was a technology developed by the latter two companies and championed by Wolfgang Bernhard ("Bernhard"), former head of the Volkswagen brand and a former Daimler executive. BlueTec was an SCR technology; it required the use of a liquid urea tank, so that urea could be sprayed onto the emissions in order to neutralize the NOx. The urea tank not only takes up space and adds weight (disadvantages that are especially acute in the market for small, fuel-efficient cars), but also requires the owner to refill the tank, making the diesel engine more inconvenient than a traditional gasoline-powered car. When Bernhard left the company after Winterkorn took control, the BlueTec technology was scrapped for smaller vehicles. Volkswagen only began using a form of SCR technology on a few of its smaller vehicles in 2012.

48. *Automotive News* describes the sequence of events:

> *Bild am Sonntag* said the roots of the crisis were planted in 2005 when then-VW brand Chief Wolfgang Bernhard wanted VW to

---

[41] *See* http://www.volkswagenag.com/content/vwcorp/content/en/the_group/senior_management/winterkorn.html.

[42] For the source of this information, *see* http://www.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?_r=0.

VW FOIA, EPA 06/20/2017 2017-FFP_034219

> develop a new diesel engine for the U.S. market. Bernhard recruited Audi engineer Rudolf Krebs who developed a prototype that performed well in tests in South Africa in 2006, the paper said.
>
> Bernhard and Krebs argued that the only way to make the engine meet U.S. emission standards was to employ in the engine system an AdBlue urea solution used on larger diesel models such as the Passat and Touareg, according to the report.
>
> This would have added a cost of 300 euros ($335 in today's U.S. dollars) per vehicle -- a sum that VW finance officials said was too much at a time when a companywide cost-cutting exercise was under way.
>
> Bernhard left VW in January 2007 before the diesel engine went into production. Krebs was moved to another role when Martin Winterkorn became VW Group and brand CEO in 2007.
>
> Winterkorn, Audi's former CEO, asked Audi development boss Ulrich Hackenberg and Audi engine boss Wolfgang Hatz to move to VW's Wolfsburg headquarters and continue development work on the engine, *Bild am Sonntag* said.
>
> The engine then ended up in VW Group diesels with its engine software manipulated to fool diesel emissions tests in the U.S.[43]

Hatz and Hackenberg, as noted above, were two of the executives whom VWAG recently suspended.

49. Engineers at Volkswagen had been looking at an alternative to BlueTec technology, an alternative that ultimately evolved into the TDI "Common Rail" system. In 2006, Richard Dorenkamp, head of Volkswagen's diesel engine development, gave a presentation in Detroit. He described the TDI system Volkswagen engineers developed and how it could be used in small cars and meet increasing US demands for fewer emissions.[44] Volkswagen's TDI Clean Diesel pollution

---

[43] http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says. Winterkorn was generally very concerned about the costs associated with developing eco-friendly automotive engines. As he said at the 2014 Paris auto show, "[c]limate protection is not available free of charge. Every gram of reduction in [tailpipe] C02 costs us 100 million euros. Every gram!" http://blog.caranddriver.com/vws-winterkorn-to-greens-so-get-off-our-backs-already/.

[44] http://www1.eere.energy.gov/vehiclesandfuels/pdfs/deer_2006/session7/2006_deer_dorenkamp.pdf.

control technology differed from the SCR technology used by other manufacturers to control NOx emissions. The greencarcongress.com article cited earlier describes it in detail. Instead of having a urea tank, the TDI Clean Diesel cars technology used a trap to collect NOx. While saving the space, weight and cost required by the urea tank in the SCRs, Volkswagen's TDI Clean Diesel technology--when it was operational--required additional use of fuel, thus degrading both gas mileage and performance. The trap was controlled by a computer module that could save fuel by allowing more pollutants to pass through the exhaust system.

50. In June of 2007, six months after Winterkorn took over as CEO of VWAG, Volkswagen issued a report entitled "Power Train and Fuel Strategy--The Path To The Future."[45] It stated:

> In the first stage on the path to this independence, it will be important to utilize existing fossil fuels as efficiently as technically possible. Volkswagen is putting its stamp on this phase with vehicles such as the BlueMotion models, a universally fuel-efficient fleet of TDI engines, highly efficient and unique TSI engines, successful natural gas vehicles (EcoFuel) and a lineup of models that still leaves room for automotive dreams. Very soon these fundamental technologies will be further refined. **New powertrains, including an engine concept developed for use in the USA, under the working title "BlueTDI", are already in the prototype stage. These engines will fulfill the toughest emissions laws in the world – even the so-called "Tier2 Bin5" in California, one of the most stringent emissions standards in the world.** (Emphases added).[46]

51. Volkswagen had planned to introduce the Jetta TDI Clean Diesel in the United States earlier than it eventually did. In November of 2007, it was reported as follows:

---

[45] It can be found at http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2007/06/powertrain_and_fuel_strategy.html.

[46] In 2008, five VWAG engineers published a two-part article in the May and June issues of *MTZ* magazine saying they had resolved the issue of how to best control emissions and could now meet California standards through the use in part of a new on-board diagnostics system. Similarly, Achim Freitag, a testing engineer in Volkswagen's diesel development department, touted the new engine in a speech given later that year. *See* http://www.pbs.org/wgbh/nova/next/tech/volkswagen-diesel-emissions/.

VW FOIA, EPA 06/20/2017 2017-FFP_034221

> A problem with the emissions system in Volkswagen's new Jetta TDI will delay the launch of the diesel sedan for about six months. The car is critical to VW's plans to get back on track in the United States.
>
> VW spokesman Keith Price confirmed that the delay will be announced this week at the Los Angeles auto show. Price would not give specifics about the technical problem, but he said it has been fixed.
>
> The technical changes engineers made to solve the problem mean the car must go through emissions testing and validation again, Price said.
>
> VW dealers have been without a new diesel car to sell since last spring. Production of the new model, which will be sold in all 50 states, was scheduled to start in January. The car will be built in Puebla, Mexico.
>
> U.S. sales originally were expected to begin in early spring, Price said. Now sales won't start until later in the summer."
>
> "Sure, they're disappointed," Price said of dealers who have learned of the delay.
>
> Price said there is a lot of pent-up demand from loyal VW diesel buyers for the next- generation Jetta, which has a new engine built in Germany and a new diesel fuel injection system.
>
> "They're disappointed, but they see the point that this car has to be perfect," Price said of the dealers, adding, "They recognize the importance of this not only for their stores, but for the VW brand."
>
> A fleet of about 40 Jetta TDIs is undergoing testing as part of the validation procedure.[47]

52. What apparently happened is that the TDI technology failed initially to withstand United States emissions testing. The decision was made to delay the launch of the vehicle and activate the algorithm that functioned as a defeat device in the software management system. This is consistent with the timing of the letter from Bosch described above that raised the illegality of such a tactic. It is also consistent with recent revelations that appeared in the October 4 issue of *Bild am Sonntag*:

---

[47] http://www.cleanmpg.com/forums/showthread.php?t=7254.

> An internal review at Volkswagen AG shows the decision to install software that reduces diesel emissions in testing was made just before serial production of the company's EA 189 engine [used in many of the Class Vehicles], German tabloid Bild am Sonntag said.
>
> Bild said the software was first installed in its diesel engines in 2008, shortly before the EA 189 was mass produced. The move was taken because there was no way at the time to reconcile meeting emission standards within the targeted cost of the engine, the tabloid said in an advance release of the article to be published Sunday. Otherwise the company would have had to abandon the introduction of the engine, development of which was begun in 2005, the newspaper said.[48]

53. The 2009 Model Year TDI Jetta was introduced and passed the Tier 2 Bin 5 emissions test with flying colors. A Reuters article describes its successful launch:

> Volkswagen had heavily marketed what it called "clean diesel" engines starting in 2008 with the 2009-model Jetta TDI. It appeared to have found a sweet spot between high-performance and fuel-efficiency with a zippy, fun-to-drive car that topped 40 miles per gallon in highway driving. Named "Green Car of the Year" at the Los Angeles auto show in 2008, the Jetta TDI was seen as a breakthrough in a country where diesel passenger cars occupy a tiny niche compared with Europe, where they are about half of the market.
>
> "It's not your grandfather's diesel," Krause said in a September 2008 presentation to U.S. regulators, according to a video of the remarks.
>
> [Norbert] Krause [head of VWoA's environmental office until 2009] and other VW officials promised a diesel that would meet pollution laws in all states, including California where diesel engines had long been associated with smog and cancer-causing soot.
>
> By that point, VW and other automakers had lobbied for almost a decade for regulators to give diesel another chance. In 2000, VW and other companies with an interest in promoting diesel, including Mazda, formed the Diesel Technology Forum to lobby for increased use in the United States as a way to reduce reliance on imported oil. In 2005, an energy bill signed by President George W. Bush offered tax credits for diesel buyers. That gave the first wave of diesel Jetta buyers an income tax credit of $1,300 each.

[48] http://www.marketwatch.com/story/vw-began-using-emissions-software-in-2008-report-2015-10-04.

> In 2009, after the new Jetta went on sale, VW dealers initially sold out, including in California where regulations had effectively shut the market to diesels earlier in the decade.[49]

54. As noted in the article, *Green Car Journal* gave it the 2009 Green Car of the Year award and gave the TDI Audi A3 the 2010 Green Car of the Year Award.[50] Those awards have been rescinded in light of the present scandal.[51] The TDI Clean Diesels were a resounding success and VWoA sold many units.[52] As recently as its 2014 sustainability report, VWAG crowed about how "[t]he Volkswagen Group has a long tradition of resolute commitment to environmental protection" and how it intended to "put our creative powers to good use for the benefit of the people and the environment."[53]

55. At conferences and in published papers, Volkswagen extolled the efficiency and low emissions of its Clean Diesel technology.[54] And commentators agreed. One stated that Volkswagen was "the only company to have mastered the new emissions regulations using a compact, inexpensive treatment system. It allowed them to roll out diesel engines in one small car after another at relatively low prices."[55] Volkswagen's competitors had long wondered how Volkswagen could produce a clean diesel engine at such an affordable price. As Robert Lutz,

---

[49] http://uk.reuters.com/article/2015/09/24/uk-usa-volkswagen-deception-insight-idUKKCN0RO2J720150924.

[50] https://en.m.wikipedia.org/wiki/Green_Car_of_the_Year.

[51] http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/.

[52] The chronicle of its United States sales is found here: http://www.ibtimes.com/volkswagen-diesel-scandal-heres-how-bad-volkswagen-sales-were-company-was-caught-2114603.

[53] http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/.

[54] *See, e.g.*, http://www.sae.org/events/gim/presentations/2009/norbertkrause.pdf; http://cleandieseldelivers.com/media/Douglas-Skorupski-VWoA_DTF_March2015.pdf.

[55] http://www.pbs.org/wgbh/nova/next/tech/volkswagen-diesel-emissions.

former vice chairman of General Motors Corporation, recounted: "I kept asking our engineers: 'What's wrong with you guys? VW seems able to do it.' I said, 'Are they magicians or something?' The engineers said they couldn't answer that question."[56] Now, they have their answer. Volkswagen cheated.

56. The competitive advantages of cheating on emissions have now become clear. "Manipulating emissions results allowed Volkswagen to keep down engine costs in a 'clean diesel' strategy that was popular in Europe and at the heart of a drive to improve U.S. results."[57] As an article in the *New York Times* put it, "[d]isabling the emissions controls brought major advantages, including much better mileage--a big selling point in Volkswagen's push to dominate in America."[58] These sales were part of the reason VWAG was able to surpass Toyota as the world's biggest automaker in 2015, as noted above. And they were sales built upon lies.

57. This systemic attitude of winning at all costs in spite of noncompliance with national environmental regulations is part of the corporate culture of Volkswagen, as explained at length in a September 24, 2015 *New York Times* article:[59]

> There is a long tradition of scandal and skulduggery in the auto industry, but few schemes appear as premeditated as Volkswagen's brazen move to use sophisticated software to circumvent United States emissions standards.
>
> That such a thing could happen at Volkswagen, Germany's largest company and the world's largest automaker by sales — 202.5 billion euros last year — has mystified consumers and regulators around the world. But given Volkswagen's history, culture and

[56] http://www.freep.com/story/money/cars/2015/09/26/vw-cheat-emissions-diesel- engine-fallout/72612616/.

[57] http://www.reuters.com/article/2015/09/30/us-volkswagen-emissions-plan-idUSKCN0RT0OL20150930.

[58] http://mobile.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?referer.

[59] http://www.nytimes.com/2015/09/25/business/international/problems-at-volkswagen-start-in-the-boardroom.html?_r=1.

corporate structure, the real mystery may be why something like this didn't happen sooner.

"The governance of Volkswagen was a breeding ground for scandal," said Charles M. Elson, professor of finance and director of the John L. Weinberg Center for Corporate Governance at the University of Delaware. "It was an accident waiting to happen." The company, founded by the Nazis before World War II, is governed through an unusual hybrid of family control, government ownership and labor influence. Even by German standards, "Volkswagen stands apart," said Markus Roth, a professor at Philipps-University Marburg and an expert in European corporate governance. "It's been a soap opera ever since it started."

****

I spoke this week to a longtime former senior Volkswagen executive, who agreed that a scandal, especially one involving emissions, was all but inevitable at Volkswagen. He cited the company's isolation, its clannish board and a deep-rooted hostility to environmental regulations among its engineers.

The former executive, who spoke on the condition of anonymity because he now works at a competing global automaker, said that Wolfsburg, where Volkswagen is based in Lower Saxony and the city with the highest per capita income in Germany, is even more remote and isolated than Detroit was in its heyday. "The entire economy is automotive," he said. "People have a completely uncritical view of cars and their impact on the environment because they all make a living from the industry."

****

The Volkswagen board has been especially slow to move on environmental issues, investing less in electric and hybrid engine technology than industry leaders.

"There's an attitude among the German public that it's very unfair for the U.S. to target the auto industry over emissions," Professor Roth said. "If you have electric cars and a coal-fired plant producing the electricity, you gain nothing."

The former Volkswagen executive said Volkswagen's engineer-driven culture takes the notion even further. He said the engineers felt that the politicians were guilty of rank hypocrisy, especially in the United States, also grumbling that electric cars make no sense as long as power plants are burning fossil fuels.

"There's an attitude of moral superiority there," he said. "The engineers think they know best."

That Volkswagen is nonetheless obliged to obey applicable

> environmental laws, he said, is a notion likely to fall on deaf ears in Wolfsburg, especially compared to demands to be No. 1 in sales. (The motive for the software evasion is widely believed to have been to increase sales of diesel-powered cars in the United States.)

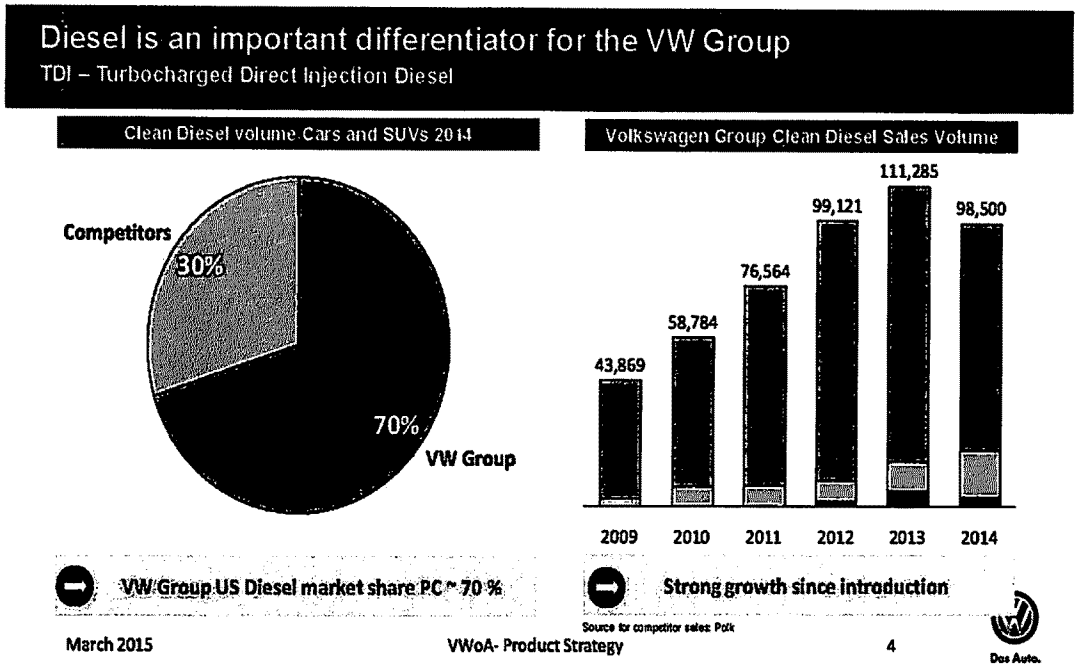
Thus, executives and engineers at Volkswagen were clearly unhappy with United States automotive emissions standards and were all too willing to sacrifice those standards (and their obligations under United States antitrust laws) in order to ensure that their company became the number one automaker in the world. The current scandal involving Volkswagen Clean Diesel TDI vehicles is a direct result of that arrogant intention to flout United States environmental laws. It is also a direct result of what has been described by one German executive as Volkswagen's "uniquely awful" corporate governance.[60]

D. The Clean Diesel Car Market.

58. Volkswagen's illegal conduct in this country occurred in the Clean Diesel passenger car market in the United States (the "Clean Diesel Car Market"), which can be viewed as a market of its own or as a submarket of passenger cars sold in this country. This fact was confirmed in a presentation by Douglas Skorupski ("Skorupski"), Manager of Power Train Strategy for VWoA, given to the Diesel Technology Forum ("DTF") in March of 2015:

[60] http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034227



59. Thus, VWoA clearly views clean diesel cars as a distinct market and Volkswagen's TDI technology as a factor that allowed it to obtain a monopoly share of that market.[61] It distinguished Clean Diesel cars from gasoline/electric hybrid cars based on superior performance:

[61] The presentation can be found at http://cleandieseldelivers.com/media/Douglas-Skorupski-VWoA_DTF_March2015.pdf. Bosch has similarly identified a distinct Clean Diesel car category: http://www.low-carbonfuels.com/pdfs/acte2011presentations/Day1/Breakout1/LightDuty/ACT2011-Breakout1-FreitagAlexPresentation150.pdf. And the EPA has noted that "Clean diesel" refers to a three-part emissions control system that combines cleaner diesel fuel, advanced engines and effective emissions control technology.

"[o]ne way Volkswagen aimed to achieve its lofty goal was by betting on diesel-powered cars — instead of hybrid-electric vehicles like the Toyota Prius--promising high mileage and low emissions without sacrificing performance."[62] Similarly, a survey conducted by Strategic Vision for Volkswagen found that customers of diesel and hybrid vehicles are very different and there is "very little crossover from one to the other." [63] The same article noted that Clean Diesel TDI and hybrid buyers differed demographically; the latter were "were just 51 percent male, 78 percent of them were married, 89 percent had no kids in the household, and their average age was 61", while the former "included far more men than women[,] [f]ewer of them were married, but more of them had children in the house, and they were fully 17 years younger, with an average age of 44." Likewise, a Volkswagen Clean Diesel IQ survey found that diesel car customers are highly aware of the benefits of clean diesel technology in contrast to hybrid and gasoline car customers. Furthermore, 94% of diesel customers will purchase clean diesel cars again while only 26% of hybrid and gasoline car customers will consider clean diesel cars for their next purchase.[64] All of this indicates little cross-elasticity of demand between hybrid vehicles and Clean Diesel vehicles.

60. Indeed, the major European competitors of Volkswagen in the Clean Diesel Car Market belong, along with Volkswagen, to an organization that is devoted to extolling the benefits of Clean Diesel cars.[65]

61. BloombergBusiness noted that consumers are willing to pay a substantial premium

---

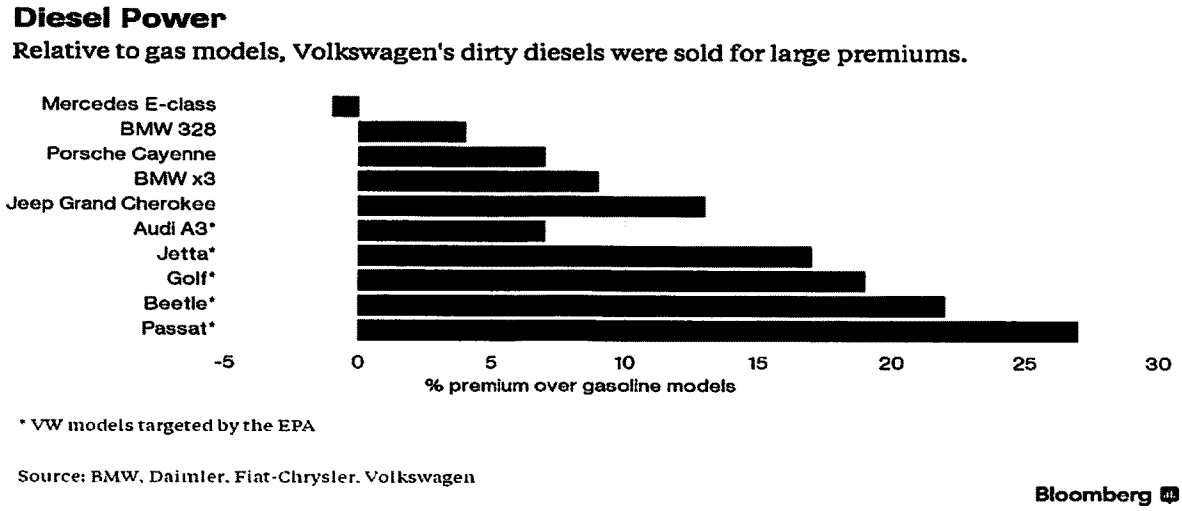
[62] http://mobile.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?referer.

[63] http://www.greencarreports.com/news/1080201_vw-diesel-buyers-hybrid-buyers-both-want-fuel-economy-but-beyond-that.

[64] http://www.autosphere.ca/fleetdigest/2013/04/01/volkswagen-surveys-diesel-drivers/. *See also* http://www.cmu.edu/gdi/docs/diesel-and.pdf (noting many key differences between diesel and hybrid car customers).

[65] http://www.clearlybetterdiesel.org/index.html#cleanDiesel.

for Clean Diesel vehicles over those of its competitors.[66]



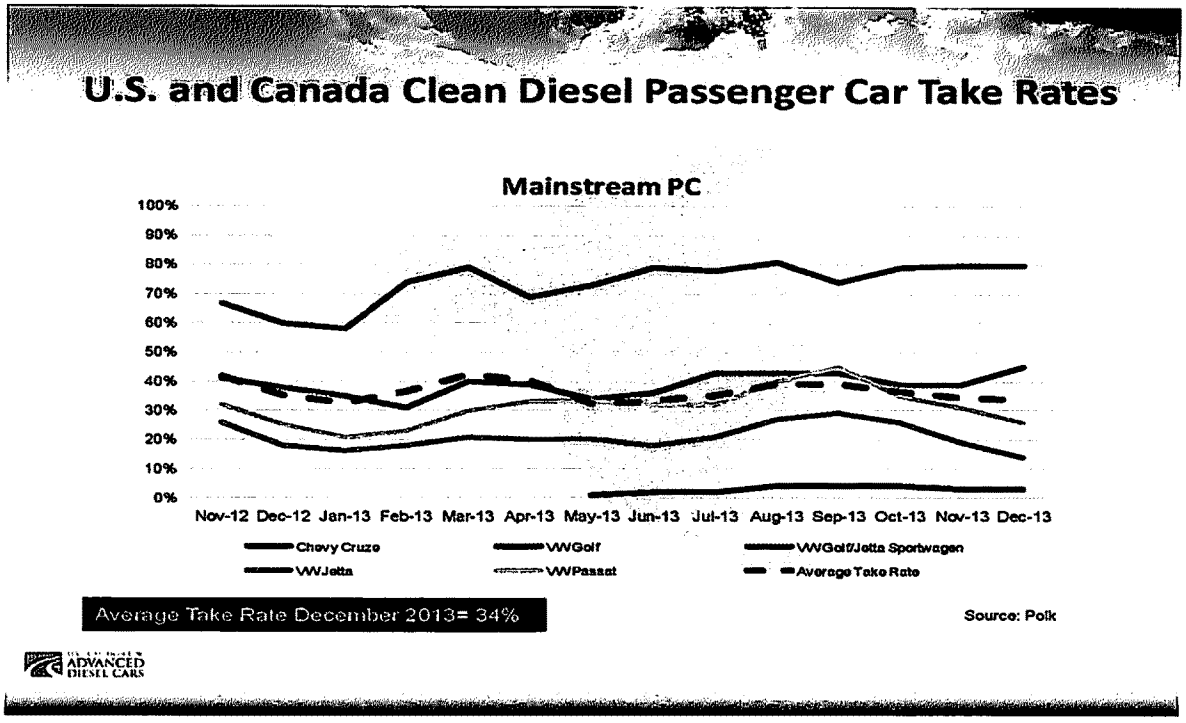
62. As the BloombergBusiness article goes on to explain:

> The math on diesel has never been tidy. The additional mileage is great, but unless one drives a lot, it doesn't really cover the added expense for the engine and for the fuel itself. At current gas prices, the diesel premium on the Passat—some $5,755—would buy enough gas to drive the gas-burning model for about 88,000 miles. **For the majority of diesel drivers, the factor that probably swung the decision was the apparent environmental benefit. The green aspect was the fulcrum.** (Emphases added).

Thus, Volkswagen's false claims about its TDI technology were a driving factor in the premium prices it charged consumers for such technology. As noted above, VWAG has taken full responsibility for the "economic damage" caused by its illegal conduct.

[66] http://www.bloomberg.com/news/articles/2015-09-23/volkswagen-s-other-diesel-ruse-premium-pricing.

63. A chart contained in a presentation made by CMW Research at the March 2015 DTF conference[67] underscores the differences in take rates between Volkswagen Clean Diesel cars and those made by its competitors:



64. The price premium for Clean Diesel vehicles is also reflected in this chart showing the price differentials between gasoline-powered models and Clean Diesel models of Volkswagen's own cars:

Clean Diesel Price Premium				
Mode	**Base**	**Mid-Level**	**Top-Level**	**Average**
VW Jetta	$2,860.00	$1,570.00	$1,030.00	$1,820.00
VW SportWagen	$5,570.00	$1,680.00	$0.00	$2,416.67
VW Golf	$2,400.00	$1,000.00	$1,000.00	$1,466.67
VW Golf	$2,950.00	$1,000.00	$1,000.00	$1,650.00
VW Beetle	$4,635.00	$4,920.00	$0.00	$3,185.00
VW Beetle	$4,080.00	$530.00	$700.00	$1,770.00
VW Passat	$5,755.00	$2,845.00	$2,135.00	$3,578.33

[67] http://cleandieseldelivers.com/media/Take-Rate-Slides-March-2014.pdf.

Audi A3	$2,300.00	$2,300.00	$2,300.00	$2,300.00
Average	$3,818.75	$1,980.63	$1,020.63	$2,273.33

E. Volkswagen's False Advertising.

65. Volkswagen, as part of its plan to increases sales and market share in the United States, increased its emphasis on diesel-powered cars and began marketing these cars heavily to the United States public beginning in 2008. It emphasized the TDI Clean Diesel cars' environment-friendly engine, excellent gas mileage, and high-quality performance. In one advertisement (which, as of this writing, was available on Audi's website after the scandal surfaced and is attached as Exhibit 5 to the Complaint),[68] for example, Volkswagen claimed:

> Getting more from less. Audi pioneered TDI® clean diesel engines to deliver more torque, lower fuel consumption and reduce CO2 emissions, compared to equivalent gasoline engines. The result of this revolutionary engineering delivers remarkable performance, while achieving increased fuel economy.

66. Another advertisement by VWAG for Clean Diesel cars asserts that

> This ain't your daddy's diesel. Stinky, smoky, and sluggish. These old diesel realities no longer apply. Enter TDI Clean diesel. Ultra-low-sulfur fuel, direct injection technology, and extreme efficiency. We've ushered in a new era of diesel.[69]

This internet advertisement is attached as Exhibit 6 to the Complaint.

67. Volkswagen's advertising relentlessly touted the supposed fuel efficiency and environmental features of its Clean Diesel TDI vehicles. In 2009, Volkswagen introduced its "Meet the Volkswagens" campaign, which promoted "fuel efficiency, green credentials, cost of ownership and safety," and compared Volkswagen's diesel passenger cars to its competitors. According to Tim Ellis, Volkswagen's marketing chief, the goal of this advertising campaign was to "grow the brand in the U.S."[70] This campaign, among other things, included social media links

---

68 https://web.archive.org/web/20150928180733/http://www.audiusa.com/technology/efficiency/tdi

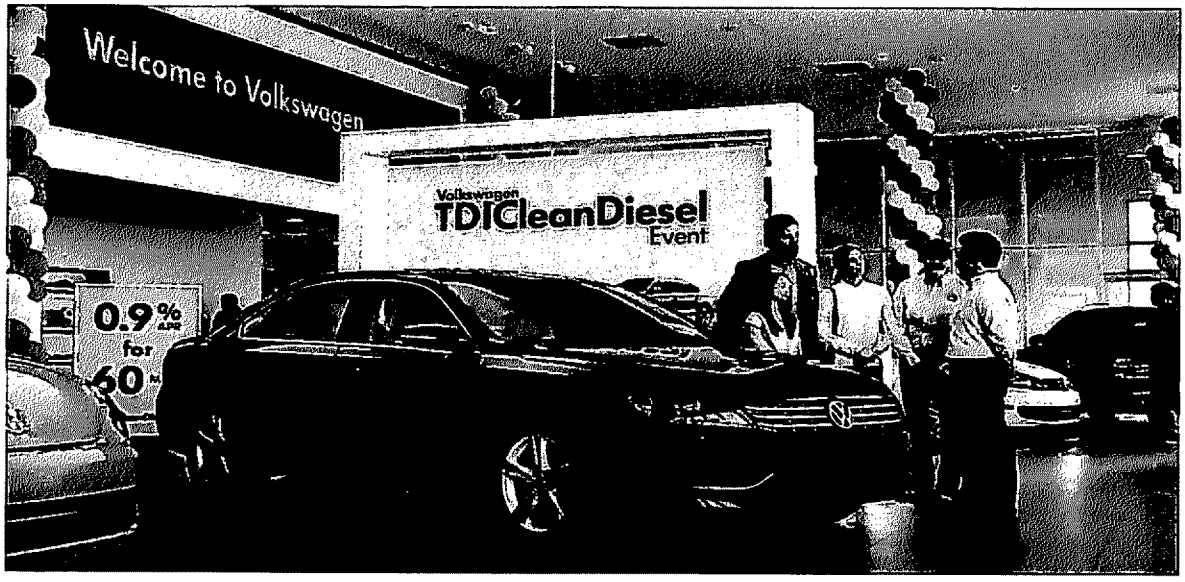
69 https://web.archive.org/web/20150330110301/http://www.vw.com/features/clean-diesel/.

70 http://abcnews.go.com/Business/story?id=7493781.

to a blog (tdi.vw.com/tdi), which focused on Volkswagen's TDI clean diesel model.

68. Between 2011 and 2013, Volkswagen spent more than $2.9 billion annually on advertising world-wide; many of those advertising dollars were directed at the United States public. Volkswagen issued hugely popular videos featuring the Golden Sisters, who purported to debunk the myths about polluting diesel cars.[71] Other videos that were highly successful included a "Truth or Dare" effort started in 2009 that was about "debunking the myths on clean diesel and fueling the passion of existing diesel owners"; a 2009 Audi video that proclaimed "diesel, no longer a dirty word"; and a Passat "being a Mom" video, all of which can be viewed on the *New York* magazine website.[72] Another well-known video showed German engineers of TDI Clean Diesel vehicles earning their "angel's wings."[73]

69. Volkswagen also used point-of-purchase displays at the showrooms of Volkswagen Authorized Dealers such as the one depicted below:



[71] http://blog.caranddriver.com/vws-hilarious-new-tdi-diesel-ads-return-excellent-viral-mileage/.

[72] http://nymag.com/daily/intelligencer/2015/09/vws-clean-diesel-ads-now-make-us-feel-dirty.html.

[73] https://www.youtube.com/watch?v=fwkPEza9FPw.

70. As VWoA's Mark Barnes put it, the TDI Clean Diesel cars were "fantastic power train[s]" with "very good fuel economy." Yet "[i]t's also good for the environment because it puts out 25% less greenhouse gas emission than what a gasoline engine would. And thanks to the uniqueness of the TDI motor, it cuts out the particulate emissions by 90% and the emissions of nitrous oxide are cut by 95%. So a very very clean running engine. Clean enough to be certified in all 50 states."[74]

71. In television and print advertisements and in social media, Volkswagen strived to present its Clean Diesel TDIs as the environmentally-friendly, fuel-efficient, fun-to-drive and reasonably priced passenger car. As noted above, Volkswagen's sham advertising campaign was a success. Unfortunately, all of these accolades were based on a sham perpetrated by Volkswagen for seven years.

F. Volkswagen's Defeat Device.

72. As noted above, Volkswagen's defeat device is described as a "sophisticated software algorithm" that detects when the car is undergoing emissions testing. The algorithm used information about how the car was being steered, how long the engine ran and atmospheric pressure to "precisely track" the conditions that corresponded to a federal emissions test, according to the EPA. During emissions testing, the software "turns on" the car's full emissions control system in order to pass the test. Under normal driving situations, however, these emissions control systems are ***turned off***, allowing the cars to spew as much as 40 times the allowable amount of NOx into the air. As an EPA spokesman noted, the defeat device was "particularly difficult for us to detect."[75] This ruse went undetected for seven years, although as noted above, Bosch and one

[74] http://www.businessinsider.com/volkswagen-preps-for-a-diesel-revolution-2009-10.

[75] http://www.washingtonpost.com/news/wonkblog/wp/2015/09/22/anatomy-of-volkswagons-deception-the-recall-that-never-fixed-any-cars/. A useful timeline of how the scandal came to light is provided on the website of Cars.com: https://www.cars.com/articles/vw-diesel-crisis-timeline-of-events-1420681251993/.

of VWAG's own engineers complained about it to the company.

73. One technology blog has described Volkswagen's defeat device as follows:

> The method by which Volkswagen diesel cars were able to thwart emissions tests and spew up to 40X the nitrogen oxide levels set by the Environmental Protection Agency was relatively simple. It was more likely no more than a single line of code used to detect when an emissions test was being performed and place the emissions system in an alternate mode — something as simple as a software "on/off" switch. Volkswagen AG CEO Martin Winterkorn, who stepping down as the result of his company's scandal, has said he had no knowledge of the emissions cheat, but software dev/test audit trails are almost certain to pinpoint who embedded the code and who authorized it. You can actually see who asked the developer to write that code," said Nikhil Kaul, a product manager at test/dev software maker SmartBear Software. "Then if you go upstream you can see who that person's boss was...and see if testing happened...and, if testing didn't happen. So you can go from the bottom up to nail everyone."[76]

74. As also noted above, 482,000 vehicles were described as affected, with over 50,000 in the state of California.[77]

75. In 2013 and again in 2014, the International Council for Clean Transportation ("ICCT") published studies showing serious discrepancies between laboratory and in-use emissions of certain cars, including VW TDI Diesel cars used in Europe.[78] A decision was made to test American Clean Diesel cars to show that they were success stories; the opposite turned out to be the case. The ICCT, in conjunction with researchers at and West Virginia University's Center for Alternative Fuels, Engines and Emissions ("CAFEE") conducted on-road emissions tests on three vehicles sold in the United States: a 2013 TDI Passat, a 2012 TDI Jetta, and a BMW X5

---

[76] http://developers.slashdot.org/story/15/09/24/1423225/how-did-volkswagen-cheat-emissions-tests-and-who-authorized-it.

[77] http://www.latimes.com/business/autos/la-fi-hy-california-dmv-vw-diesel-20150921-story.html. This number excludes unregistered vehicles.

[78] http://theicct.org/sites/default/files/publications/ICCT_LabToRoad_20130527.pdf; http://www.theicct.org/sites/default/files/publications/ICCT_LaboratoryToRoad_2014_Report_English.pdf)

SUV. These researchers found that for the Passat and Jetta, emissions were far higher than the emissions generated in the laboratory by CARB. The Jetta exceeded United States NOx emissions standard by 15 to 35 times, and the Passat by five to 20 times. In laboratory testing by CARB, in contrast, these same vehicles complied with United States NOx emissions standards. The CAFEE report is attached as Exhibit 7 to the Complaint. ICCT brought the information to the attention of CARB and the EPA, who commenced their own investigations and contacted Volkswagen. Volkswagen chalked the discrepancies up to "various technical issues and unexpected in-use conditions", but agreed in December of 2014 to recall approximately 500,000 vehicles in order to apply a "software patch."[79]

76. After the remediation, CARB in May of 2015 tested a 2012 TDI Passat on the road and in the laboratory. It found some improvement in in-use NOx emissions, but not enough. An article in the *Philly Voice* describes what happened next.

> On July 8, CARB shared its results with VW, but there was no change in Volkswagen's position. Some officials privately questioned whether Volkswagen was deliberately violating the federal Clean Air Act by installing defeat devices -- software programmed to switch engines to a cleaner mode during official emissions testing, according to a person involved in the process.
>
> During normal driving, the software then shuts off, enabling cars to emit as much as 40 times the legal limit of pollutants.
>
> In early August, Oliver Schmidt, who followed [Norbert] Krause and preceded [Stuart] Johnson in VW's U.S. engineering and environmental office, attended a conference in Traverse City, Michigan and told regulators Volkswagen stood by its conclusions that the problem was technical, people involved said.[80]

77. Then, on August 21, there was a complete reversal. The *Philly Voice* article goes on to describe what happened:

> After more than a year of stonewalling investigators, Volkswagen stunned two senior officials with the U.S. Environmental Protective Agency and California's environmental watchdog by admitting the automaker hacked its own cars to deceive U.S.

[79] http://www.cnbc.com/2015/09/24/.

[80] http://www.phillyvoice.com/year-stonewalling-volkswagen-stunned-regulators/.

> regulators about how much their diesel engines pollute.
>
> That disclosure on Aug. 21, confirmed by two people with knowledge of the exchange, shows Volkswagen buckled to pressure from environmental regulators almost a month earlier than the scandal was made public. The admission to regulators came after a year during which VW officials insisted to regulators that tests on its diesel cars showing a spike in pollution levels on the road were in error.
>
> ****
>
> At first, regulators were surprised that Volkswagen would make its confession at the conference, held in Pacific Grove, California. Minutes before Christopher Grundler, director of the EPA's transportation and air quality office, was to deliver a 9 a.m. speech to the conference, a Volkswagen representative told him about the deception. At the same meeting, representatives of the California Air Resources Board, a state agency that had been pushing VW hard, were also given a verbal notice of the deception, people with knowledge of the events said.
>
> Volkswagen declined to comment on the sequence of events described to Reuters. It isn't clear which VW representative delivered the news of the deception to Grundler and the CARB. Stuart Johnson, head of VW's engineering and environmental office in the United States, was registered to attend the Aug. 21 conference, which was organized by the University of California, Davis. Johnson, who still works for VW in Auburn Hills, Michigan, did not respond immediately to a request for comment.

78. Volkswagen was faced with the threat that the EPA it would not certify any of its 2016 models for sale in the United States until the questions surrounding the emissions discrepancies were answered. Volkswagen admitted that it relied upon a "second calibration" in the vehicles that was intended to run only during certification testing. This second calibration was triggered when a highly sophisticated software algorithm determined – after measuring factors like the position of the steering wheel, the vehicle's speed, pedal movement, and even barometric pressure – that the car was being tested. Then it would configure the engine to reduce emissions of NOx. As David Clegern of CARB explained, "[w]e met with VW on several occasions and they continued to dispute our data, so we'd return to the lab. Over time, VW had no other explanations left, and it was our lab staff who actually got VW to admit that there was, in fact, a defeat device."[81]

[81] http://www.foxnews.com/leisure/2015/09/22/for-7-years-vw-software-thwarted-pollution-regulations/.

As another CARB spokesperson told the *Washington Post*, "[t]hey basically ran out of excuses."[82]

79. The scandal surfaced on September 18, 2015, when CARB and the EPA announced that VWAG, Audi and VWoA had illegally installed emissions testing "defeat devices" in the aforementioned vehicles. *See* Appendices 1 and 2. The EPA found violations of 42 U.S.C. §§7522(a), 7522(a)(1) and 7522(a)(3)(B), as well as 40 C.F.R. §§86.1854-12(a)(3)(ii) and 86.1854-12(a). The EPA identified the following affected vehicles:

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGAV02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

80. As noted above, Horn of VWoA admitted that Volkswagen was dishonest with both customers and regulators and Huber of VWAG called the matter a "moral and political disaster."

[82] http://www.washingtonpost.com/news/wonkblog/wp/2015/09/22/anatomy-of-volkswagonsdeception-the-recall-that-never-fixed-any-cars/.

81. Volkswagen has ordered its dealers to cease selling the Class Vehicles[83] and has set aside a minimum of 6.5 billion Euros ($7.2 billion) to deal with the fallout from this catastrophe, which it now concedes involved 11 million vehicles worldwide. An internal memorandum issued on September 22 details this:

Wolfsburg, 22 September 2015

Volkswagen AG has issued the following information:

Volkswagen is working at full speed to clarify irregularities concerning a particular software used in diesel engines. New vehicles from the Volkswagen Group with EU 6 diesel engines currently available in the European Union comply with legal requirements and environmental standards. The software in question does not affect handling, consumption or emissions. This gives clarity to customers and dealers.

Further internal investigations conducted to date have established that the relevant engine management software is also installed in other Volkswagen Group vehicles with diesel engines. For the majority of these engines the software does not have any effect.

Discrepancies relate to vehicles with Type EA 189 engines, involving some eleven million vehicles worldwide. A noticeable deviation between bench test results and actual road use was established solely for this type of engine. Volkswagen is working intensely to eliminate these deviations through technical measures. The company is therefore in contact with the relevant authorities and the German Federal Motor Transport Authority (KBA – Kraftfahrtbundesamt).

To cover the necessary service measures and other efforts to win back the trust of our customers, Volkswagen plans to set aside a provision of some 6.5 billion EUR recognized in the profit and loss statement in the third quarter of the current fiscal year. **Due to the ongoing investigations the amounts estimated may be subject to revaluation.**
Earnings targets for the Group for 2015 will be adjusted accordingly.

Volkswagen does not tolerate any kind of violation of laws whatsoever. It is and remains the top priority of the Board of Management to win back lost trust and to avert damage to our customers. The Group will inform the public on the further progress of the investigations constantly and transparently.

82. Volkswagen has indicated it will initiate a recall and remediation of the Class Vehicles, but there is no "fix" that can be achieved that would not result in lesser mileage per gallon or degraded performance, two of the key attributes on which TDI Clean Diesel cars were sold.

[83] *See* http://pics3.tdiclub.com/data/3209/stop-sale-note3.pdf.

> Experts Reuters spoke to indicate that two potential fixes could be needed for the two types of emissions control systems featured on 482,000 cars in the U.S., complicating the recall and refit process. Some experts opined that just a software solution could make the affected vehicles compliant with EPA regulations, reducing the performance characteristics of the engines in the process, while others suspect that a hardware solution may be needed for older vehicles without the urea injection system.
>
> A couple of experts warned that the potential solution could involve significantly increased consumption of urea, necessitating fill-ups at more frequent intervals such as every 5,000 miles, in addition to reducing the performance of the engines.[84]

The same point was made by the West Virginia AG in a complaint filed on October 2 against Volkswagen for civil penalties. It is attached as Exhibit 8. In that complaint, the West Virginia AG notes that "Volkswagen will not be able to comply with the EPA [recall] order to make the Affected Vehicles comply with emissions standards without substantially degrading their performance and fuel efficiency to a level below that advertised by Volkswagen, and below that experienced by consumers prior to, or when they purchased their vehicles." Thus, there is no valid "cure" for Volkswagen's conduct.

83. Nor can any recall cure the tarnished reputation of Volkswagen's TDI Clean Diesel vehicles and the substantial diminution of their resale value. The Kelley Bluebook has reported that prices for used Volkswagen diesel cars have declined by 21% in the last few weeks, reflecting the aftermath of Dieselgate.[85] Thus, customers not only overpaid when they bought the Class Vehicles, but have suffered a significant diminution of the resale value of their vehicles. Indeed, a survey of 460 fleet buyers in the United Kingdom revealed that 49% of them were reconsidering their contracts with Volkswagen in the aftermath of the Dieselgate revelations.[86]

84. As noted above, the Executive Committee of the Board that accepted his retirement

---

[84] http://autoweek.com/article/car-news/vw-diesel-emissions-fix-may-require-2-solutions.

[85] http://www.latimes.com/business/autos/la-fi-hy-auto-sales-20151001-story.html.

[86] http://www.dailymail.co.uk/money/news/article-3258793/VW-scandal-deepens-revealed-half-company-car-buyers-ditch-embattled-firm.html.

said that it "recognizes the economic damage caused" as well as the "loss of trust" among customers. No recall and supposed remediation can correct that.

85. A survey of vehicle owners conducted by AutoPacific[87] further reveals consumer disgust with Volkswagen. Only one in four have a positive opinion of Volkswagen, compared to three in four before the scandal. The corresponding figures for Audi were 29%, as opposed to 69%. Sixty-four percent of the survey respondents say they do not trust Volkswagen.

86. But the illegal conduct by Volkswagen has not just resulted in economic damage and loss of consumer trust. It has caused **the death of dozens of people in the United States over the last seven years and degraded the health of many more**. On October 3, Associated Press ("AP") laid out the facts.[88] AP calculated exhaust pollution year by year, starting with the ten to 40 times emissions level estimate by the EPA and then factored in mileage and car number totals from the Kelley Blue Book. It came up with a range of NOx pollution caused by the Class Vehicles and then took it to scientists who modeled mortality rates, which were confirmed by a dozen experts in emissions, risk and public health, none of whom were environmental advocates or representatives of automobile manufacturers. The results are depicted in the chart that follows.

//

//

//

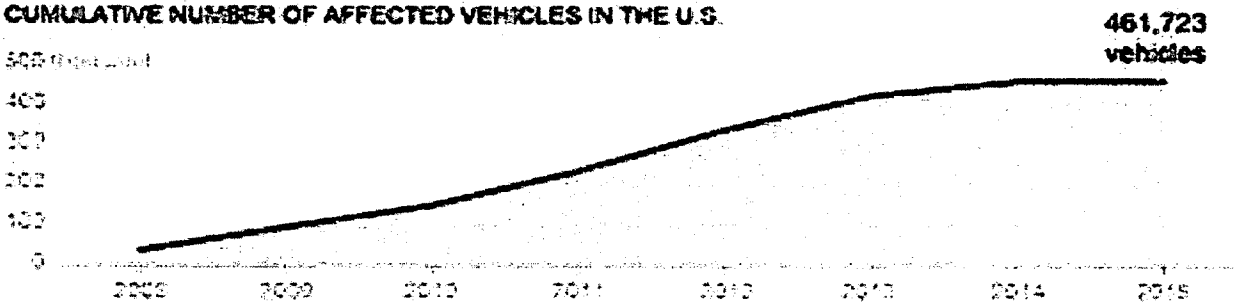
[87] http://www.autopacific.com/news-app/story.248/title.volkswagen-s-reputation-takes-big-hit-with-vehicle-owners-autopacific-predicts-tough-road-ahead.

[88] http://bigstory.ap.org/article/a6925f0af82e44aaa1a1ed4b55d030f6/ap-analysis-dozens-deaths-likely-vw-pollution-dodge.

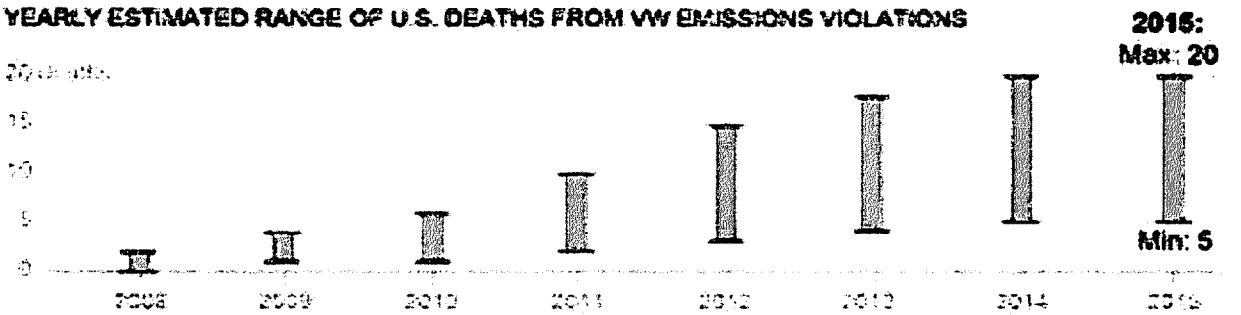
Calculating human toll of VW emissions problems

U.S. pollution resulting from Volkswagen's dodging of emissions tests is enough to have caused dozens of deaths since 2008. An AP analysis calculated upper and lower limits of pollution using the number of affected vehicles each year and average mileage. Scientists used that data in epidemiological computer models to estimate a range of deaths.

CUMULATIVE NUMBER OF AFFECTED VEHICLES IN THE U.S.

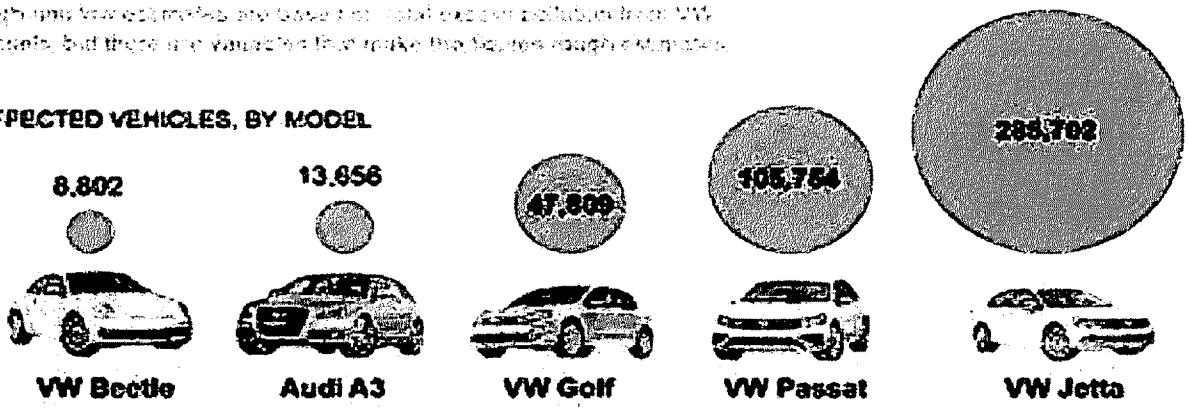


YEARLY ESTIMATED RANGE OF U.S. DEATHS FROM VW EMISSIONS VIOLATIONS



High and low estimates are based on total excess pollution from VW diesels, but there are variables that make the figures rough estimates.

AFFECTED VEHICLES, BY MODEL



NOTE: The total of 47,809 for VW Golf includes 8,833 VW GTI Sportwagen vehicles. The total of 461,723 is derived from Kelley Blue Book vehicle registration data. The Environmental Protection Agency puts the total number of affected vehicles in the U.S. at about 482,000.

SOURCES: AP analysis of data from the U.S. Environmental Protection Agency and Kelley Blue Book; AP Statistical Police Affairs Cutting by Mike Volkswagen Asst.

87. As the AP article notes, the Class Vehicles spewed enough NOx over the course of seven years to significantly degrade the environment in urban areas. Eric Schneiderman, the New York AG has said that "[t]he stakes could not be higher for the health and safety of our communities who, if Volkswagen's own admissions are true, have for years been breathing air containing excess pollution from their vehicles."[89] Harris County Texas (where the City of Houston is located) has already sued Volkswagen for $100 million in harm to air quality.[90]

88. As noted in the *Minneapolis Star-Tribune* in a follow-up piece on the AP story:

> Computer software allowed VW diesel cars to spew between 10 to 40 times more nitrogen oxides (NOx) than allowed by regulation, making this "clearly a concern for air quality and public health," said Janet McCabe, acting air quality chief for the U.S. Environmental Protection Agency.
>
> Nitrogen oxides mostly form smog — that murky, dirty air that makes it hard to see and for some people to breathe — but also amplify a deadlier, larger problem: tiny particles of soot. Numerous medical studies show those tiny particles cause about 50,000 deaths a year in the United States, mostly from heart problems.
>
> Nitrogen oxides can travel hundreds of miles, so pollution spewed in Pittsburgh can be felt on the East Coast, [Carnegie Mellon environmental engineer Professor Peter] Adams said.
>
> Experts calculate how much pollution costs society by looking at the value of lost lives. In this case, Adams and other said the lost lives — valued at $8.6 million apiece — overwhelm other costs such as lost work days or hospital costs. The overall annual cost of the extra pollutants from the VW diesels ranged from $40 million to $170 million, environmental engineering professors calculated. "Even the small increase in NOx from VW diesel emissions is likely to have worsened pollution along the roadways where they have traveled, and affected the lives of hundreds of thousands of people," said Dan Greenbaum, president of the Health Effects Institute in Boston.

---

[89] http://mobile.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html?_r=0&referer=https://www.google.com/.

[90] http://www.wsj.com/articles/u-s-justice-department-conducts-criminal-probe-of-volkswagen-sources-say-1442869059.

> "To say millions of people of people are breathing poor air as the result of that is not off the mark," said Greenbaum, who runs the institute that is funded by both the EPA and the auto industry to serve as an independent arbiter of the science.[91]

89. The revelation of the scandal has led to numerous consequences in the United States. The DOJ is conducting a criminal probe of Volkswagen.[92] AGs in 30 states have initiated their own investigation.[93] A Texas judge has issued a temporary restraining order preventing the Class Vehicles from being sold within the state. *See* Exhibit 9 to the Complaint. The Subcommittee of Oversight & Investigations of the Energy & Commerce Committee of the United States House of Representatives has initiated an investigation and sent letters to Volkswagen and the EPA.[94] Horn has said he will testify before the committee on October 8.[95] Fred Upton, the chairman of the full committee, has stated that "[t]he very notion of a carmaker intentionally violating our environmental laws is beyond belief....[R]eports of Volkswagen selling cars with devices aimed at skirting the law cannot, and will not be tolerated. Attempting to deceive regulators and customers is a double whammy of betrayal."[96] Nearly 200 private lawsuits have been filed, many of them class actions. Among those class actions, most involve class claims for individual statewide classes, as opposed to federal claims for nationwide classes.

90. Outside the United States, several countries are investigating Volkswagen's

---

[91] http://www.startribune.com/ap-analysis-dozens-of-deaths-likely-from-vw-pollution-dodge/330512421/.

[92] http://www.wsj.com/articles/u-s-justice-department-conducts-criminal-probe-of-volkswagen-sources-say-1442869059.

[93] http://www.law360.com/articles/707229/volkswagen-faces-multistate-probe-over-emissions-fraud.

[94] http://energycommerce.house.gov/press-release/committee-leaders-request-documents-volkswagen-investigation-continues.

[95] http://www.detroitnews.com/story/business/autos/foreign/2015/10/01/vw-congress/73159518/.

[96] http://energycommerce.house.gov/press-release/suboversight-schedules-volkswagen-hearing-october-8.

conduct.[97] Switzerland has banned the sale within its borders of certain Volkswagen TDI Diesel cars sold in Europe.[98] Prosecutors in Paris have launched an investigation for suspected "aggravated" deception of affected vehicles sold in France; French Environment Minister Segolene Royal called Volkswagen's conduct "a form of theft from the taxpayer and the state."[99] The Italian antitrust authority has also commenced an investigation, saying "Volkswagen's claims about emissions and certifications in advertising campaigns and information brochures distributed by dealers might have induced consumers to make an error in their choice."[100]

91. As noted above, Volkswagen has set aside $7.2 billion to deal with the costs of the scandal. That will not be nearly enough. James E. Tierney, a former AG in Maine, has been quoted as saying that the costs to Volkswagen might be "'incalculable,' with each false advertisement to consumers, for example, carrying a potential penalty. 'This product was designed to operate illegally, and that is very serious.'"[101]

//

//

---

[97] https://en.m.wikipedia.org/wiki/Volkswagen_emissions_violations.

[98] http://www.theguardian.com/business/2015/sep/26/volkswagen-emissions-scandal-switzerland-bans-sale-of-some-models.

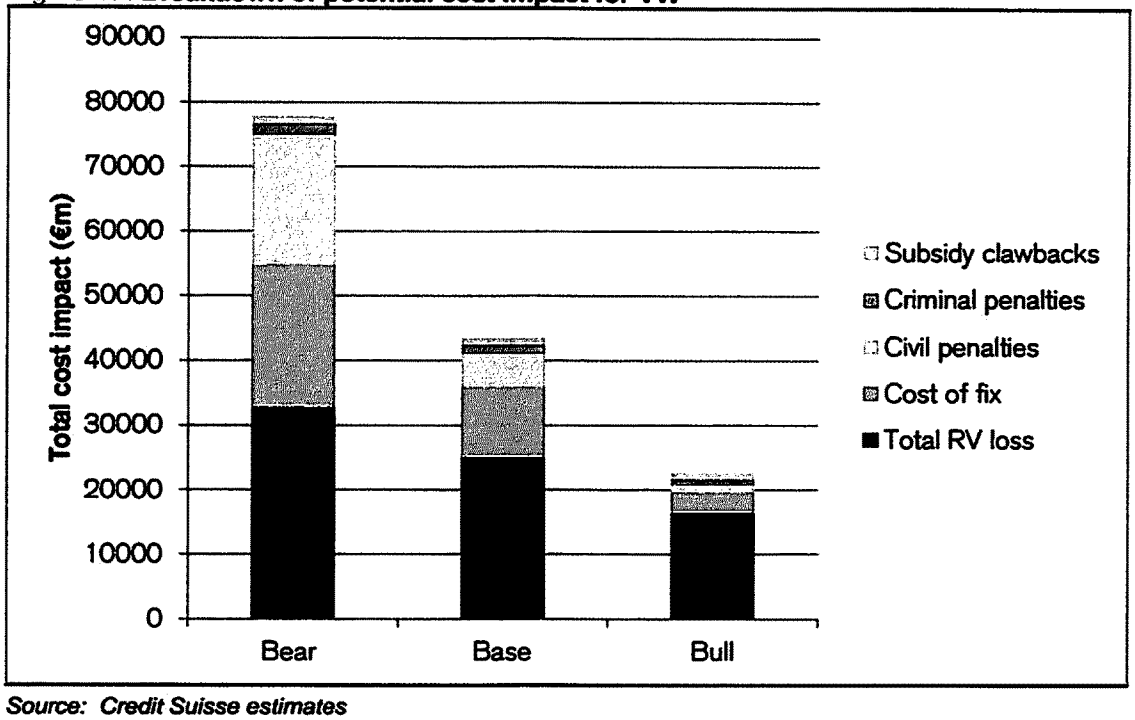
[99] http://www.dailymail.co.uk/news/article-3257720/Paris-prosecutors-latest-launch-investigation-potential-fraud-Volkswagen-emissions-cheating-scam.html.

[100] http://www.morningstar.com/news/dow-jones/TDJNDN_201510023140/italy-antitrust-body-opens-case-against-volkswagen-over-emissions.html.

[101] http://mobile.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html?_r=0&referer=https://www.google.com/.

92. Nonetheless, some attempts at calculation have been made. On October 2, Credit Suisse disseminated an analysis showing Volkswagen's anticipated costs in a "bull" scenario (where events turned out favorably to it), a "base" scenario, and a "bear" scenario (where events turned out unfavorably).[102] The "bull" scenario was $25.6 billion in costs, while the "bear" scenario was $87.1 billion. The analysis is summarized in the following chart:

Figure 17: **Breakdown of potential cost impact for VW**



Source: Credit Suisse estimates

As can be seen, costs associated with criminal and civil penalties make up a significant portion of the differing amounts. Credit Suisse also predicts that Volkswagen's stock may decline another 20%.

VI. CLASS ACTION ALLEGATIONS.

93. Plaintiffs bring this action both on behalf of themselves, and as a class action pursuant to Federal Rules of Civil Procedure 23(a) and (b)(3), on behalf of the following class (the

[102] http://www.businessinsider.com/credit-suisse-volkswagen-shares-could-fall-another-20-2015-10?r=UK&IR=T.

VW FOIA, EPA 06/20/2017 2017-FFP_034246

"Class").

> All persons and entities who purchased or leased a Class Vehicle from a Volkswagen Authorized Dealer in the United States. Excluded from the Class are Defendants, their parent companies, subsidiaries and affiliates, any co-conspirators, all governmental entities, and any judges or justices assigned to hear any aspect of this action.

The Class includes subclasses of persons located in California and Virginia. These will be referred to herein as the "California Subclass" and the "Virginia Subclass."

94. Plaintiffs do not know the exact number of Class and Subclass members but believe based on published reports that there are more than 482,000 Class members, geographically dispersed throughout the United States such that joinder of all class members is impracticable. The identity of Class members can be determined from the internal records of Volkswagen.

95. Plaintiffs' claims are typical of the claims of the Class and Subclasses in that Plaintiffs purchased or leased a Class Vehicle from a Volkswagen Authorized Dealer in the United States. All Class and Subclass members were damaged by the same wrongful conduct of Defendants and their co-conspirators as alleged herein, and the relief sought is common to the class.

96. Common questions of law and fact predominate over any individual questions. These questions include, but are not limited to:

- Whether Volkswagen unlawfully acquired a monopoly in the Clean Diesel Car Market;
- Whether the Clean Diesel Car Market is a properly defined product market for purposes of Section 2 of the Sherman Act;
- Whether Volkswagen's acquisition and/or maintenance of a monopoly in the Clean Diesel Car Market had the effect of increasing to supracompetitive levels the retail prices of Class Vehicles;
- Whether Volkswagen violated the CAA and applicable regulations;
- Whether Volkswagen violated California Pollution Control laws and applicable

regulations;

- Whether Volkswagen's conduct violated RICO;
- Whether the Volkswagen RICO Enterprise as defined herein is a cognizable RICO enterprise;
- Whether Volkswagen committed federal mail and wire fraud, thus establishing predicate acts under RICO:
- Whether Volkswagen engaged in a pattern of racketeering activity;
- Whether Plaintiffs and Class members were injured in their business or property, and, if so, what is the appropriate measure of their damages;
- Whether Volkswagen misrepresented the environmental impact of its Class Vehicles;
- Whether Volkswagen misrepresented the Class Vehicles' emission standards compliance, fuel efficiency or performance;
- Whether Volkswagen violated the Magnuson-Moss Warranty Act;
- Whether Volkswagen violated California's Consumer Legal Remedies Act;
- Whether Volkswagen violated California's Unfair Competition Law;
- Whether Volkswagen violated California's False Advertising Law;
- Whether Volkswagen violated Virginia's Consumer Protection Law;
- Whether Volkswagen committed fraudulent concealment;
- Whether Volkswagen was unjustly enriched;
- Whether Plaintiffs and the other members of the Class and Subclasses were injured by Defendants' conduct, and, if so, the appropriate classwide measure of damages for Class members; and
- The scope of any injunctive and other equitable relief to which Plaintiffs and the other members of the Class and Subclasses are entitled.

97. These and other questions of law and fact are common to the Class and Subclasses

VW FOIA, EPA 06/20/2017 2017-FFP_034248

predominate over any questions affecting only individual Class members.

98. Plaintiffs' claims are typical of the claims of the Class and Subclasses because Plaintiffs purchased a Class Vehicle from a Volkswagen Authorized Dealer in the United States.

99. Plaintiffs will fairly and adequately represent the interests of the Class and Subclasses in that they have no conflict with any other members of the Class and Subclasses. Furthermore, Plaintiffs have retained competent counsel experienced in antitrust, class action, and other complex litigation.

100. Defendants have acted on grounds generally applicable to the Class, thereby making final injunctive relief appropriate with respect to the Class and Subclasses as a whole.

101. This class action is superior to the alternatives, if any, for the fair and efficient adjudication of this controversy. Prosecution as a class action will eliminate the possibility of repetitive litigation. There will be no material difficulty in the management of this action as a class action. The prosecution of separate actions by individual Class and Subclass members would create the risk of inconsistent or varying adjudications, establishing incompatible standards of conduct for Defendants.

CAUSES OF ACTION

FIRST CLAIM

Violation of the Section 2 of the Sherman Antitrust Act (Monopolization) (15 U.S.C. § 2).

102. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

103. The relevant product market for purposes of Plaintiffs' claims under Section 2 of the Sherman Act is the Clean Diesel Car Market, which, as noted above, consists of: (a) the product market of Clean Diesel passenger cars and (b) a geographic market consisting of the United States. All diesel fuel sold in the United States during the relevant period is "clean diesel fuel", with 97% less sulfur than the diesel sold in the 1970s. Similarly, all diesel cars sold in the United States since 2007 (which have had to meet the same emission standards as gasoline engines) have advanced engines and emissions control technology that make the diesel engines cleaner than in

VW FOIA, EPA 06/20/2017 2017-FFP_034249

the past, are able to take advantage of the clean diesel fuel, and use exhaust systems that further reduce diesel engine emissions.

104. As Volkswagen's own market research and market research by others described above have demonstrated, clean diesel cars are not in the same relevant market as gasoline or even hybrid cars of similar size and class. Diesel engines require the use of a different and more expensive fuel than gasoline-powered engines, can travel much greater distances on a single tank of fuel, and are more expensive. Unlike hybrid or electric vehicles, diesel-powered vehicles do not have to be plugged in, can travel greater distances without refueling or plugging in, and -- particularly with more recent compression technology like the Volkswagen's TDI engines -- have greater torque, acceleration, and towing power. In addition, the demographics of the clean diesel buyers are distinct from those of hybrid buyers; they are more likely to be male, younger, and less likely to have children.

105. At all relevant times, Volkswagen has been a competitor in the Clean Diesel Car Market, and has maintained significant market share. As the chart presented by Skorupski of VWoA depicted above demonstrates, Volkswagen's share of the Clean Diesel Car Market has been 70% or more during the entire relevant period.

106. Barriers to entry in the Clean Diesel Car Market are high. In addition to the barriers to entry and expansion posed by Volkswagen's anticompetitive conduct, as described in this Complaint, other barriers to entry include: high research and development costs, high costs of making diesel engines that are EPA- and CARB-compliant, and high capital costs.

107. Consumers, experts and commentators in the automotive industry, and the automobile manufacturers themselves, including Volkswagen, all recognize the Clean Diesel Car market as distinct from markets including gasoline, hybrid, or electric cars.

108. Volkswagen has monopoly power in the Clean Diesel Car Market.

109. Through the anticompetitive use of the defeat device and its deception of the EPA, CARB, Plaintiffs, and the Class, Volkswagen has willfully acquired and/or maintained its

VW FOIA, EPA 06/20/2017 2017-FFP_034250

monopoly of the Clean Diesel Car Market. This conduct has harmed competition in that market, and has caused injury to every person that purchased or leased a Class Vehicle. The purchase or lease price was higher than it would have been in a competitive market; the supply and selection of products was lower than it would have been in a competitive market; innovation has been stifled; and the number and effectiveness of competitors in that Market has been diminished by unlawful means.

110. As a result of this violation of law, the price of Class Vehicles was higher than it otherwise would have been.

111. There is no legitimate business justification for the conduct described in this Complaint which has facilitated Volkswagen's monopolization of the Clean Diesel Car Market.

112. The anticompetitive conduct described in this Complaint has caused injury to the business or property of Plaintiffs and members of the Class and is in violation of section two the Sherman Act (15 U.S.C. § 2).

113. Plaintiffs are buyers of Class Vehicles in the Clean Diesel Car Market; they are thus direct participants in the monopolized market. Volkswagen issues warranties directly to Class Vehicle buyers. The Volkswagen Authorized Dealers[103] obtain Class Vehicles from Volkswagen (through its American subsidiaries) that are certified to be EPA- and/or CARB-compliant and, as noted above, have visible stickers to that effect. The emissions testing that is used to justify those certifications is undertaken by VWoA in the United States.[104] Class Vehicles so labeled are

[103] In a recent recall notice unrelated to Dieselgate, Volkswagen has indicated that it has 652 authorized dealers in the United States. https://media.vw.com/doc/1456/volkswagen_issues_voluntary_recall-tiguan_label_recall_release-17883691505565f01ccc4bb.pdf. Their names and addresses can be identified through Volkswagen's records. The Volkswagen Authorized Dealers have a 12-person National Dealer Advisory Council that interacts closely with VWoA on such issues as company management.

[104] http://www.manufacturing.net/news/2015/10/vw-pollution-test-site-under-scrutiny-amid-emissions-cheating-scandal.

displayed on the showroom floors of Volkswagen Authorized Dealers. The false certifications by Volkswagen were one of the critical elements of its unlawful scheme of monopolization. The Volkswagen Authorized Dealers were agents of Volkswagen for the purpose of disseminating these false certifications and representations by Volkswagen to customers in order to induce them to purchase TDI Clean Diesel vehicles. In addition, Volkswagen (through its American subsidiaries) sets the Manufacturer's Suggested Retail Price ("MSRP") for Class Vehicles, which includes the premium for the TDI Clean Diesel technology described herein. While Volkswagen Authorized Dealers could charge customers a price less than the MSRP (such as when Volkswagen provides rebates or short-term retail promotions), that lesser price is nonetheless keyed off the MSRP and still contains a portion of the premium for the sham TDI Clean Diesel technology. This case involves retail prices for Class Vehicles paid by consumers like plaintiffs, who are participants in the relevant market and who pay more for those vehicles because of Volkswagen's illegal monopolistic practices.

SECOND CLAIM

Violation of Section 2 of the Sherman Antitrust Act (Attempted Monopolization) (15 U.S.C. § 2).

114. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

115. Volkswagen has acted with specific intent to monopolize the Clean Diesel Car Market as described above through the anticompetitive use of the defeat device and its deception of the EPA, CARB, Plaintiffs, and the Class.

116. There was and is a dangerous probability that Volkswagen will succeed in its attempt to monopolize the Clean Diesel Car Market because Volkswagen controls a large percentage of that market and has the ability to and actually did exclude competitors through the anticompetitive conduct described in this Complaint.

117. Volkswagen's conduct has harmed competition in the Clean Diesel Car Market, making the supply and selection of available Clean Diesel Cars lower than it would be in a competitive market.

VW FOIA, EPA 06/20/2017 2017-FFP_034252

118. There is no legitimate business justification for the conduct described in this Complaint which has facilitated Volkswagen's monopolization of the Clean Diesel Car Market.

119. The anticompetitive conduct described in this Complaint has caused injury to the business or property of Plaintiffs and members of the Class and is in violation of the Sherman Act (15 U.S.C. § 2).

THIRD CLAIM

Violation of the Racketeer Influenced and Corrupt Organizations Act ("RICO") (18 U.S.C. §§ 1962(c), 1964).

120. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

121. Each Plaintiff is a "person" within the meaning of 18 U.S.C. § 1964(c), and each has sustained injury to his or her business or property as a result of Volkswagen's conduct described in this Complaint.

122. Each Defendant is a "person" within the meaning of 18 U.S.C. § 1961(3).

123. Defendants violated 18 U.S.C. §1962(c) by participating in or conducting the affairs of the Volkswagen RICO Enterprise through a pattern of racketeering activity.

124. For the past seven years, Volkswagen has engaged in a deliberate, pre-meditated and continuous effort to deceive Plaintiffs, members of the Class, and federal and state regulators into believing that the Class Vehicles are environmentally-friendly, fuel-efficient, and EPA- and CARB-compliant. Unknown to Plaintiffs, Class members and federal and state regulators, Volkswagen installed pollution control defeat devices into the Class vehicles that turned off the pollution controls when the cars were in normal operating mode.

125. Plaintiffs and Class members had no way of knowing that these systems were disabled by Volkswagen. Pursuant to the CAA, Volkswagen was required to equip its cars with on-board diagnostic systems that trigger a dashboard "check engine" light that alerts the driver of a possible pollution control device malfunction. The Class Vehicles' diagnostic systems did not trigger this "check engine light," because the defeat device was designed to evade EPA and CARB pollution controls.

VW FOIA, EPA 06/20/2017 2017-FFP_034253

126. In dozens of advertising campaigns and statements and in certifications of EPA and CARB compliance Volkswagen has falsely represented the Class Vehicles' "green credentials" and performance.

127. Volkswagen engaged in a common course of conduct and conspiracy with the common purpose of defrauding Plaintiffs and members of the Class into purchasing Class Vehicles at artificially inflated prices.

The Volkswagen RICO Enterprise.

128. Volkswagen conducted the affairs of an association-in-fact enterprise (the "Volkswagen RICO Enterprise") through a pattern of racketeering activity, in violation of 18 U.S.C. § 1962(c).

129. The enterprise engaged in and continues to engage in interstate commerce, and its activities affect interstate commerce.

130. The Volkswagen RICO Enterprise is an association-in-fact enterprise comprised of the Defendants and Volkswagen Authorized Dealers in the United States. Each participant in the Enterprise played a designated, well-defined role in the affairs of the Volkswagen RICO Enterprise.

131. Volkswagen designed, manufactured, and sold to Volkswagen Authorized Dealers the Class Vehicles containing the defeat devices that are the subject of this Complaint. Volkswagen developed the advertising campaigns that misrepresented to Plaintiffs and Class members the true nature of the Class Vehicles, which were not, contrary to Defendants' misrepresentations, environmentally-friendly, fuel-efficient, or EPA- or CARB-compliant. Volkswagen deceptively certified the Class Vehicles as EPA- and CARB-compliant. And Volkswagen lied to CARB and EPA officials about the full nature and extent of the problem.

132. The Volkswagen Authorized Dealers that sold and leased the Class Vehicles to Plaintiffs and members of the Class were a critical element of the Volkswagen RICO Enterprise. Volkswagen sold the Class Vehicles to Volkswagen Authorized Dealers, who then sold or leased

VW FOIA, EPA 06/20/2017 2017-FFP_034254

them to Plaintiffs and members of the Class. Whether or not the Volkswagen Authorized Dealers knew that the Class Vehicles contained defeat devices that made Volkswagen's advertisements and representations false, the Volkswagen Authorized Dealers displayed those advertisements and repeated those misrepresentations. Indeed, Volkswagen required Volkswagen Authorized Dealers to display and repeat those misrepresentations in the Volkswagen and Audi Standard Dealer Agreements.

133. The Volkswagen RICO Enterprise has an ascertainable structure and purpose beyond the scope and commission of Volkswagens' predicate acts and conspiracy to commit such acts. The Enterprise is separate and distinct from Defendants, and functions as a continuing unit. The members of the Enterprise have distinct and separate roles and responsibilities.

134. At all relevant times, Volkswagen operated, controlled or managed the Volkswagen RICO Enterprise. Volkswagen's participation was critical for the success of the scheme to defraud because Volkswagen manufactured the Class Vehicles, designed and installed the defeat devices, and concealed those devices from Plaintiffs, Class members and regulatory authorities.

135. Section 1961(1)(B) of RICO defines "racketeering activity" as any act indictable under 18 U.S.C. §§1341 (mail fraud) and 1343 (wire fraud), among other statutes. As described in this Complaint, Volkswagen's conduct violated both of these laws.

136. Volkswagen conducted the affairs of the Volkswagen RICO Enterprise through a "pattern of racketeering activity," as defined by 18 U.S.C. §1961(5) by committing at least two acts of racketeering activity, *i.e.*, indictable violations of 18 U.S.C. §§1341 and 1343, within the past ten years. In fact, Volkswagen has committed dozens of acts of racketeering activity. Each racketeering act was related, had a similar purpose, involved the same or similar participants and method of commission, had similar results and impacted similar victims, including the Plaintiffs and members of the Class.

137. Defendants' multiple acts of racketeering activity were related to each other and amount to continued racketeering activity, and therefore constitute a "pattern of racketeering

VW FOIA, EPA 06/20/2017 2017-FFP_034255

activity" as defined in 18 U.S.C. §1961(5).

Predicate Act Violations of 18 U.S.C. §§1341 and 1343.

138. For the purpose of executing the fraudulent scheme described in this Complaint, Volkswagen, in violation of 18 U.S.C. §1341 (mail fraud), placed in post offices and/or in authorized repositories, matter and things to be sent or delivered by the U.S. Postal Service, caused matter and things to be delivered by commercial interstate carriers, and received matter and things from the U.S. Postal Service and/or commercial interstate carriers, including, but not limited to, advertising materials, marketing and sales materials, correspondence, contracts, sales and leasing documents, Certificates of Compliance, communications with the EPA, CARB and other regulatory officials, and other materials relating to the Class Vehicles sold and leased to Plaintiffs and Class members.

139. For the purpose of executing the fraudulent scheme described in this Complaint, Volkswagen, in violation of 18 U.S.C. §1343 (wire fraud), transmitted and received by wire, matter and things, which include, but are not limited to, advertising materials, marketing and sales materials, correspondence, contracts, sales and leasing documents, Certificates of Compliance, communications with the EPA, CARB, and other regulatory officials, and other materials relating to the Class Vehicles sold and leased to Plaintiffs and Class members.

140. For the purpose of executing the fraudulent scheme described in this Complaint, Volkswagen, in violation of 18 U.S.C. §§1341 and 1343, made numerous material misrepresentations about the Class Vehicles' environmental impact, fuel efficiency, and EPA- and CARB-compliance, and made many material omissions of fact, including concealing that the cars contained defeat devices that rendered them non-compliant with applicable emissions standards. Volkswagen made these misrepresentations and omissions with the intent and effect of inducing Plaintiffs to rely on such misrepresentations and omissions.

141. Defendants' misrepresentations, omissions of material facts, acts of concealment, and failures to disclose, were knowing and intentional, and made for the purpose of deceiving

VW FOIA, EPA 06/20/2017 2017-FFP_034256

Plaintiffs and Members of the Class into purchasing and leasing Class Vehicles.

142. Defendants either knew or recklessly disregarded the fact that the misrepresentations and omissions described above and incorporated herein were material, and Plaintiffs and Class members relied on the misrepresentations and omissions as set forth above.

143. Volkswagen's affirmative and deliberate misrepresentations regarding the Class Vehicles' environmental friendliness, fuel efficiency and performance, and omission of the true facts, were material factors in inducing Plaintiffs and Class members to purchase and lease the Class Vehicles. Plaintiffs and Class members relied on those misrepresentations and omissions and would have not purchased or leased the vehicles in their absence, or, at a minimum, would have paid significantly less than they did.

144. Each act of deception, as described in this Complaint, constitutes a violation of 18 U.S.C. §§1341 (mail fraud) or 1343 (wire fraud), and constitutes an act of "racketeering activity" as defined in 18 U.S.C. §1961(5).

145. As a result, Plaintiffs and Class members have been injured in their business and property within the meaning of 18 U.S.C. §1964(c). Plaintiffs' and Class members' damages include, but are not limited to: purchasing or leasing Class Vehicles that they would not otherwise have purchased or leased; paying more for Class Vehicles than they would have otherwise paid if they had known the true facts concerning the defeat devices; and purchasing Class Vehicles, the value of which has been severely diminished, thus reducing their residual and/or resale value.

146. Volkswagen's RICO violations directly and proximately caused injury to the business and property of Plaintiffs and Class members, and Plaintiffs and Class members are entitled to three times their actual damages, as well as injunctive and other equitable relief, plus their costs and reasonable attorneys' fees.

FOURTH CLAIM

Violation of the Magnuson-Moss Warranty Act (15 U.S.C.§ 2301 *et seq.*)

147. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

VW FOIA, EPA 06/20/2017 2017-FFP_034257

148. Plaintiffs and the Class bring this claim under the Magnuson-Moss Warranty Act, 15 U.S.C. § 2301 *et seq.*

149. The Class Vehicles are consumer products as defined in 15 U.S.C. §2301(1).

150. Volkswagen is a supplier and warrantor as defined in 15 U.S.C. §2301(4), (5).

151. Plaintiffs and the Class received written warranties as defined in 15 U.S.C. §2301(6)(A) and/or (B), which Volkswagen has breached.

152. Plaintiffs and the Class are "consumers" as defined in 15 U.S.C. §2301(3). They are consumers because they bought a Class Vehicle and are entitled to enforce both written and implied warranties.

153. Pursuant to 15 U.S.C. § 2310(e), Plaintiffs and the Class are not required to provide Defendants notice of this class action and an opportunity to cure until the time the Court determines the representative capacity of Plaintiffs pursuant to Fed.R.Civ.P. 23.

154. Volkswagen is liable to Plaintiffs and the Class pursuant to 15 U.S.C. § 2310(d)(l) because it breached its written warranties.

155. Further, in connection with the sale of the Class Vehicles, Volkswagen gave an implied warranty under the Act. As part of that implied warranty, Volkswagen warranted that the Class Vehicle complied with all applicable federal and state regulations, including emission regulations. Volkswagen breached the implied warranty of merchantability.

156. Plaintiffs and the Class are entitled to damages caused by Volkswagen's breaches of the warranties, including economic damages based upon either a return of Plaintiffs' and Class Members purchase price; and/or the difference between the price paid for the Class Vehicle as warranted and the actual value of the Class Vehicle as delivered, and consequential damages.

157. In addition, Plaintiffs and the Class are entitled to reasonable attorneys' fees and costs as determined by the Court.

VW FOIA, EPA 06/20/2017 2017-FFP_034258

FIFTH CLAIM

Violations of the Consumers Legal Remedies Act (California Civil Code § 1750 *et seq.*)

158. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

159. Plaintiffs Bourn, Watson, and Verner bring this Claim on behalf of the California Subclass.

160. This cause of action is brought pursuant to the California Consumers Legal Remedies Act ("CLRA"), Civil Code §1750, *et seq*. Plaintiffs bring this action on their own behalf and on behalf of the California Subclass, all of whom are similarly situated consumers within the meaning of Civil Code §1781.

161. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated, and continue to violate California Civil Code § 1770, subdivisions (a)(9), (a)(7), (a)(16), and (a)(5) by:

- Representing to consumers purchasing the Class Vehicles that these vehicles' emissions, fuel efficiency and high performance are as advertised and publicized.
- Representing in their advertising emissions, environmental, fuel efficiency and performance characteristics for the Class Vehicles that are false.

162. Plaintiffs Bourn, Watson, and Verner and the California Subclass members have suffered harm as a result of these violations.

163. Plaintiffs Bourn, Watson, and Verner and California Subclass members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Class Vehicles believing, based on Volkswagen's representations, that the Class Vehicles had certain characteristics that made them environmentally friendly, fuel efficient and high performance, when in fact these vehicles cannot have these fuel efficient and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Class Vehicles and the subsequent revelation

VW FOIA, EPA 06/20/2017 2017-FFP_034259

concerning the "defeat devices" will result in lower resale value.

164. Volkswagen concealed from Plaintiffs Bourn, Watson, and Verner accurate information concerning the emissions standards, fuel efficiency and performance of the California Subclass Vehicles.

165. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

166. Volkswagen, directly or indirectly, has engaged in substantially similar conduct with respect to Plaintiffs Bourn, Watson, and Verner and to each member of the California Subclass.

167. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

168. Plaintiffs Bourn, Watson, and Verner and the Class are entitled to equitable relief on behalf of the members of the California Subclass in the form of an order, pursuant to Civil Code §1780, subdivision (a)(2)-(5), prohibiting Volkswagen from continuing to engage in the above-described violations of the CLRA. Plaintiffs Bourn, Watson, and Verner and the California Subclass further seek reasonable attorneys' fees under Civil Code §1780(e).

SIXTH CLAIM

Violation of California Unfair Competition Law (Cal. Bus. & Prof. Code § 17200, *et seq.*)

169. Plaintiffs Bourn, Watson, and Verner incorporate by reference each preceding and succeeding paragraph.

170. Plaintiffs Bourn, Watson, and Verner bring this Claim on behalf of the California Subclass.

171. California Business & Professions Code §17200, *et seq.* prohibits acts of "unfair competition" which is defined by California Business & Professions Code § 17200 as including

VW FOIA, EPA 06/20/2017 2017-FFP_034260

any "any unlawful, unfair or fraudulent business act or practice ...."

172. Volkswagen has violated and continues to violate California Business & Professions Code §17200's prohibition against engaging in "unlawful" business acts or practices, by, inter alia, the following:

- Violating the CAA and applicable regulations;
- Violating California's Air Pollution Control laws and applicable regulations;
- Violating the Sherman Act;
- Violating RICO;
- Violating the Magnuson-Moss Act;
- Violating the CLRA; and
- Violating California's False Advertising Law.

173. Volkswagen also acted fraudulently and unfairly for purposes of section 17200. Volkswagen's misrepresentations and omissions regarding the Class Vehicles' emissions, environmental standards, fuel efficiency, and performance in their advertising, public statements and marketing were a material factor in inducing Plaintiffs Bourn, Watson, and Verner to purchase their Class Vehicle. Plaintiffs Bourn, Watson, and Verner suffered injury in fact and lost money and/or property as a result of Volkswagen's unlawful business acts and practices and California Subclass members have suffered harm when each was required to pay a purchase price for their Class Vehicles which they never would have purchased if the true facts were known; or paid a price in excess of what a California Subclass member would have paid if Volkswagen had accurately disclosed the Class Vehicles' characteristics and in the form of decreased resale value of the Vehicles.

174. As a result of Volkswagen's violations of the California Business & Professions Code §17200, *et seq.*, Plaintiffs Bourn, Watson, and Verner and California Subclass members are entitled to equitable relief in the form of full restitution for the inflated sale price of the Vehicles.

VW FOIA, EPA 06/20/2017 2017-FFP_034261

175. Plaintiffs Bourn, Watson, and Verner and California Subclass members also seek an order enjoining Volkswagen from continuing their unlawful business practices and from such future conduct.

SEVENTH CLAIM

Violation of the California False Advertising Law (Cal. Bus. & Prof. Code § 17500, *et seq.*)

176. Plaintiffs Bourn, Watson, and Verner incorporate by reference each preceding and succeeding paragraph.

177. Plaintiffs Bourn, Watson, and Verner bring this Claim on behalf of the California Subclass.

178. Volkswagen violated California's False Advertising Law, Business & Professions Code §17500, *et seq.*by using false and misleading messages regarding the environmental friendliness, emissions, fuel efficiency and performance of the Class Vehicles in television, print, and Internet advertising.

179. These representations and/or omissions have deceived and are likely to deceive Plaintiffs Bourn, Watson, and Verner, the California Subclass, and consumers across the country in connection with their decision to purchase Class Vehicles. Volkswagen's representations and/or omissions were material and constituted a substantial and material factor in Plaintiffs Bourn and Watson's decision to purchase their Class Vehicle. Had Plaintiffs Bourn, Watson, and Verner known the actual facts, they would not have purchased the Class Vehicles and/or paid more than they would have had Volkswagen accurately disclosed the Class Vehicles' true characteristics.

180. Volkswagen directly and indirectly, has engaged in substantially similar conduct with respect to each Plaintiff and to each member of the California Subclass.

181. Plaintiffs Bourn, Watson, and Verner suffered injury in fact and lost money and/or property as a result of Volkswagen's false and misleading advertising and California Subclass members suffered harm when each was required to pay a purchase price in excess of what a

VW FOIA, EPA 06/20/2017 2017-FFP_034262

California Subclass member would have paid if Volkswagen had accurately disclosed the Class Vehicles' characteristics and in the form of decreased resale value of the Class Vehicles.

182. As a result of Volkswagen's violations, Plaintiffs Bourn, Watson, and Verner and California Subclass members are entitled to equitable relief in the form of full restitution of all monies paid for the sales price of the Vehicles, diminished value of the Class Vehicles, and/or disgorgement of the profits derived from Volkswagen's false and misleading advertising.

183. Plaintiffs Bourn, Watson, and Verner also seek an order enjoining Volkswagen from such future conduct.

EIGHTH CLAIM

Violation of the Virginia Consumer Protection Act (Va. Code Ann. §§59.1-196, *et seq.*)

184. Plaintiff Schumacher incorporates by reference each preceding and succeeding paragraph.

185. Plaintiff Schumacher brings this Claim on behalf of the Virginia Subclass, which is cognizable in this Court pursuant to *Shady Grove Orthopedic Assocs., P.A. v. Allstate Ins. Co.*, 559 U.S. 393 (2010).

186. Defendants are "persons" within the meaning of Va. Code Ann. §59.1-200(A).

187. Volkswagen violated the Virginia Consumer Protection Act, which prohibits "...(5) misrepresenting that goods or services have certain quantities, characteristics, ingredients, uses, or benefits; (6) misrepresenting that goods or services are of a particular standard, quality, grade, style, or model; ... (8) advertising goods or services with intent not to sell them as advertised ...; [and] (14) using any other deception, fraud, false pretense, false promise, or misrepresentation in connection with a consumer transaction[.]" Va. Code Ann. §59.1-200(A).

188. These representations and/or omissions have deceived and are likely to deceive Plaintiff Schumacher, the Virginia Subclass, and consumers across the country in connection with their decision to purchase Class Vehicles. Volkswagen's representations and/or omissions were material and constituted a substantial and material factor in Plaintiff Schumacher's decision to

VW FOIA, EPA 06/20/2017 2017-FFP_034263

purchase their Class Vehicle. Had Plaintiff Schumacher and Virginia Subclass members known the actual facts, they would not have purchased the Class Vehicles and/or would have paid less for them.

189. Volkswagen, directly and indirectly, has engaged in substantially similar conduct with respect to each Plaintiff and to each member of the Virginia Subclass.

190. Plaintiff Schumacher and Virginia Subclass members suffered injury in fact and lost money and/or property as a result of Volkswagen's Violations of the Virginia Consumer Protection Act. Plaintiff Schumacher and Virginia Subclass members suffered harm when each was required to pay a purchase price in excess of what they would have paid if Volkswagen had accurately disclosed the Class Vehicles' characteristics; they also suffered harm in the form of decreased resale value of the Class Vehicles.

191. As a result of Volkswagen's violations, Plaintiff Schumacher and Virginia Subclass members are entitled to three times the amount of actual damages or $1000, whichever is greater, as well as costs and attorneys' fees. Va. Code Ann. §§59.1-204(a), (b).

NINTH CLAIM
Unjust Enrichment

192. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

193. Plaintiffs bring this claim for unjust enrichment on behalf of the nationwide Class under the common law of unjust enrichment, as there are no true conflicts (case-dispositive differences) among various states' laws of unjust enrichment.

194. In the alternative, Plaintiffs bring this claim on behalf of the nationwide Class under Virginia law, because the Defendants' United States operations are headquartered in Virginia and Virginia has the most significant relationship to the issues and facts relevant to this claim.

195. Volkswagen received and retained a benefit from the Plaintiffs and inequity has resulted.

196. Volkswagen benefitted through its unjust conduct, by selling Class Vehicles subject

VW FOIA, EPA 06/20/2017 2017-FFP_034264

to the misrepresentation that they were EPA- and/or CARB-compliant and by failing to disclose its use of a defeat device in these vehicles.

197. Plaintiffs, were charged a premium based on this misrepresentation, overpaid for these vehicles as a result, and/or would not have purchased these vehicles at all had their noncompliance with federal and state emissions laws been disclosed.

198. It is inequitable for Volkswagen to retain these benefits.

199. Plaintiffs do not have an adequate remedy at law.

200. As a result of Volkswagen's conduct, the amount of its unjust enrichment should be disgorged, in an amount to be proven at trial.

TENTH CLAIM
Unjust Enrichment

201. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

202. Plaintiffs bring this claim for unjust enrichment on behalf of the nationwide Class under the common law of fraudulent concealment, as there are no true conflicts (case-dispositive differences) among various states' laws of fraudulent concealment.

203. In the alternative, Plaintiffs bring this claim on behalf of the nationwide Class under Virginia law, because the Defendants' United States operations are headquartered in Virginia and Virginia has the most significant relationship to the issues and facts relevant to this claim.

204. Volkswagen concealed and suppressed the material facts that the Class Vehicles did not comply with federal and state emissions laws and were spewing illegal amounts of NOx when they were represented to be EPA- and/or CARB-compliant. It also concealed and suppressed the material fact that the Class Vehicles were equipped with a defeat device that prevented their proper testing under laboratory conditions for compliance with federal and state emissions laws and regulations.

205. Volkswagen took the various steps described herein to effectuate that concealment, such as false advertising and in false statements of compliance with federal and state emissions

VW FOIA, EPA 06/20/2017 2017-FFP_034265

laws and regulations affixed to each of the Class Vehicles

206. Volkswagen took steps to ensure that its employees did not reveal these concealed facts to federal and state environmental regulators.

207. Volkswagen had a duty to disclose the concealed information because it:

- Had exclusive and/or far superior knowledge and access to the facts than Plaintiffs and Class Members, and it knew the facts were not known to or reasonably discoverable by Plaintiffs and the Class;
- Intentionally concealed the foregoing from Plaintiffs; and
- Made incomplete representations about the compliance of the Class Vehicles with federal and state emissions laws and regulations, while purposefully withholding material facts from Plaintiffs that contradicted these representations.

208. These omitted and concealed facts were material because they would be relied on by a reasonable person purchasing, leasing or retaining the Class Vehicles, and because they directly impact the price paid for the Class Vehicles and their resale value. Whether the Class Vehicles comply with federal and state emissions laws and regulations is a material concern to a consumer. Plaintiffs and Class Members trusted Volkswagen not to sell or lease them vehicles that were non-compliant.

209. Volkswagen concealed and suppressed these material facts to falsely assure purchasers and consumers that the Class Vehicles complied with federal and state emissions laws and regulations, as represented by Volkswagen and reasonably expected by consumers.

210. Volkswagen actively concealed and/or suppressed these material facts, in whole or in part, to protect its profits and to avoid recalls that would hurt the brand image of the Class Vehicles and cost Volkswagen money. Volkswagen concealed these facts at the expense of Plaintiffs and the Class.

211. Plaintiffs and the Class were unaware of these omitted material facts, and would not have acted as they did if they had known of the concealed and/or suppressed information.

VW FOIA, EPA 06/20/2017 2017-FFP_034266

212. Had they been aware of the non-compliance of the Class Vehicles with federal and state emissions laws and regulations and Volkswagen's callous disregard for those laws and regulations, Plaintiffs and the Class either would have paid less for their Class Vehicles or would not have purchased or leased them at all. Plaintiffs did not receive the benefit of their bargain as a result of Volkswagen's fraudulent concealment.

213. Because of the concealment and/or suppression of the facts, Plaintiffs and the Class sustained damage because they own vehicles that diminished in value as a result of Volkswagen's concealment of, and failure to timely disclose, the non-compliance of the Class Vehicles with federal and state emissions laws and regulations.

214. The value of all Class members' Class Vehicles has diminished as a result of Volkswagen's fraudulent concealment of the non-compliance of the Class Vehicles with federal and state emissions laws and regulations and has made any reasonable consumer reluctant to purchase any of the Class Vehicles, let alone pay what otherwise would have been fair market value for the vehicles.

215. Accordingly, Volkswagen is liable to the Class for their damages in an amount to be proven at trial.

216. Volkswagen's acts were done maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiffs' and the Class's rights and well-being, and with the aim of enriching Volkswagen. Volkswagen's conduct, which exhibits the highest degree of reprehensibility, being intentional, continuous, placing others at risk of death and injury, and affecting public safety, warrants an assessment of punitive damages in an amount sufficient to deter such conduct in the future, which amount is to be determined according to proof.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray that the Court enter judgment on their behalf and on behalf of the Class and the California and Virginia Subclasses, and:

A. Order the appointment of an independent External Compliance Monitor to monitor

VW FOIA, EPA 06/20/2017 2017-FFP_034267

Volkswagen's compliance with federal and state environmental laws;

B. Order Volkswagen to pay a portion of its annual net profits into an independent fund administered by third parties approved by the Court who can disburse the funds to non-profit organizations that seek to monitor, educate people about, and/or remediate the deleterious environmental effects of vehicular diesel fuel emissions;

C. Order that this action may proceed as a class action, with Plaintiffs as the designated Class representatives for the Class; Plaintiffs Bourn, Watson, and Verner as designated Class representatives for the California Subclass; Plaintiff Schumacher as designated Class representative for the Virginia Subclass, and Plaintiffs' counsel as Class and Subclass Counsel;

D. Adjudge and decree that Volkswagen has violated the CAA, California Pollution Control laws, the Sherman Act, RICO, the Magnuson-Moss Act, the CLRA, California's Unfair Competition Law, California's False Advertising Law; the Virginia Consumer Protection Act, and the common law of unjust enrichment and fraudulent concealment and that Plaintiffs and the members of the Class and the California and Virginia Subclasses have been injured in their business and property as a result of Volkswagen's violations;

E. Order that Plaintiffs and the members of the National Class and California Subclass recover damages sustained by them, to the extent provided by law, and that a judgment in favor of Plaintiffs and the Class and the California and Virginia Subclasses be entered against Volkswagen in an amount to be trebled in accordance with such laws;

F. To the extent provided by law, enjoin and restrain Volkswagen, its subsidiaries, affiliates, successors, transferees, assignees and the respective officers, directors, partners, agents, and employees thereof and all other persons acting or claiming to act on their behalf from continuing to violate the CAA, California Pollution Control laws, the Sherman Act, RICO, the Magnuson-Moss Act, CLRA, California's Unfair Competition Law, California's False Advertising Law, the Virginia Consumer Protection Act, and the common law of unjust enrichment and fraudulent concealment;

VW FOIA, EPA 06/20/2017 2017-FFP_034268

G. Order Volkswagen to pay restitution or damages to Plaintiffs and members of the Class and the California and Virginia Subclasses and to disgorge the profits unlawfully acquired and retained by Volkswagen;

H. Award Plaintiffs and members of the Class and the California and Virginia Subclasses pre-judgment and post-judgment interest, and order that such interest be awarded at the highest legal rate from and after the date of service of the initial complaint in this action;

I. Award Plaintiffs and members of the Class and the California and Virginia Subclasses their costs of this suit, including reasonable attorneys' fees as provided by law; and

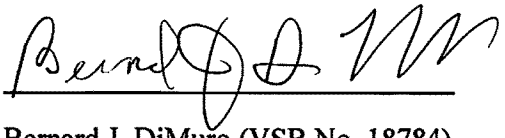
J. Order such other or further relief as may be just and proper.

IX. JURY TRIAL DEMAND.

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiffs demand a trial by jury of all of the claims asserted in this Complaint so triable.

DATED: October 6, 2015

Respectfully submitted,

By: 

Bernard J. DiMuro (VSB No. 18784)
Harvey B. Cohen (VSB No. 06440)
DIMUROGINSBERG, P.C.
1101 King Street, Suite 610
Alexandria, Virginia 23314
Telephone: (703) 684-4333
Facsimile: (703) 548-3181
Email: bdimuro@dimuro.com
Email: hcohen@dimuro.com

Michael D. Hausfeld
Walter D. Kelley, Jr.
James Pizzirusso
HAUSFELD LLP
1700 K Street NW, Suite 650
Washington, DC 20006
Telephone: (202) 540-7200
Facsimile: (202) 540-7201
Email: mhausfeld@hausfeld.com
Email: wkelley@hausfeld.com

VW FOIA, EPA 06/20/2017 2017-FFP_034269

Email: jpizzirusso@hausfeld.com

Michael P. Lehmann
Bonny E. Sweeney
Christopher L. Lebsock
HAUSFELD LLP
600 Montgomery Street, Suite 3200
San Francisco, CA 94111
Telephone: 415-633-1908
Facsimile: 415-217-6813
Email: mlehmann@hausfeldllp.com
Email: bsweeney@hausfeldllp.com
Email: clebsock@hausfeldllp.com

Lesley E. Weaver (Cal. Bar No. 191305)
Whitney E. Street (Cal. Bar No. 223870)
BLOCK & LEVITON LLP
520 Third Street, Suite 108
Oakland, CA 94607
Office: (415) 968-8999
Cell: (415) 797-2617
Email: lweaver@blockesq.com
Email: wstreet@blockesq.com

Counsel for Plaintiffs and the Putative Class and Subclasses

VW FOIA, EPA 06/20/2017 2017-FFP_034270

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Fri 10/16/2015 3:39:48 PM
Subject: RE: 2107 VECI labels

Looks okay.

I handed off the CoC to Dave Wright last week. I reminded him yesterday.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Friday, October 16, 2015 9:36 AM
To: Snyder, Jim
Cc: Giles, Michael (EEO); Allen, Gregory (EEO); Wright, DavidA; Sigelko, Jenny (EEO)
Subject: 2107 VECI labels

Hello Jim,

1) We are developing 2017 VECI labels which identify interim Tier 3 standards. Does the abbreviation used below adequately describe the interim standard in your view?

	AUDI AG VEHICLE EMISSION CONTROL INFORMATION
Conforms to regulations:	2017 MY
U.S. EPA: IntT3B125 LDV OBD: CA II Fuel: Gasoline	
California: ULEV II PC OBD: CA II Fuel: Gasoline	
I stments needed.	DFI/AIR/2TC/CAC/2TWC/2WR-HO2S/2HO2S
Group: HVGAV04.0NUA Evap: HVGAR0155NAH	079 010 533 ?

Note – the Audi logo is misplaced in the label and I was unable to edit the drawing.

2) Can you update us on the progress of the A3 e-tron and A3 e-tron ultra Certificate of Conformity?

Regards,

Bill Rodgers

EEO

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: Petra Janusch-Oldag
Sent: Fri 10/16/2015 5:04:42 PM
Subject: Fwd: CRYPTO-GRAM, October 15, 2015

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=1402&NewSearch

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2514&NewSearch

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2915&NewSearch

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2935&NewSearch

-------- Forwarded Message --------
Subject:CRYPTO-GRAM, October 15, 2015
Date: Thu, 15 Oct 2015 02:36:34 -0500
From: Bruce Schneier <schneier@schneier.com>
To:mail@petrajanusch-oldag.com
CC: Crypto-Gram Mailing List <crypto-gram@lists.schneier.com>

CRYPTO-GRAM

October 15, 2015

by Bruce Schneier
CTO, Resilient Systems, Inc.
schneier@schneier.com
https://www.schneier.com

A free monthly newsletter providing summaries, analyses, insights, and commentaries on security: computer and otherwise.

For back issues, or to subscribe, visit <https://www.schneier.com/crypto-gram.html>.

You can read this issue on the web at <https://www.schneier.com/crypto-gram/archives/2015/1015.html>. These same essays and news items appear in the "Schneier on Security" blog at <http://www.schneier.com/blog>, along with a lively and intelligent comment section. An RSS feed is available.

** *** ***** ******* ********** **********

In this issue:

Volkswagen and Cheating Software
Living in a Code Yellow World
Obama Administration Not Pursuing a Backdoor to Commercial Encryption
News
Stealing Fingerprints
Automatic Face Recognition and Surveillance

Schneier News
Resilient Systems News
Bringing Frozen Liquids through Airport Security
SHA-1 Freestart Collision

** *** ***** ******* ********** **********

Volkswagen and Cheating Software

For the past six years, Volkswagen has been cheating on the emissions testing for its diesel cars. The cars' computers were able to detect when they were being tested, and temporarily alter how their engines worked so they looked much cleaner than they actually were. When they weren't being tested, they belched out 40 times the pollutants. Their CEO has resigned, and the company will face an expensive recall, enormous fines and worse.

Cheating on regulatory testing has a long history in corporate America. It happens regularly in automobile emissions control and elsewhere. What's important in the VW case is that the cheating was preprogrammed into the algorithm that controlled cars' emissions.

Computers allow people to cheat in ways that are new. Because the cheating is encapsulated in software, the malicious actions can happen at a far remove from the testing itself. Because the software is "smart" in ways that normal objects are not, the cheating can be subtler and harder to detect.

We've already had examples of smartphone manufacturers cheating on processor benchmark testing: detecting when they're being tested and artificially increasing their performance. We're going to see this in other industries.

The Internet of Things is coming. Many industries are moving to add computers to their devices, and that will bring with it new opportunities for manufacturers to cheat. Light bulbs could fool regulators into appearing more energy efficient than they are. Temperature sensors could fool buyers into believing that food has been stored at safer temperatures than it has been. Voting machines could appear to work perfectly -- except during the first Tuesday of November, when they undetectably switch a few percent of votes from one party's candidates to another's.

My worry is that some corporate executives won't interpret the VW story as a cautionary tale involving just punishments for a bad mistake but will see it instead as a demonstration that you can get away with something like that for six years.

And they'll cheat smarter. For all of VW's brazenness, its cheating was obvious once people knew to look for it. Far cleverer would be to make the cheating look like an accident. Overall software quality is so bad that products ship with thousands of programming mistakes.

Most of them don't affect normal operations, which is why your software generally works just fine. Some of them do, which is why your software occasionally fails, and needs constant updates. By making cheating software appear to be a programming mistake, the cheating looks like an

accident. And, unfortunately, this type of deniable cheating is easier than people think.

Computer-security experts believe that intelligence agencies have been doing this sort of thing for years, both with the consent of the software developers and surreptitiously.

This problem won't be solved through computer security as we normally think of it. Conventional computer security is designed to prevent outside hackers from breaking into your computers and networks. The car analogue would be security software that prevented an owner from tweaking his own engine to run faster but in the process emit more pollutants. What we need to contend with is a very different threat: malfeasance programmed in at the design stage.

We already know how to protect ourselves against corporate misbehavior. Ronald Reagan once said "trust, but verify" when speaking about the Soviet Union cheating on nuclear treaties. We need to be able to verify the software that controls our lives.

Software verification has two parts: transparency and oversight. Transparency means making the source code available for analysis. The need for this is obvious; it's much easier to hide cheating software if a manufacturer can hide the code.

But transparency doesn't magically reduce cheating or improve software quality, as anyone who uses open-source software knows. It's only the first step. The code must be analyzed. And because software is so complicated, that analysis can't be limited to a once-every-few-years government test. We need private analysis as well.

It was researchers at private labs in the United States and Germany that eventually outed Volkswagen. So transparency can't just mean making the code available to government regulators and their representatives; it needs to mean making the code available to everyone.

Both transparency and oversight are being threatened in the software world. Companies routinely fight making their code public and attempt to muzzle security researchers who find problems, citing the proprietary nature of the software. It's a fair complaint, but the public interests of accuracy and safety need to trump business interests.

Proprietary software is increasingly being used in critical applications: voting machines, medical devices, breathalyzers, electric power distribution, systems that decide whether or not someone can board an airplane. We're ceding more control of our lives to software and algorithms. Transparency is the only way verify that they're not cheating us.

There's no shortage of corporate executives willing to lie and cheat their way to profits. We saw another example of this last week: Stewart Parnell, the former CEO of the now-defunct Peanut Corporation of America, was sentenced to 28 years in prison for knowingly shipping out salmonella-tainted products. That may seem excessive, but nine people died and many more fell ill as a result of his cheating.

Software will only make malfeasance like this easier to commit and harder to prove. Fewer people need to know about the conspiracy. It can be done in advance, nowhere near the testing time or site. And, if the software remains undetected for long enough, it could easily be the case

that no one in the company remembers that it's there.

We need better verification of the software that controls our lives, and that means more -- and more public -- transparency.

This essay previously appeared on CNN.com.
http://www.cnn.com/2015/09/28/opinions/schneier-vw-cheating-software/index.html

Portuguese translation by Ricardo R Hashimoto:
http://www.midiasemmascara.org/mediawatch/noticiasfaltantes/denuncias/16097-a-volkswagen-e-o-softwares-fraudulentos.html

News:
http://money.cnn.com/2015/09/23/news/companies/volkswagen-emissions-crisis/

Emissions test cheating:
http://www.bloomberg.com/news/articles/2015-09-23/carmaker-cheating-on-emissions-almost-as-old-as-pollution-tests
http://arstechnica.com/cars/2015/10/volkswagens-emissions-cheating-scandal-has-a-long-complicated-history/

Samsung cheating:
http://www.theguardian.com/technology/2013/oct/13/samsung-benchmarking-apps

Bugs in code:
http://www.mayerdan.com/ruby/2012/11/11/bugs-per-line-of-code-ratio/

Deniable cheating:
https://www.schneier.com/essays/archives/2013/10/how to design and de.html

How Volkswagen got caught:
http://www.iflscience.com/technology/how-volkswagen-got-caught-cheating-emissions-tests-clean-air-ngo

Threatening transparency and oversight:
https://medium.com/climate-desk/the-volkswagen-scandal-is-just-the-beginning-ba02110925cf

Parnell sentencing:
http://www.cnn.com/2015/09/21/us/salmonella-peanut-exec-sentenced/

Other essays on this:
http://www.nytimes.com/2015/09/24/opinion/volkswagen-and-the-era-of-cheating-software.html
http://www.slate.com/articles/technology/future tense/2015/09/volkswagen s cheating emissi
http://fusion.net/story/202867/volkswagen-software-deception-ai/

** *** ***** ******* ********** **********

Living in a Code Yellow World

In the 1980s, handgun expert Jeff Cooper invented something called the Color Code to describe what he called the "combat mind-set." Here is his summary:

> In White you are unprepared and unready to take lethal

> action. If you are attacked in White you will probably die unless your adversary is totally inept.
>
> In Yellow you bring yourself to the understanding that your life may be in danger and that you may have to do something about it.
>
> In Orange you have determined upon a specific adversary and are prepared to take action which may result in his death, but you are not in a lethal mode.
>
> In Red you are in a lethal mode and will shoot if circumstances warrant.

Cooper talked about remaining in Code Yellow over time, but he didn't write about its psychological toll. It's significant. Our brains can't be on that alert level constantly. We need downtime. We need to relax. This is why we have friends around whom we can let our guard down and homes where we can close our doors to outsiders. We only want to visit Yellowland occasionally.

Since 9/11, the US has increasingly become Yellowland, a place where we assume danger is imminent. It's damaging to us individually and as a society.

I don't mean to minimize actual danger. Some people really do live in a Code Yellow world, due to the failures of government in their home countries. Even there, we know how hard it is for them to maintain a constant level of alertness in the face of constant danger. Psychologist Abraham Maslow wrote about this, making safety a basic level in his hierarchy of needs. A lack of safety makes people anxious and tense, and the long term effects are debilitating.

The same effects occur when we believe we're living in an unsafe situation even if we're not. The psychological term for this is hypervigilance. Hypervigilance in the face of imagined danger causes stress and anxiety. This, in turn, alters how your hippocampus functions, and causes an excess of cortisol in your body. Now cortisol is great in small and infrequent doses, and helps you run away from tigers. But it destroys your brain and body if you marinate in it for extended periods of time.

Not only does trying to live in Yellowland harm you physically, it changes how you interact with your environment and it impairs your judgment. You forget what's normal and start seeing the enemy everywhere. Terrorism actually relies on this kind of reaction to succeed.

Here's an example from The Washington Post last year: "I was taking pictures of my daughters. A stranger thought I was exploiting them." A father wrote about his run-in with an off-duty DHS agent, who interpreted an innocent family photoshoot as something nefarious and proceeded to harass and lecture the family. That the parents were white and the daughters Asian added a racist element to the encounter.

At the time, people wrote about this as an example of worst-case thinking, saying that as a DHS agent, "he's paid to suspect the worst at all times and butt in." While, yes, it was a "disturbing reminder of how the mantra of 'see something, say something' has muddied the waters of what constitutes suspicious activity," I think there's a deeper story

here. The agent is trying to live his life in Yellowland, and it caused him to see predators where there weren't any.

I call these "movie-plot threats," scenarios that would make great action movies but that are implausible in real life. Yellowland is filled with them.

Last December former DHS director Tom Ridge wrote about the security risks of building a NFL stadium near the Los Angeles Airport. His report is full of movie-plot threats, including terrorists shooting down a plane and crashing it into a stadium. His conclusion, that it is simply too dangerous to build a sports stadium within a few miles of the airport, is absurd. He's been living too long in Yellowland.

That our brains aren't built to live in Yellowland makes sense, because actual attacks are rare. The person walking towards you on the street isn't an attacker. The person doing something unexpected over there isn't a terrorist. Crashing an airplane into a sports stadium is more suitable to a Die Hard movie than real life. And the white man taking pictures of two Asian teenagers on a ferry isn't a sex slaver. (I mean, really?)

Most of us, that DHS agent included, are complete amateurs at knowing the difference between something benign and something that's actually dangerous. Combine this with the rarity of attacks, and you end up with an overwhelming number of false alarms. This is the ultimate problem with programs like "see something, say something." They waste an enormous amount of time and money.

Those of us fortunate enough to live in a Code White society are much better served acting like we do. This is something we need to learn at all levels, from our personal interactions to our national policy. Since the terrorist attacks of 9/11, many of our counterterrorism policies have helped convince people they're not safe, and that they need to be in a constant state of readiness. We need our leaders to lead us out of Yellowland, not to perpetuate it.

This essay previously appeared on Fusion.net.
http://fusion.net/story/200747/living-in-code-yellow/

Cooper's Color Code:
https://en.wikipedia.org/wiki/Jeff Cooper#Combat mindset and the Cooper color code

Maslow's hierarchy of needs:
https://en.wikipedia.org/wiki/Maslow's hierarchy of needs

Hypervigilance and its effects:
http://www.seattlepi.com/news/article/Do-you-know-signs-of-hypervigilance-1209950.php
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3229257/
http://www.sciencedirect.com/science/article/pii/S0006322399002474
http://www.ncbi.nlm.nih.gov/pubmed/21621333
http://www.sciencedirect.com/science/article/pii/S0306453012004027
https://news.stanford.edu/news/2007/march7/sapolskysr-030707.html
http://emotionalsurvival.com/hypervigilance.htm

How terrorism relies on a hypervigilant reaction:
http://www.theguardian.com/books/2015/jan/31/terrorism-spectacle-how-states-respond-yuval-noah-harari-sapiens

Washington Post article:
https://www.washingtonpost.com/opinions/i-was-taking-pictures-of-my-daughters-but-a-stranger-thought-i-was-exploiting-them/2014/08/29/34831bb8-2c6c-11e4-994d-202962a9150c_story.html
https://www.washingtonpost.com/opinions/i-was-taking-pictures-of-my-daughters-but-a-stranger-thought-i-was-exploiting-them/2014/08/29/34831bb8-2c6c-11e4-994d-202962a9150c_story.html
http://groupthink.kinja.com/man-taking-photos-of-daughters-suspected-of-being-a-per-1628709202
https://reason.com/blog/2014/09/01/federal-agent-thinks-dad-taking-picture
http://www.infowars.com/homeland-security-agent-harasses-dad-for-taking-pictures-of-his-own-daughters/

Movie-plot threats.
https://www.schneier.com/essays/archives/2005/09/terrorists_dont_do_m.html

Tom Ridge's security assessment:
http://www.latimes.com/sports/nfl/la-sp-nfl-stadium-gamesmanship-20150228-story.html
http://i.usatoday.net/sports/nfl/ridgereport.pdf

"The War on the Unexpected":
https://www.schneier.com/blog/archives/2007/11/the_war_on_the.html

Why "See Something, Say Something" Fails:
http://nymag.com/news/intelligencer/mta-anti-terrorism-2012-10/

"Refuse to be Terrorized":
https://www.schneier.com/essays/archives/2006/08/refuse_to_be_terrori.html

** *** ***** ******* ********** **********

Obama Administration Not Pursuing a Backdoor to Commercial Encryption

The Obama Administration is not pursuing a law that would force computer and communications manufacturers to add backdoors to their products for law enforcement. Sensibly, they concluded that criminals, terrorists, and foreign spies would use that backdoor as well.

Score one for the pro-security side in the Second Crypto War.

It's certainly not over. The FBI hasn't given up on an encryption backdoor (or other backdoor access to plaintext) since the early 1990s, and it's not going to give up now. I expect there will be more pressure on companies, both overt and covert, more insinuations that strong security is somehow responsible for crime and terrorism, and more behind-closed-doors negotiations.

http://www.nytimes.com/2015/10/11/us/politics/obama-wont-seek-access-to-encrypted-user-data.html
https://www.washingtonpost.com/world/national-security/obama-administration-opts-not-to-force-firms-to-decrypt-data--for-now/2015/10/08/1d6a6012-6dca-11e5-aa5b-f78a98956699_story.html

Our "Keys Under Doormats" paper:
https://www.schneier.com/paper-keys-under-doormats.html

Second Crypto War:
http://www.dailydot.com/politics/second-crypto-war-hearing-washington/
http://www.huffingtonpost.com/matthew-prince/the-second-crypto-war-and_b_6517528.html
https://www.schneier.com/blog/archives/2015/08/another_salvo_i.html
http://www.tandfonline.com/doi/pdf/10.1080/15295036.2014.921320

** *** ***** ******* ********** **********

News

A Texas 9th-grader makes an electronic clock and brings it to school. Teachers immediately become stupid and call the police. The student's name is Ahmed Mohamed, which certainly didn't help.
http://www.dallasnews.com/news/community-news/northwest-dallas-county/headlines/20150915-irving-ninth-grader-arrested-after-taking-homemade-clock-to-school.ece
http://www.nytimes.com/2015/09/17/us/texas-student-is-under-police-investigation-for-building-a-clock.html
https://theintercept.com/2015/09/16/arrest-14-year-old-student-making-clock-fruits-15-years-fear-mongering-anti-muslim-animus/
I am reminded of the 2007 story of an MIT student getting arrested for bringing a piece of wearable electronic art to the airport. And I wrote about the "war on the unexpected" back in 2007, too.
https://www.schneier.com/blog/archives/2007/09/woman_arrested.html
https://www.schneier.com/blog/archives/2007/11/the_war_on_the.html
We simply have to stop terrorizing ourselves. We just look stupid when we do it.
https://popehat.com/2015/09/16/willful-paranoia-the-classic-excuse-for-willful-paranoia-istandwithahmed/
http://blogs.artvoice.com/techvoice/2015/09/17/reverse-engineering-ahmed-mohameds-clock-and-ourselves/

There's more to the Mohamed story. He's been invited to the White House, Google, MIT, and Facebook, and offered internships by Reddit and Twitter. On the other hand, Sarah Palin doesn't believe it was just a clock. And he's changing schools.
http://www.cnn.com/2015/09/16/politics/barack-obama-ahmed-texas/index.html
http://www.cnn.com/2015/09/16/us/ahmed-mohamed-social-media-reactions/index.html
http://www.washingtonpost.com/news/morning-mix/wp/2015/09/21/muslim-clock-kid-biased-liberals-love-him-bizarre-conservatives-hate-him/
http://www.cnn.com/2015/09/17/us/texas-student-ahmed-muslim-clock-bomb/index.html

A rural New Hampshire library decided to install Tor on their computers and allow anonymous Internet browsing. The Department of Homeland pressured them to stop.
https://www.propublica.org/article/library-support-anonymous-internet-browsing-effort-stops-after-dhs-email
The good news is that the library is resisting the pressure and keeping Tor running.
http://www.vnews.com/home/18620952-95/despite-law-enforcement-concerns-lebanon-board-will-reactivate-privacy-network-tor-at-kilton-library
http://www.theregister.co.uk/2015/09/17/library_freedom_project_dozen_more_tor_nodes/

This is an important issue for reasons that go beyond the New Hampshire library. The goal of the Library Freedom Project is to set up Tor exit nodes at libraries. Exit nodes help every Tor user in the world; the more of them there are, the harder it is to subvert the system. The Kilton Public Library isn't just allowing its patrons to browse the Internet anonymously; it is helping dissidents around the world stay alive.
https://libraryfreedomproject.org/torexitpilotphase1/
Librarians have been protecting our privacy for decades, and I'm happy to see that tradition continue.
http://www.theguardian.com/world/2015/jun/05/nsa-surveillance-librarians-privacy
https://www.washingtonpost.com/news/the-switch/wp/2014/10/03/librarians-wont-stay-quiet-about-government-surveillance/
http://www.thenation.com/article/librarians-versus-nsa/

A UK student reading a book on terrorism is accused of being a terrorist. He was reading the book for a class he was taking. I'll let you guess his ethnicity.
http://www.theguardian.com/education/2015/sep/24/student-accused-being-terrorist-reading-book-terrorism

A self-destructing computer chip is built on glass.
http://www.extremetech.com/extreme/214185-new-xerox-parc-processor-can-self-destruct-destroy-cryptographic-keys-on-command

Okay, this is weird. FireEye has gone to court to prevent ERNW from disclosing vulnerabilities in FireEye products. FireEye should know better.
http://www.wired.com/2015/09/fireeye-enrw-injunction-bizarre-twist-in-the-debate-over-vulnerability-disclosures/
http://www.cio.com/article/2983141/fireeye-takes-security-firm-to-court-over-vulnerability-disclosure.html
http://www.pcworld.com/article/2983144/fireeye-takes-security-firm-to-court-over-vulnerability-disclosure.html
https://www.insinuator.net/2015/09/sending-mixed-signals-what-can-happen-in-the-course-of-vulnerability-disclosure/
http://www.forbes.com/sites/thomasbrewster/2015/09/10/fireeye-slammed-over-injunction/
Here's FireEye's statement:
https://www.fireeye.com/content/dam/fireeye-www/support/pdfs/fireeye-ernw-vulnerability.pdf

Here's a watch that monitors the movements of your hand and can guess what you're typing.
http://news.softpedia.com/news/creepy-smartwatch-spies-what-you-type-on-a-keyboard-491604.shtml

Drone speedboat.
http://www.defensemedianetwork.com/stories/zycraft-independent-unmanned-surface-vehicle-iusv/

A history of hacking by Dorothy Denning.
http://journal.georgetown.edu/the-rise-of-hacktivism/

FireEye is reporting the discovery of persistent malware that compromises Cisco routers:
https://www.fireeye.com/blog/executive-perspective/2015/09/the_new_route_toper.html
https://www.fireeye.com/blog/threat-research/2015/09/synful_knock_-_acis.html

I don't know if the attack is related to this attack against Cisco routers discovered in August.
https://www.schneier.com/blog/archives/2015/08/nasty_cisco_att.html
http://www.wired.com/2013/09/nsa-router-hacking/
As I wrote then, this is very much the sort of attack you'd expect from a government eavesdropping agency. We know, for example, that the NSA likes to attack routers. If I had to guess, I would guess that this is an NSA exploit. (Note the lack of Five Eyes countries in the target list.)
https://www.techdirt.com/articles/20131230/09221925711/leaked-documents-show-nsa-compromising-computer-hardware-communication-technology-massive-scale.shtml

This is the story of a reporter who set up a fake business and then bought Facebook fans, Twitter followers, and online reviews. It was surprisingly easy and cheap.
http://fusion.net/story/191773/i-created-a-fake-business-and-fooled-thousands-of-people-into-thinking-it-was-real/

Fascinating story about a man who figured out how to hack the game show "Press Your Luck" in 1984.
http://priceonomics.com/the-man-who-got-no-whammies/

People who need to pee are better at lying.
http://www.sciencedirect.com/science/article/pii/S1053810015300301
https://www.newscientist.com/article/dn28199-the-lies-we-tell-are-more-convincing-when-we-need-to-pee/

You can wrap your house in tinfoil, but when you start shining bright lights to defend yourself against alien attack, you've gone too far.
http://www.upi.com/Odd_News/2015/09/11/Man-angers-neighbors-by-shining-alien-fighting-spotlights/5421441980144/
In general, society puts limits on what types of security you are allowed to use, especially when that use can affect others. You can't place landmines on your lawn or shoot down drones hovering over your property.
https://answers.yahoo.com/question/index?qid=20100112173136AAkvsKU

Fortune has a three-part article on the Sony attack by North Korea. There's not a lot of tech here; it's mostly about Sony's internal politics regarding the movie and IT security before the attack, and some about their reaction afterwards.
http://fortune.com/sony-hack-part-1/
http://fortune.com/sony-hack-part-two/
http://fortune.com/sony-hack-final-part/
Despite what I wrote at the time, I now believe that North Korea was responsible for the attack. This is the article that convinced me. It's about the US government's reaction to the attack.
http://www.nytimes.com/2015/01/19/world/asia/nsa-tapped-into-north-korean-networks-before-sony-attack-officials-say.html

The Intercept has a new story from the Snowden documents about the UK's surveillance of the Internet by the GCHQ, along with 28 new NSA and GCHQ documents:
https://theintercept.com/2015/09/25/gchq-radio-porn-spies-track-web-users-online-identities/

The website Unfitbits.com has a series of instructional videos on how to spoof fitness trackers, using such things as a metronome, pendulum, or power drill. With insurance companies like John Hancock offering

discounts to people who allow them to verify their exercise program by opening up their fitness-tracker data, these are useful hacks.
http://www.unfitbits.com/index.html
http://www.nytimes.com/2015/04/08/your-money/giving-out-private-data-for-discount-in-insurance.html
http://www.theatlantic.com/health/archive/2015/09/unfit-bits/407644/

During the Cold War, the KGB was very adept at identifying undercover CIA officers in foreign countries through what was basically big data analysis. (Yes, this is a needlessly dense and very hard-to-read article. I think it's worth slogging through, though.)
http://www.salon.com/2015/09/26/how to explain the kgbs amazing success identifying cia ag

AI theorist Eliezer Yudkowsky coined Moore's Law of Mad Science: "Every eighteen months, the minimum IQ necessary to destroy the world drops by one point."
http://www.azquotes.com/quote/819025
Oh, how I wish I said that.

Good discussion of the issues involving using autonomous vehicles as bombs. Now we need to think about solutions.
http://www.start.umd.edu/news/smart-bomb-every-garage-driverless-cars-and-future-terrorist-attacks

The European Court of Justice ruled that sending personal data to the US violates their right to privacy. This is a big deal, because it directly affects all the large American Internet companies. If this stands, expect much more pressure on the NSA to stop its indiscriminate spying on everyone.
http://www.nytimes.com/2015/10/07/technology/european-union-us-data-collection.html
http://www.scribd.com/doc/283806411/CJEU-Judgment-Schrems-Case-on-Safe-Harbour
http://www.politico.eu/wp-content/uploads/2015/10/schrems-judgment.pdf
https://www.lawfareblog.com/safe-harbor-framework-dead
https://theintercept.com/2015/10/06/top-european-court-rules-that-nsa-spying-makes-u-s-unsafe-for-data/
https://www.eff.org/deeplinks/2015/10/europes-court-justice-nsa-surveilance
http://www.washingtonpost.com/blogs/monkey-cage/wp/2015/10/06/this-privacy-activist-has-just-won-an-enormous-victory-against-u-s-surveillance-heres-how/
http://www.washingtonpost.com/blogs/monkey-cage/wp/2015/10/06/heres-how-the-facebook-case-has-just-transformed-the-surveillance-debate
http://www.europe-v-facebook.org/CJEU_IR.pdf
http://www.mcgarrsolicitors.ie/2015/10/06/safe-harbour-decision-ruled-invalid-by-cjeu/
https://www.lawfareblog.com/schrems-v-data-protection-commissioner-some-inconvenient-truths-european-court-justice-ignores
https://www.lawfareblog.com/surveillance-reform-only-hope-reviving-safe-harbor
http://abovethelaw.com/2015/10/safe-harbor-invalid-will-the-ecj-follow-the-advocate-general-recommendation/
http://www.theregister.co.uk/2015/10/08/understand safe harbor ischrems v facebooki in und

There's a lot of information hidden in the bar code of your airplane boarding pass, including the ability to get even more information.
https://krebsonsecurity.com/2015/10/whats-in-a-boarding-pass-barcode-a-lot/

Details on the patents issued to the NSA.
https://medium.com/silk-stories/behind-the-nsa-e0bf2c3a40c0

In the 1980s, the Soviet Union bugged the IBM Selectric typewriters in the US Embassy in Moscow. This NSA document discusses how the US

discovered the bugs and what we did about it. Codename is GUNMAN.
https://www.nsa.gov/about/ files/cryptologic heritage/center crypt history/publications/le
Is this the world's first keylogger? Maybe.

Jamming Wi-Fi is both easy and cheap.
http://www.net-security.org/secworld.php?id=18971
http://tech.slashdot.org/story/15/10/13/1552238/jamming-wi-fi-with-a-15-dongle

Good op-ed on cyber arms-control treaties:
https://www.washingtonpost.com/opinions/the-world-needs-an-arms-control-treaty-for-cybersecurity/2015/10/01/20c3e970-66dd-11e5-9223-70cb36460919 story.html

Turns out that DNA evidence is fallible:
http://www.wbur.org/npr/447202433/-great-pause-among-forensic-scientists-as-dna-proves-fallible
http://www.wired.com/2015/10/familial-dna-evidence-turns-innocent-people-into-crime-suspects/

** *** ***** ******* ********** **********

Stealing Fingerprints

The news from the Office of Personnel Management hack keeps getting worse. In addition to the personal records of over 20 million US government employees, we've now learned that the hackers stole fingerprint files for 5.6 million of them.

This is fundamentally different from the data thefts we regularly read about in the news, and should give us pause before we entrust our biometric data to large networked databases.

There are three basic kinds of data that can be stolen. The first, and most common, is authentication credentials. These are passwords and other information that allows someone else access into our accounts and -- usually -- our money. An example would be the 56 million credit card numbers hackers stole from Home Depot in 2014, or the 21.5 million Social Security numbers hackers stole in the OPM breach. The motivation is typically financial. The hackers want to steal money from our bank accounts, process fraudulent credit card charges in our name, or open new lines of credit or apply for tax refunds.

It's a huge illegal business, but we know how to deal with it when it happens. We detect these hacks as quickly as possible, and update our account credentials as soon as we detect an attack. (We also need to stop treating Social Security numbers as if they were secret.)

The second kind of data stolen is personal information. Examples would be the medical data stolen and exposed when Sony was hacked in 2014, or the very personal data from the infidelity website Ashley Madison stolen and published this year. In these instances, there is no real way to recover after a breach. Once the data is public, or in the hands of an adversary, it's impossible to make it private again.

This is the main consequence of the OPM data breach. Whoever stole the data -- we suspect it was the Chinese -- got copies the security-clearance paperwork of all those government employees. This documentation includes the answers to some very personal and

embarrassing questions, and now opens these employees up to blackmail and other types of coercion.

Fingerprints are another type of data entirely. They're used to identify people at crime scenes, but increasingly they're used as an authentication credential. If you have an iPhone, for example, you probably use your fingerprint to unlock your phone. This type of authentication is increasingly common, replacing a password -- something you know -- with a biometric: something you are. The problem with biometrics is that they can't be replaced. So while it's easy to update your password or get a new credit card number, you can't get a new finger.

And now, for the rest of their lives, 5.6 million US government employees need to remember that someone, somewhere, has their fingerprints. And we really don't know the future value of this data. If, in twenty years, we routinely use our fingerprints at ATM machines, that fingerprint database will become very profitable to criminals. If fingerprints start being used on our computers to authorize our access to files and data, that database will become very profitable to spies.

Of course, it's not that simple. Fingerprint readers employ various technologies to prevent being fooled by fake fingers: detecting temperature, pores, a heartbeat, and so on. But this is an arms race between attackers and defenders, and there are many ways to fool fingerprint readers. When Apple introduced its iPhone fingerprint reader, hackers figured out how to fool it within days, and have continued to fool each new generation of phone readers equally quickly.

Not every use of biometrics requires the biometric data to be stored in a central server somewhere. Apple's system, for example, only stores the data locally: on your phone. That way there's no central repository to be hacked. And many systems don't store the biometric data at all, only a mathematical function of the data that can be used for authentication but can't be used to reconstruct the actual biometric. Unfortunately, OPM stored copies of actual fingerprints.

Ashley Madison has taught us all the dangers of entrusting our intimate secrets to a company's computers and networks, because once that data is out there's no getting it back. All biometric data, whether it be fingerprints, retinal scans, voiceprints, or something else, has that same property. We should be skeptical of any attempts to store this data en masse, whether by governments or by corporations. We need our biometrics for authentication, and we can't afford to lose them to hackers.

This essay previously appeared on Motherboard.
http://motherboard.vice.com/read/stealing-fingerprints

Office of Personnel Management hack:
http://motherboard.vice.com/read/the-us-agency-that-handles-all-federal-employee-data-has-been-hacked
http://www.npr.org/sections/thetwo-way/2015/07/09/421502905/opm-21-5-million-social-security-numbers-stolen-from-government-computers

OPM fingerprint files stolen:
https://www.washingtonpost.com/news/the-switch/wp/2015/09/23/opm-now-says-more-than-five-million-fingerprints-compromised-in-breaches/

China suspected in OPM hack:
http://www.wsj.com/articles/u-s-suspects-hackers-in-china-behind-government-data-breach-sources-say-1433451888

Home Depot hack:
http://money.cnn.com/2014/09/18/technology/security/home-depot-hack/

Fraud with Social Security Numbers:
http://blog.credit.com/2015/02/5-things-an-identity-thief-can-do-with-your-social-security-number-108597/
http://money.cnn.com/2014/11/11/technology/security/social-security-number-hack

Sony hack:
http://www.usatoday.com/story/news/nation-now/2014/12/18/sony-hack-timeline-interview-north-korea/20601645/

Ashley Madison hack:
http://fortune.com/2015/08/26/ashley-madison-hack/

Security problem with biometrics:
https://www.schneier.com/blog/archives/2009/01/biometrics.html

Potential value of fingerprints in the future:
http://www.zdnet.com/article/opm-data-breachs-big-question-whats-fingerprint-data-worth-in-future-cyber-attacks/

Beating fingerprint readers:
http://www.networkworld.com/article/2293129/data-center/120606-10-ways-to-beat-fingerprint-biometrics.html

Beating the iPhone fingerprint reader:
http://www.darkreading.com/vulnerabilities-and-threats/apple-iphone-5s-fooled-by-fake-finger/d/d-id/1111637
http://www.cnet.com/news/apples-touch-id-still-vulnerable-to-hack-security-researcher-finds/

** *** ***** ******* ********** **********

Automatic Face Recognition and Surveillance

ID checks were a common response to the terrorist attacks of 9/11, but they'll soon be obsolete. You won't have to show your ID, because you'll be identified automatically. A security camera will capture your face, and it'll be matched with your name and a whole lot of other information besides. Welcome to the world of automatic facial recognition. Those who have access to databases of identified photos will have the power to identify us. Yes, it'll enable some amazing personalized services; but it'll also enable whole new levels of surveillance. The underlying technologies are being developed today, and there are currently no rules limiting their use.

Walk into a store, and the salesclerks will know your name. The store's cameras and computers will have figured out your identity, and looked you up in both their store database and a commercial marketing database they've subscribed to. They'll know your name, salary, interests, what sort of sales pitches you're most vulnerable to, and how profitable a

customer you are. Maybe they'll have read a profile based on your tweets and know what sort of mood you're in. Maybe they'll know your political affiliation or sexual identity, both predictable by your social media activity. And they're going to engage with you accordingly, perhaps by making sure you're well taken care of or possibly by trying to make you so uncomfortable that you'll leave.

Walk by a policeman, and she will know your name, address, criminal record, and with whom you routinely are seen. The potential for discrimination is enormous, especially in low-income communities where people are routinely harassed for things like unpaid parking tickets and other minor violations. And in a country where people are arrested for their political views, the use of this technology quickly turns into a nightmare scenario.

The critical technology here is computer face recognition. Traditionally it has been pretty poor, but it's slowly improving. A computer is now as good as a person. Already Google's algorithms can accurately match child and adult photos of the same person, and Facebook has an algorithm that works by recognizing hair style, body shape, and body language -- and works even when it can't see faces. And while we humans are pretty much as good at this as we're ever going to get, computers will continue to improve. Over the next years, they'll continue to get more accurate, making better matches using even worse photos.

Matching photos with names also requires a database of identified photos, and we have plenty of those too. Driver's license databases are a gold mine: all shot face forward, in good focus and even light, with accurate identity information attached to each photo. The enormous photo collections of social media and photo archiving sites are another. They contain photos of us from all sorts of angles and in all sorts of lighting conditions, and we helpfully do the identifying step for the companies by tagging ourselves and our friends. Maybe this data will appear on handheld screens. Maybe it'll be automatically displayed on computer-enhanced glasses. Imagine salesclerks -- or politicians -- being able to scan a room and instantly see wealthy customers highlighted in green, or policemen seeing people with criminal records highlighted in red.

Science fiction writers have been exploring this future in both books and movies for decades. Ads followed people from billboard to billboard in the movie Minority Report. In John Scalzi's recent novel Lock In, characters scan each other like the salesclerks I described above.

This is no longer fiction. High-tech billboards can target ads based on the gender of who's standing in front of them. In 2011, researchers at Carnegie Mellon pointed a camera at a public area on campus and were able to match live video footage with a public database of tagged photos in real time. Already government and commercial authorities have set up facial recognition systems to identify and monitor people at sporting events, music festivals, and even churches. The Dubai police are working on integrating facial recognition into Google Glass, and more US local police forces are using the technology.

Facebook, Google, Twitter, and other companies with large databases of tagged photos know how valuable their archives are. They see all kinds of services powered by their technologies -- services they can sell to businesses like the stores you walk into and the governments you might interact with.

Other companies will spring up whose business models depend on capturing our images in public and selling them to whoever has use for them. If you think this is farfetched, consider a related technology that's already far down that path: license-plate capture.

Today in the US there's a massive but invisible industry that records the movements of cars around the country. Cameras mounted on cars and tow trucks capture license places along with date/time/location information, and companies use that data to find cars that are scheduled for repossession. One company, Vigilant Solutions, claims to collect 70 million scans in the US every month. The companies that engage in this business routinely share that data with the police, giving the police a steady stream of surveillance information on innocent people that they could not legally collect on their own. And the companies are already looking for other profit streams, selling that surveillance data to anyone else who thinks they have a need for it.

This could easily happen with face recognition. Finding bail jumpers could even be the initial driving force, just as finding cars to repossess was for license plate capture.

Already the FBI has a database of 52 million faces, and describes its integration of facial recognition software with that database as "fully operational." In 2014, FBI Director James Comey told Congress that the database would not include photos of ordinary citizens, although the FBI's own documents indicate otherwise. And just last month, we learned that the FBI is looking to buy a system that will collect facial images of anyone an officer stops on the street.

In 2013, Facebook had a quarter of a trillion user photos in its database. There's currently a class-action lawsuit in Illinois alleging that the company has over a billion "face templates" of people, collected without their knowledge or consent.

Last year, the US Department of Commerce tried to prevail upon industry representatives and privacy organizations to write a voluntary code of conduct for companies using facial recognition technologies. After 16 months of negotiations, all of the consumer-focused privacy organizations pulled out of the process because industry representatives were unable to agree on any limitations on something as basic as nonconsensual facial recognition.

When we talk about surveillance, we tend to concentrate on the problems of data collection: CCTV cameras, tagged photos, purchasing habits, our writings on sites like Facebook and Twitter. We think much less about data analysis. But effective and pervasive surveillance is just as much about analysis. It's sustained by a combination of cheap and ubiquitous cameras, tagged photo databases, commercial databases of our actions that reveal our habits and personalities, and -- most of all -- fast and accurate face recognition software.

Don't expect to have access to this technology for yourself anytime soon. This is not facial recognition for all. It's just for those who can either demand or pay for access to the required technologies -- most importantly, the tagged photo databases. And while we can easily imagine how this might be misused in a totalitarian country, there are dangers in free societies as well. Without meaningful regulation, we're moving into a world where governments and corporations will be able to identify people both in real time and backwards in time, remotely and in secret, without consent or recourse.

Despite protests from industry, we need to regulate this budding industry. We need limitations on how our images can be collected without our knowledge or consent, and on how they can be used. The technologies aren't going away, and we can't uninvent these capabilities. But we can ensure that they're used ethically and responsibly, and not just as a mechanism to increase police and corporate power over us.

This essay previously appeared on Forbes.com.
http://www.forbes.com/sites/bruceschneier/2015/09/29/the-era-of-automatic-facial-recognition-and-surveillance-is-here/

License-plate scanners:
http://betaboston.com/news/2014/03/05/a-vast-hidden-surveillance-network-runs-across-america-powered-by-the-repo-industry
http://betaboston.com/news/2014/03/05/massive-license-plate-location-database-just-like-instagram-digital-recognition-network-insists
http://cironline.org/reports/plans-expand-scope-license-plate-readers-alarm-privacy-advocates-6451
http://arstechnica.com/tech-policy/2012/09/your-car-tracked-the-rapid-rise-of-license-plate-readers
https://www.aclu.org/files/assets/071613-aclu-alprreport-opt-v05.pdf

FBI's photo database and facial recognition system:
http://www.fbi.gov/news/pressrel/press-releases/fbi-announces-full-operational-capability-of-the-next-generation-identification-system
http://www.nationaljournal.com/tech/2014/06/24/privacy-groups-sound-alarm-over-fbis-facial-recognition-technology
https://www.eff.org/deeplinks/2014/04/fbi-plans-have-52-million-photos-its-ngi-face-recognition-database-next-year
https://www.eff.org/deeplinks/2015/09/little-fanfare-fbi-ramps-biometrics-programs-yet-again-part-2

Facebook's photo database and facial recognition system:
http://www.businessinsider.com/facebook-350-million-photos-each-day-2013-9
http://www.theregister.co.uk/2015/09/07/facebook biometrics class action suit/

Privacy organizations pull out of NTIA process:
https://www.eff.org/deeplinks/2015/06/eff-and-eight-other-privacy-organizations-back-out-ntia-face-recognition-multi
http://www.slate.com/articles/technology/future tense/2015/06/facial recognition privacy t

Two articles that say much the same thing:
http://www.telegraph.co.uk/technology/11693965/Facial-recognition-technology-Is-Orwells-fiction-our-reality.html
http://www.theguardian.com/commentisfree/2015/jun/27/facebook-tag-pics-government

** *** ***** ******* ********** **********

Schneier News

I'm speaking at The Second Annual Cato Surveillance Conference in Washington, DC, on October 21, 2015.
http://www.cato.org/events/second-annual-cato-surveillance-conference

I'm speaking at the Privacy + Security Forum, October 21-23, 2015 at The

Marvin Center in Washington, DC.
http://www.privacyandsecurityforum.com/schedule/

I'm speaking at the Boston Book Festival on October 24, 2015.
http://www.bostonbookfest.org/

I'm speaking at CyberSEED 2015, October 29-30 at the University of Connecticut's Storrs Campus.
http://www.csi.uconn.edu/cyberseed/

I'm speaking at the 4th Annual Cloud Security Congress EMEA in Berlin on November 17, 2015.
https://cloudsecurityalliance.org/events/emea-congress-2015/

I'm speaking at NASA's Goddard Space Flight Center as part of their Information Science and Technology Colloquium Series, on December 16, 2015.
https://istcolloq.gsfc.nasa.gov/Fall2015/speaker/schneier.html

I was interviewed by the Logikull blog:
http://logikcull.com/blog/qa-with-bruce-schneier-what-if-your-law-firm-is-the-next-ashley-madison/

I gave a keynote at Free and Safe in Cyberspace 2015:
http://www.free-and-safe.org/program/
https://www.youtube.com/watch?v=WsZSrBub3b4&list=PL4aKyhySTbUMmKl8V9dpkvYMNfFXE2KvL&index=

I participated in a panel at Free and Safe in Cyberspace 2015, with Bart Preneel, Richard Stallman, Andreas Wild, Jovan Golic, Bjoern Rupp, Michael Sieber, Melle Van den Berg, Pierre Chastanet, and moderator Rufo Guerreschi.
http://www.free-and-safe.org/program/
https://www.youtube.com/watch?v=QJtgjqCe_IU&list=PL4aKyhySTbUMmKl8V9dpkvYMNfFXE2KvL&index=

I was a guest on "Adam Ruins Everything." The episode is about security theater. I am a disembodied head on a scooter.
https://www.youtube.com/watch?v=-LDzOi1dyAA
https://www.amazon.com/gp/product/B0163KQ5WM/ref=dv_dp_ep2
The scooter idea was a hack when I couldn't find the time to fly to LA for live filming. The whole thing was a lot of fun.

I was interviewed by BetaBoston on the subject of data privacy:
http://www.betaboston.com/news/2015/10/07/data-privacy-one-of-these-days/

** *** ***** ******* ********** **********

Resilient Systems News

Former Raytheon CEO Bill Swanson has joined our board of directors.

For those who don't know, Resilient Systems is my company. I'm the CTO, and we sell an incident-response management platform that...well...helps IR teams to manage incidents. It's a single hub that allows a team to collect data about an incident, assign and manage tasks, automate actions, integrate intelligence information, and so on. It's designed to be powerful, flexible, and intuitive -- if your HR or legal person needs to get involved, she has to be able to use it without any training. I'm

really impressed with how well it works. Incident response is all about people, and the platform makes teams more effective. This is probably the best description of what we do.

We have lots of large- and medium-sized companies as customers. They're all happy, and we continue to sell this thing at an impressive rate. Our Q3 numbers were fantastic. It's kind of scary, really.

http://fortune.com/2015/09/28/raytheon-chief-joins-resilient/

Resilient Systems:
https://www.resilientsystems.com/
https://www.resilientsystems.com/product/incident-response-security

** *** ***** ******* ********** **********

Bringing Frozen Liquids through Airport Security

Gizmodo reports that UK airport security confiscates frozen liquids:

> "He told me that it wasn't allowed so I asked under what grounds, given it is not a liquid. When he said I couldn't take it I asked if he knew that for sure or just assumed. He grabbed his supervisor and the supervisor told me that 'the government does not classify that as a solid'. I decided to leave it at that point. I expect they're probably wrong to take it from me. They'd probably not seen it before, didn't know the rules, and being a bit of an eccentric request, decided to act on the side of caution. They didn't spend the time to look it up."

As it happens, I have a comparable recent experience. Last week, I tried to bring through a small cooler containing, among other things, a bag of ice. I expected to have to dump the ice at the security checkpoint and refill it inside the airport, but the TSA official looked at it and let it through. Turns out that frozen liquids are fine. I confirmed this with TSA officials at two other airports this week.

One of the TSA officials even told me that what he was officially told is that liquid explosives don't freeze.

So there you go. The US policy is more sensible. And anyone landing in the UK from the US will have to go through security before any onward flight, so there's no chance at flouting the UK rules that way.

And while we're on the general subject, I am continually amazed by how lax the liquid rules are here in the US. Yesterday I went through airport security at SFO with an opened 5-ounce bottle of hot sauce in my carry-on. The screener flagged it; it was obvious on the x-ray. Another screener searched my bag, found it and looked at it, and then let me keep it.

And, in general, I never bother taking my liquids out of my suitcase anymore. I don't have to when I am in the PreCheck lane, but no one seems to care in the regular lane, either. It is different in the UK.

http://gizmodo.com/what-happens-if-you-take-frozen-liquids-through-airport-1729772148

According to a TSA blog post, frozen ice (not semi-melted) is allowed:
http://blog.tsa.gov/2009/11/response-to-tsa-takes-big-gulp-over.html

Hannibal Burgess routine about the TSA liquids rules.
https://youtu.be/kD0KBcrfWgs?t=44s:

** *** ***** ******* ********** **********

SHA-1 Freestart Collision

There's a new cryptanalysis result against the hash function SHA-1:

> Abstract: We present in this article a freestart collision example for SHA-1, i.e., a collision for its internal compression function. This is the first practical break of the full SHA-1, reaching all 80 out of 80 steps, while only 10 days of computation on a 64 GPU cluster were necessary to perform the attack. This work builds on a continuous series of cryptanalytic advancements on SHA-1 since the theoretical collision attack breakthrough in 2005. In particular, we extend the recent freestart collision work on reduced-round SHA-1 from CRYPTO 2015 that leverages the computational power of graphic cards and adapt it to allow the use of boomerang speed-up techniques. We also leverage the cryptanalytic techniques by Stevens from EUROCRYPT 2013 to obtain optimal attack conditions, which required further refinements for this work. Freestart collisions, like the one presented here, do not directly imply a collision for SHA-1.
>
> However, this work is an important milestone towards an actual SHA-1 collision and it further shows how graphics cards can be used very efficiently for these kind of attacks. Based on the state-of-the-art collision attack on SHA-1 by Stevens from EUROCRYPT 2013, we are able to present new projections on the computational/financial cost required by a SHA-1 collision computation. These projections are significantly lower than previously anticipated by the industry, due to the use of the more cost efficient graphics cards compared to regular CPUs. We therefore recommend the industry, in particular Internet browser vendors and Certification Authorities, to retract SHA-1 soon. We hope the industry has learned from the events surrounding the cryptanalytic breaks of MD5 and will retract SHA-1 before example signature forgeries appear in the near future. With our new cost projections in mind, we strongly and urgently recommend against a recent proposal to extend the issuance of SHA-1 certificates by a year in the CAB/forum (the vote closes on October 16 2015 after a discussion period ending on October 9).

Especially note this bit: "Freestart collisions, like the one presented here, do not directly imply a collision for SHA-1. However, this work is an important milestone towards an actual SHA-1 collision and it further shows how graphics cards can be used very efficiently for these kind of attacks." In other words: don't panic, but prepare for a future panic.

This is not that unexpected. We've long known that SHA-1 is broken, at

least theoretically. All the major browsers are planning to stop accepting SHA-1 signatures by 2017. Microsoft is retiring it on that same schedule. What's news is that our previous estimates may be too conservative.

There's a saying inside the NSA: "Attacks always get better; they never get worse." This is obviously true, but it's worth explaining why. Attacks get better for three reasons. One, Moore's Law means that computers are always getting faster, which means that any cryptanalytic attack gets faster. Two, we're forever making tweaks in existing attacks, which make them faster. (Note above: "...due to the use of the more cost efficient graphics cards compared to regular CPUs.") And three, we regularly invent new cryptanalytic attacks. The first of those is generally predictable, the second is somewhat predictable, and the third is not at all predictable.

Way back in 2004, I wrote: "It's time for us all to migrate away from SHA-1." Since then, we have developed an excellent replacement: SHA-3 has been agreed on since 2012, and just became a standard.

This new result is important right now:

> Thursday's research showing SHA1 is weaker than previously thought comes as browser developers and certificate authorities are considering a proposal that would extend the permitted issuance of the SHA1-based HTTPS certificates by 12 months, that is through the end of 2016 rather than no later than January of that year. The proposal argued that some large organizations currently find it hard to move to a more secure hashing algorithm for their digital certificates and need the additional year to make the transition.

As the paper's authors note, approving this proposal is a bad idea.

More on the paper here.
https://eprint.iacr.org/2015/967
https://sites.google.com/site/itstheshappening/

http://arstechnica.com/security/2015/10/sha1-crypto-algorithm-securing-internet-could-break-by-years-end/

Old blog posts on SHA-1 cryptanalysis:
https://www.schneier.com/blog/archives/2005/02/sha1_broken.html
https://www.schneier.com/blog/archives/2005/02/cryptanalysis_o.html
https://www.schneier.com/blog/archives/2013/11/microsoft_retir.html
https://www.schneier.com/blog/archives/2012/10/when_will_we_se.html

My 2004 essay:
https://www.schneier.com/essays/archives/2004/08/cryptanalysis_of_md5.html

SHA-3:
https://en.wikipedia.org/wiki/SHA-3
http://www.nist.gov/manuscript-publication-search.cfm?pub_id=919061

Proposal to extend the use of SHA:
https://cabforum.org/pipermail/public/2015-October/006048.html

** *** ***** ******* ********** **********

Since 1998, CRYPTO-GRAM has been a free monthly newsletter providing summaries, analyses, insights, and commentaries on security: computer and otherwise. You can subscribe, unsubscribe, or change your address on the Web at <https://www.schneier.com/crypto-gram.html>. Back issues are also available at that URL.

Please feel free to forward CRYPTO-GRAM, in whole or in part, to colleagues and friends who will find it valuable. Permission is also granted to reprint CRYPTO-GRAM, as long as it is reprinted in its entirety.

CRYPTO-GRAM is written by Bruce Schneier. Bruce Schneier is an internationally renowned security technologist, called a "security guru" by The Economist. He is the author of 12 books -- including "Liars and Outliers: Enabling the Trust Society Needs to Survive" -- as well as hundreds of articles, essays, and academic papers. His influential newsletter "Crypto-Gram" and his blog "Schneier on Security" are read by over 250,000 people. He has testified before Congress, is a frequent guest on television and radio, has served on several government committees, and is regularly quoted in the press. Schneier is a fellow at the Berkman Center for Internet and Society at Harvard Law School, a program fellow at the New America Foundation's Open Technology Institute, a board member of the Electronic Frontier Foundation, an Advisory Board Member of the Electronic Privacy Information Center, and the Chief Technology Officer at Resilient Systems, Inc. See <https://www.schneier.com>.

Crypto-Gram is a personal newsletter. Opinions expressed are not necessarily those of Resilient Systems, Inc.

Copyright (c) 2015 by Bruce Schneier.

** *** ***** ******* ********** **********

To unsubscribe from Crypto-Gram, click this link:

https://lists.schneier.com/cgi-bin/mailman/options/crypto-gram/mail%40petrajanusch-oldag.com?login-unsub=Unsubscribe

You will be e-mailed a confirmation message. Follow the instructions in that message to confirm your removal from the list.

To: Kaul, Meetu[Kaul.Meetu@epa.gov]
From: Petra Janusch-Oldag
Sent: Fri 10/16/2015 5:05:07 PM
Subject: Fwd: CRYPTO-GRAM, October 15, 2015

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=1402&NewSearch

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2514&NewSearch

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2915&NewSearch

http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2935&NewSearch

-------- Forwarded Message --------
Subject:CRYPTO-GRAM, October 15, 2015
Date: Thu, 15 Oct 2015 02:36:34 -0500
From: Bruce Schneier <schneier@schneier.com>
To:mail@petrajanusch-oldag.com
CC: Crypto-Gram Mailing List <crypto-gram@lists.schneier.com>

CRYPTO-GRAM

October 15, 2015

by Bruce Schneier
CTO, Resilient Systems, Inc.
schneier@schneier.com
https://www.schneier.com

A free monthly newsletter providing summaries, analyses, insights, and commentaries on security: computer and otherwise.

For back issues, or to subscribe, visit <https://www.schneier.com/crypto-gram.html>.

You can read this issue on the web at <https://www.schneier.com/crypto-gram/archives/2015/1015.html>. These same essays and news items appear in the "Schneier on Security" blog at <http://www.schneier.com/blog>, along with a lively and intelligent comment section. An RSS feed is available.

** *** ***** ******* ********** **********

In this issue:

Volkswagen and Cheating Software
Living in a Code Yellow World
Obama Administration Not Pursuing a Backdoor to Commercial Encryption
News
Stealing Fingerprints
Automatic Face Recognition and Surveillance

Schneier News
Resilient Systems News
Bringing Frozen Liquids through Airport Security
SHA-1 Freestart Collision

** *** ***** ******* ********** **********

Volkswagen and Cheating Software

For the past six years, Volkswagen has been cheating on the emissions testing for its diesel cars. The cars' computers were able to detect when they were being tested, and temporarily alter how their engines worked so they looked much cleaner than they actually were. When they weren't being tested, they belched out 40 times the pollutants. Their CEO has resigned, and the company will face an expensive recall, enormous fines and worse.

Cheating on regulatory testing has a long history in corporate America. It happens regularly in automobile emissions control and elsewhere. What's important in the VW case is that the cheating was preprogrammed into the algorithm that controlled cars' emissions.

Computers allow people to cheat in ways that are new. Because the cheating is encapsulated in software, the malicious actions can happen at a far remove from the testing itself. Because the software is "smart" in ways that normal objects are not, the cheating can be subtler and harder to detect.

We've already had examples of smartphone manufacturers cheating on processor benchmark testing: detecting when they're being tested and artificially increasing their performance. We're going to see this in other industries.

The Internet of Things is coming. Many industries are moving to add computers to their devices, and that will bring with it new opportunities for manufacturers to cheat. Light bulbs could fool regulators into appearing more energy efficient than they are. Temperature sensors could fool buyers into believing that food has been stored at safer temperatures than it has been. Voting machines could appear to work perfectly -- except during the first Tuesday of November, when they undetectably switch a few percent of votes from one party's candidates to another's.

My worry is that some corporate executives won't interpret the VW story as a cautionary tale involving just punishments for a bad mistake but will see it instead as a demonstration that you can get away with something like that for six years.

And they'll cheat smarter. For all of VW's brazenness, its cheating was obvious once people knew to look for it. Far cleverer would be to make the cheating look like an accident. Overall software quality is so bad that products ship with thousands of programming mistakes.

Most of them don't affect normal operations, which is why your software generally works just fine. Some of them do, which is why your software occasionally fails, and needs constant updates. By making cheating software appear to be a programming mistake, the cheating looks like an

accident. And, unfortunately, this type of deniable cheating is easier than people think.

Computer-security experts believe that intelligence agencies have been doing this sort of thing for years, both with the consent of the software developers and surreptitiously.

This problem won't be solved through computer security as we normally think of it. Conventional computer security is designed to prevent outside hackers from breaking into your computers and networks. The car analogue would be security software that prevented an owner from tweaking his own engine to run faster but in the process emit more pollutants. What we need to contend with is a very different threat: malfeasance programmed in at the design stage.

We already know how to protect ourselves against corporate misbehavior. Ronald Reagan once said "trust, but verify" when speaking about the Soviet Union cheating on nuclear treaties. We need to be able to verify the software that controls our lives.

Software verification has two parts: transparency and oversight. Transparency means making the source code available for analysis. The need for this is obvious; it's much easier to hide cheating software if a manufacturer can hide the code.

But transparency doesn't magically reduce cheating or improve software quality, as anyone who uses open-source software knows. It's only the first step. The code must be analyzed. And because software is so complicated, that analysis can't be limited to a once-every-few-years government test. We need private analysis as well.

It was researchers at private labs in the United States and Germany that eventually outed Volkswagen. So transparency can't just mean making the code available to government regulators and their representatives; it needs to mean making the code available to everyone.

Both transparency and oversight are being threatened in the software world. Companies routinely fight making their code public and attempt to muzzle security researchers who find problems, citing the proprietary nature of the software. It's a fair complaint, but the public interests of accuracy and safety need to trump business interests.

Proprietary software is increasingly being used in critical applications: voting machines, medical devices, breathalyzers, electric power distribution, systems that decide whether or not someone can board an airplane. We're ceding more control of our lives to software and algorithms. Transparency is the only way verify that they're not cheating us.

There's no shortage of corporate executives willing to lie and cheat their way to profits. We saw another example of this last week: Stewart Parnell, the former CEO of the now-defunct Peanut Corporation of America, was sentenced to 28 years in prison for knowingly shipping out salmonella-tainted products. That may seem excessive, but nine people died and many more fell ill as a result of his cheating.

Software will only make malfeasance like this easier to commit and harder to prove. Fewer people need to know about the conspiracy. It can be done in advance, nowhere near the testing time or site. And, if the software remains undetected for long enough, it could easily be the case

that no one in the company remembers that it's there.

We need better verification of the software that controls our lives, and that means more -- and more public -- transparency.

This essay previously appeared on CNN.com.
http://www.cnn.com/2015/09/28/opinions/schneier-vw-cheating-software/index.html

Portuguese translation by Ricardo R Hashimoto:
http://www.midiasemmascara.org/mediawatch/noticiasfaltantes/denuncias/16097-a-volkswagen-e-o-softwares-fraudulentos.html

News:
http://money.cnn.com/2015/09/23/news/companies/volkswagen-emissions-crisis/

Emissions test cheating:
http://www.bloomberg.com/news/articles/2015-09-23/carmaker-cheating-on-emissions-almost-as-old-as-pollution-tests
http://arstechnica.com/cars/2015/10/volkswagens-emissions-cheating-scandal-has-a-long-complicated-history/

Samsung cheating:
http://www.theguardian.com/technology/2013/oct/13/samsung-benchmarking-apps

Bugs in code:
http://www.mayerdan.com/ruby/2012/11/11/bugs-per-line-of-code-ratio/

Deniable cheating:
https://www.schneier.com/essays/archives/2013/10/how to design and de.html

How Volkswagen got caught:
http://www.iflscience.com/technology/how-volkswagen-got-caught-cheating-emissions-tests-clean-air-ngo

Threatening transparency and oversight:
https://medium.com/climate-desk/the-volkswagen-scandal-is-just-the-beginning-ba02110925cf

Parnell sentencing:
http://www.cnn.com/2015/09/21/us/salmonella-peanut-exec-sentenced/

Other essays on this:
http://www.nytimes.com/2015/09/24/opinion/volkswagen-and-the-era-of-cheating-software.html
http://www.slate.com/articles/technology/future tense/2015/09/volkswagen s cheating emissi
http://fusion.net/story/202867/volkswagen-software-deception-ai/

** *** ***** ******* ********** **********

Living in a Code Yellow World

In the 1980s, handgun expert Jeff Cooper invented something called the Color Code to describe what he called the "combat mind-set." Here is his summary:

> In White you are unprepared and unready to take lethal

> action. If you are attacked in White you will probably die unless your adversary is totally inept.
>
> In Yellow you bring yourself to the understanding that your life may be in danger and that you may have to do something about it.
>
> In Orange you have determined upon a specific adversary and are prepared to take action which may result in his death, but you are not in a lethal mode.
>
> In Red you are in a lethal mode and will shoot if circumstances warrant.

Cooper talked about remaining in Code Yellow over time, but he didn't write about its psychological toll. It's significant. Our brains can't be on that alert level constantly. We need downtime. We need to relax. This is why we have friends around whom we can let our guard down and homes where we can close our doors to outsiders. We only want to visit Yellowland occasionally.

Since 9/11, the US has increasingly become Yellowland, a place where we assume danger is imminent. It's damaging to us individually and as a society.

I don't mean to minimize actual danger. Some people really do live in a Code Yellow world, due to the failures of government in their home countries. Even there, we know how hard it is for them to maintain a constant level of alertness in the face of constant danger. Psychologist Abraham Maslow wrote about this, making safety a basic level in his hierarchy of needs. A lack of safety makes people anxious and tense, and the long term effects are debilitating.

The same effects occur when we believe we're living in an unsafe situation even if we're not. The psychological term for this is hypervigilance. Hypervigilance in the face of imagined danger causes stress and anxiety. This, in turn, alters how your hippocampus functions, and causes an excess of cortisol in your body. Now cortisol is great in small and infrequent doses, and helps you run away from tigers. But it destroys your brain and body if you marinate in it for extended periods of time.

Not only does trying to live in Yellowland harm you physically, it changes how you interact with your environment and it impairs your judgment. You forget what's normal and start seeing the enemy everywhere. Terrorism actually relies on this kind of reaction to succeed.

Here's an example from The Washington Post last year: "I was taking pictures of my daughters. A stranger thought I was exploiting them." A father wrote about his run-in with an off-duty DHS agent, who interpreted an innocent family photoshoot as something nefarious and proceeded to harass and lecture the family. That the parents were white and the daughters Asian added a racist element to the encounter.

At the time, people wrote about this as an example of worst-case thinking, saying that as a DHS agent, "he's paid to suspect the worst at all times and butt in." While, yes, it was a "disturbing reminder of how the mantra of 'see something, say something' has muddied the waters of what constitutes suspicious activity," I think there's a deeper story

here. The agent is trying to live his life in Yellowland, and it caused him to see predators where there weren't any.

I call these "movie-plot threats," scenarios that would make great action movies but that are implausible in real life. Yellowland is filled with them.

Last December former DHS director Tom Ridge wrote about the security risks of building a NFL stadium near the Los Angeles Airport. His report is full of movie-plot threats, including terrorists shooting down a plane and crashing it into a stadium. His conclusion, that it is simply too dangerous to build a sports stadium within a few miles of the airport, is absurd. He's been living too long in Yellowland.

That our brains aren't built to live in Yellowland makes sense, because actual attacks are rare. The person walking towards you on the street isn't an attacker. The person doing something unexpected over there isn't a terrorist. Crashing an airplane into a sports stadium is more suitable to a Die Hard movie than real life. And the white man taking pictures of two Asian teenagers on a ferry isn't a sex slaver. (I mean, really?)

Most of us, that DHS agent included, are complete amateurs at knowing the difference between something benign and something that's actually dangerous. Combine this with the rarity of attacks, and you end up with an overwhelming number of false alarms. This is the ultimate problem with programs like "see something, say something." They waste an enormous amount of time and money.

Those of us fortunate enough to live in a Code White society are much better served acting like we do. This is something we need to learn at all levels, from our personal interactions to our national policy. Since the terrorist attacks of 9/11, many of our counterterrorism policies have helped convince people they're not safe, and that they need to be in a constant state of readiness. We need our leaders to lead us out of Yellowland, not to perpetuate it.

This essay previously appeared on Fusion.net.
http://fusion.net/story/200747/living-in-code-yellow/

Cooper's Color Code:
https://en.wikipedia.org/wiki/Jeff Cooper#Combat mindset and the Cooper color code

Maslow's hierarchy of needs:
https://en.wikipedia.org/wiki/Maslow's hierarchy of needs

Hypervigilance and its effects:
http://www.seattlepi.com/news/article/Do-you-know-signs-of-hypervigilance-1209950.php
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3229257/
http://www.sciencedirect.com/science/article/pii/S0006322399002474
http://www.ncbi.nlm.nih.gov/pubmed/21621333
http://www.sciencedirect.com/science/article/pii/S0306453012004027
https://news.stanford.edu/news/2007/march7/sapolskysr-030707.html
http://emotionalsurvival.com/hypervigilance.htm

How terrorism relies on a hypervigilant reaction:
http://www.theguardian.com/books/2015/jan/31/terrorism-spectacle-how-states-respond-yuval-noah-harari-sapiens

Washington Post article:
https://www.washingtonpost.com/opinions/i-was-taking-pictures-of-my-daughters-but-a-stranger-thought-i-was-exploiting-them/2014/08/29/34831bb8-2c6c-11e4-994d-202962a9150c_story.html
https://www.washingtonpost.com/opinions/i-was-taking-pictures-of-my-daughters-but-a-stranger-thought-i-was-exploiting-them/2014/08/29/34831bb8-2c6c-11e4-994d-202962a9150c_story.html
http://groupthink.kinja.com/man-taking-photos-of-daughters-suspected-of-being-a-per-1628709202
https://reason.com/blog/2014/09/01/federal-agent-thinks-dad-taking-picture
http://www.infowars.com/homeland-security-agent-harasses-dad-for-taking-pictures-of-his-own-daughters/

Movie-plot threats.
https://www.schneier.com/essays/archives/2005/09/terrorists_dont_do_m.html

Tom Ridge's security assessment:
http://www.latimes.com/sports/nfl/la-sp-nfl-stadium-gamesmanship-20150228-story.html
http://i.usatoday.net/sports/nfl/ridgereport.pdf

"The War on the Unexpected":
https://www.schneier.com/blog/archives/2007/11/the_war_on_the.html

Why "See Something, Say Something" Fails:
http://nymag.com/news/intelligencer/mta-anti-terrorism-2012-10/

"Refuse to be Terrorized":
https://www.schneier.com/essays/archives/2006/08/refuse_to_be_terrori.html

** *** ***** ******* ********** **********

Obama Administration Not Pursuing a Backdoor to Commercial Encryption

The Obama Administration is not pursuing a law that would force computer and communications manufacturers to add backdoors to their products for law enforcement. Sensibly, they concluded that criminals, terrorists, and foreign spies would use that backdoor as well.

Score one for the pro-security side in the Second Crypto War.

It's certainly not over. The FBI hasn't given up on an encryption backdoor (or other backdoor access to plaintext) since the early 1990s, and it's not going to give up now. I expect there will be more pressure on companies, both overt and covert, more insinuations that strong security is somehow responsible for crime and terrorism, and more behind-closed-doors negotiations.

http://www.nytimes.com/2015/10/11/us/politics/obama-wont-seek-access-to-encrypted-user-data.html
https://www.washingtonpost.com/world/national-security/obama-administration-opts-not-to-force-firms-to-decrypt-data--for-now/2015/10/08/1d6a6012-6dca-11e5-aa5b-f78a98956699_story.html

Our "Keys Under Doormats" paper:
https://www.schneier.com/paper-keys-under-doormats.html

Second Crypto War:
http://www.dailydot.com/politics/second-crypto-war-hearing-washington/
http://www.huffingtonpost.com/matthew-prince/the-second-crypto-war-and_b_6517528.html
https://www.schneier.com/blog/archives/2015/08/another_salvo_i.html
http://www.tandfonline.com/doi/pdf/10.1080/15295036.2014.921320

** *** ***** ******* ********** **********

News

A Texas 9th-grader makes an electronic clock and brings it to school. Teachers immediately become stupid and call the police. The student's name is Ahmed Mohamed, which certainly didn't help.
http://www.dallasnews.com/news/community-news/northwest-dallas-county/headlines/20150915-irving-ninth-grader-arrested-after-taking-homemade-clock-to-school.ece
http://www.nytimes.com/2015/09/17/us/texas-student-is-under-police-investigation-for-building-a-clock.html
https://theintercept.com/2015/09/16/arrest-14-year-old-student-making-clock-fruits-15-years-fear-mongering-anti-muslim-animus/
I am reminded of the 2007 story of an MIT student getting arrested for bringing a piece of wearable electronic art to the airport. And I wrote about the "war on the unexpected" back in 2007, too.
https://www.schneier.com/blog/archives/2007/09/woman_arrested.html
https://www.schneier.com/blog/archives/2007/11/the_war_on_the.html
We simply have to stop terrorizing ourselves. We just look stupid when we do it.
https://popehat.com/2015/09/16/willful-paranoia-the-classic-excuse-for-willful-paranoia-istandwithahmed/
http://blogs.artvoice.com/techvoice/2015/09/17/reverse-engineering-ahmed-mohameds-clock-and-ourselves/

There's more to the Mohamed story. He's been invited to the White House, Google, MIT, and Facebook, and offered internships by Reddit and Twitter. On the other hand, Sarah Palin doesn't believe it was just a clock. And he's changing schools.
http://www.cnn.com/2015/09/16/politics/barack-obama-ahmed-texas/index.html
http://www.cnn.com/2015/09/16/us/ahmed-mohamed-social-media-reactions/index.html
http://www.washingtonpost.com/news/morning-mix/wp/2015/09/21/muslim-clock-kid-biased-liberals-love-him-bizarre-conservatives-hate-him/
http://www.cnn.com/2015/09/17/us/texas-student-ahmed-muslim-clock-bomb/index.html

A rural New Hampshire library decided to install Tor on their computers and allow anonymous Internet browsing. The Department of Homeland pressured them to stop.
https://www.propublica.org/article/library-support-anonymous-internet-browsing-effort-stops-after-dhs-email
The good news is that the library is resisting the pressure and keeping Tor running.
http://www.vnews.com/home/18620952-95/despite-law-enforcement-concerns-lebanon-board-will-reactivate-privacy-network-tor-at-kilton-library
http://www.theregister.co.uk/2015/09/17/library_freedom_project_dozen_more_tor_nodes/

This is an important issue for reasons that go beyond the New Hampshire library. The goal of the Library Freedom Project is to set up Tor exit nodes at libraries. Exit nodes help every Tor user in the world; the more of them there are, the harder it is to subvert the system. The Kilton Public Library isn't just allowing its patrons to browse the Internet anonymously; it is helping dissidents around the world stay alive.
https://libraryfreedomproject.org/torexitpilotphase1/
Librarians have been protecting our privacy for decades, and I'm happy to see that tradition continue.
http://www.theguardian.com/world/2015/jun/05/nsa-surveillance-librarians-privacy
https://www.washingtonpost.com/news/the-switch/wp/2014/10/03/librarians-wont-stay-quiet-about-government-surveillance/
http://www.thenation.com/article/librarians-versus-nsa/

A UK student reading a book on terrorism is accused of being a terrorist. He was reading the book for a class he was taking. I'll let you guess his ethnicity.
http://www.theguardian.com/education/2015/sep/24/student-accused-being-terrorist-reading-book-terrorism

A self-destructing computer chip is built on glass.
http://www.extremetech.com/extreme/214185-new-xerox-parc-processor-can-self-destruct-destroy-cryptographic-keys-on-command

Okay, this is weird. FireEye has gone to court to prevent ERNW from disclosing vulnerabilities in FireEye products. FireEye should know better.
http://www.wired.com/2015/09/fireeye-enrw-injunction-bizarre-twist-in-the-debate-over-vulnerability-disclosures/
http://www.cio.com/article/2983141/fireeye-takes-security-firm-to-court-over-vulnerability-disclosure.html
http://www.pcworld.com/article/2983144/fireeye-takes-security-firm-to-court-over-vulnerability-disclosure.html
https://www.insinuator.net/2015/09/sending-mixed-signals-what-can-happen-in-the-course-of-vulnerability-disclosure/
http://www.forbes.com/sites/thomasbrewster/2015/09/10/fireeye-slammed-over-injunction/
Here's FireEye's statement:
https://www.fireeye.com/content/dam/fireeye-www/support/pdfs/fireeye-ernw-vulnerability.pdf

Here's a watch that monitors the movements of your hand and can guess what you're typing.
http://news.softpedia.com/news/creepy-smartwatch-spies-what-you-type-on-a-keyboard-491604.shtml

Drone speedboat.
http://www.defensemedianetwork.com/stories/zycraft-independent-unmanned-surface-vehicle-iusv/

A history of hacking by Dorothy Denning.
http://journal.georgetown.edu/the-rise-of-hacktivism/

FireEye is reporting the discovery of persistent malware that compromises Cisco routers:
https://www.fireeye.com/blog/executive-perspective/2015/09/the_new_route_toper.html
https://www.fireeye.com/blog/threat-research/2015/09/synful_knock_-_acis.html

I don't know if the attack is related to this attack against Cisco routers discovered in August.
https://www.schneier.com/blog/archives/2015/08/nasty_cisco_att.html
http://www.wired.com/2013/09/nsa-router-hacking/
As I wrote then, this is very much the sort of attack you'd expect from a government eavesdropping agency. We know, for example, that the NSA likes to attack routers. If I had to guess, I would guess that this is an NSA exploit. (Note the lack of Five Eyes countries in the target list.)
https://www.techdirt.com/articles/20131230/09221925711/leaked-documents-show-nsa-compromising-computer-hardware-communication-technology-massive-scale.shtml

This is the story of a reporter who set up a fake business and then bought Facebook fans, Twitter followers, and online reviews. It was surprisingly easy and cheap.
http://fusion.net/story/191773/i-created-a-fake-business-and-fooled-thousands-of-people-into-thinking-it-was-real/

Fascinating story about a man who figured out how to hack the game show "Press Your Luck" in 1984.
http://priceonomics.com/the-man-who-got-no-whammies/

People who need to pee are better at lying.
http://www.sciencedirect.com/science/article/pii/S1053810015300301
https://www.newscientist.com/article/dn28199-the-lies-we-tell-are-more-convincing-when-we-need-to-pee/

You can wrap your house in tinfoil, but when you start shining bright lights to defend yourself against alien attack, you've gone too far.
http://www.upi.com/Odd_News/2015/09/11/Man-angers-neighbors-by-shining-alien-fighting-spotlights/5421441980144/
In general, society puts limits on what types of security you are allowed to use, especially when that use can affect others. You can't place landmines on your lawn or shoot down drones hovering over your property.
https://answers.yahoo.com/question/index?qid=20100112173136AAkvsKU

Fortune has a three-part article on the Sony attack by North Korea. There's not a lot of tech here; it's mostly about Sony's internal politics regarding the movie and IT security before the attack, and some about their reaction afterwards.
http://fortune.com/sony-hack-part-1/
http://fortune.com/sony-hack-part-two/
http://fortune.com/sony-hack-final-part/
Despite what I wrote at the time, I now believe that North Korea was responsible for the attack. This is the article that convinced me. It's about the US government's reaction to the attack.
http://www.nytimes.com/2015/01/19/world/asia/nsa-tapped-into-north-korean-networks-before-sony-attack-officials-say.html

The Intercept has a new story from the Snowden documents about the UK's surveillance of the Internet by the GCHQ, along with 28 new NSA and GCHQ documents:
https://theintercept.com/2015/09/25/gchq-radio-porn-spies-track-web-users-online-identities/

The website Unfitbits.com has a series of instructional videos on how to spoof fitness trackers, using such things as a metronome, pendulum, or power drill. With insurance companies like John Hancock offering

discounts to people who allow them to verify their exercise program by opening up their fitness-tracker data, these are useful hacks.
http://www.unfitbits.com/index.html
http://www.nytimes.com/2015/04/08/your-money/giving-out-private-data-for-discount-in-insurance.html
http://www.theatlantic.com/health/archive/2015/09/unfit-bits/407644/

During the Cold War, the KGB was very adept at identifying undercover CIA officers in foreign countries through what was basically big data analysis. (Yes, this is a needlessly dense and very hard-to-read article. I think it's worth slogging through, though.)
http://www.salon.com/2015/09/26/how to explain the kgbs amazing success identifying cia ag

AI theorist Eliezer Yudkowsky coined Moore's Law of Mad Science: "Every eighteen months, the minimum IQ necessary to destroy the world drops by one point."
http://www.azquotes.com/quote/819025
Oh, how I wish I said that.

Good discussion of the issues involving using autonomous vehicles as bombs. Now we need to think about solutions.
http://www.start.umd.edu/news/smart-bomb-every-garage-driverless-cars-and-future-terrorist-attacks

The European Court of Justice ruled that sending personal data to the US violates their right to privacy. This is a big deal, because it directly affects all the large American Internet companies. If this stands, expect much more pressure on the NSA to stop its indiscriminate spying on everyone.
http://www.nytimes.com/2015/10/07/technology/european-union-us-data-collection.html
http://www.scribd.com/doc/283806411/CJEU-Judgment-Schrems-Case-on-Safe-Harbour
http://www.politico.eu/wp-content/uploads/2015/10/schrems-judgment.pdf
https://www.lawfareblog.com/safe-harbor-framework-dead
https://theintercept.com/2015/10/06/top-european-court-rules-that-nsa-spying-makes-u-s-unsafe-for-data/
https://www.eff.org/deeplinks/2015/10/europes-court-justice-nsa-surveilance
http://www.washingtonpost.com/blogs/monkey-cage/wp/2015/10/06/this-privacy-activist-has-just-won-an-enormous-victory-against-u-s-surveillance-heres-how/
http://www.washingtonpost.com/blogs/monkey-cage/wp/2015/10/06/heres-how-the-facebook-case-has-just-transformed-the-surveillance-debate
http://www.europe-v-facebook.org/CJEU_IR.pdf
http://www.mcgarrsolicitors.ie/2015/10/06/safe-harbour-decision-ruled-invalid-by-cjeu/
https://www.lawfareblog.com/schrems-v-data-protection-commissioner-some-inconvenient-truths-european-court-justice-ignores
https://www.lawfareblog.com/surveillance-reform-only-hope-reviving-safe-harbor
http://abovethelaw.com/2015/10/safe-harbor-invalid-will-the-ecj-follow-the-advocate-general-recommendation/
http://www.theregister.co.uk/2015/10/08/understand safe harbor ischrems v facebooki in und

There's a lot of information hidden in the bar code of your airplane boarding pass, including the ability to get even more information.
https://krebsonsecurity.com/2015/10/whats-in-a-boarding-pass-barcode-a-lot/

Details on the patents issued to the NSA.
https://medium.com/silk-stories/behind-the-nsa-e0bf2c3a40c0

In the 1980s, the Soviet Union bugged the IBM Selectric typewriters in the US Embassy in Moscow. This NSA document discusses how the US

discovered the bugs and what we did about it. Codename is GUNMAN.
https://www.nsa.gov/about/ files/cryptologic heritage/center crypt history/publications/le
Is this the world's first keylogger? Maybe.

Jamming Wi-Fi is both easy and cheap.
http://www.net-security.org/secworld.php?id=18971
http://tech.slashdot.org/story/15/10/13/1552238/jamming-wi-fi-with-a-15-dongle

Good op-ed on cyber arms-control treaties:
https://www.washingtonpost.com/opinions/the-world-needs-an-arms-control-treaty-for-cybersecurity/2015/10/01/20c3e970-66dd-11e5-9223-70cb36460919 story.html

Turns out that DNA evidence is fallible:
http://www.wbur.org/npr/447202433/-great-pause-among-forensic-scientists-as-dna-proves-fallible
http://www.wired.com/2015/10/familial-dna-evidence-turns-innocent-people-into-crime-suspects/

** *** ***** ******* ********** **********

Stealing Fingerprints

The news from the Office of Personnel Management hack keeps getting worse. In addition to the personal records of over 20 million US government employees, we've now learned that the hackers stole fingerprint files for 5.6 million of them.

This is fundamentally different from the data thefts we regularly read about in the news, and should give us pause before we entrust our biometric data to large networked databases.

There are three basic kinds of data that can be stolen. The first, and most common, is authentication credentials. These are passwords and other information that allows someone else access into our accounts and -- usually -- our money. An example would be the 56 million credit card numbers hackers stole from Home Depot in 2014, or the 21.5 million Social Security numbers hackers stole in the OPM breach. The motivation is typically financial. The hackers want to steal money from our bank accounts, process fraudulent credit card charges in our name, or open new lines of credit or apply for tax refunds.

It's a huge illegal business, but we know how to deal with it when it happens. We detect these hacks as quickly as possible, and update our account credentials as soon as we detect an attack. (We also need to stop treating Social Security numbers as if they were secret.)

The second kind of data stolen is personal information. Examples would be the medical data stolen and exposed when Sony was hacked in 2014, or the very personal data from the infidelity website Ashley Madison stolen and published this year. In these instances, there is no real way to recover after a breach. Once the data is public, or in the hands of an adversary, it's impossible to make it private again.

This is the main consequence of the OPM data breach. Whoever stole the data -- we suspect it was the Chinese -- got copies the security-clearance paperwork of all those government employees. This documentation includes the answers to some very personal and

embarrassing questions, and now opens these employees up to blackmail and other types of coercion.

Fingerprints are another type of data entirely. They're used to identify people at crime scenes, but increasingly they're used as an authentication credential. If you have an iPhone, for example, you probably use your fingerprint to unlock your phone. This type of authentication is increasingly common, replacing a password -- something you know -- with a biometric: something you are. The problem with biometrics is that they can't be replaced. So while it's easy to update your password or get a new credit card number, you can't get a new finger.

And now, for the rest of their lives, 5.6 million US government employees need to remember that someone, somewhere, has their fingerprints. And we really don't know the future value of this data. If, in twenty years, we routinely use our fingerprints at ATM machines, that fingerprint database will become very profitable to criminals. If fingerprints start being used on our computers to authorize our access to files and data, that database will become very profitable to spies.

Of course, it's not that simple. Fingerprint readers employ various technologies to prevent being fooled by fake fingers: detecting temperature, pores, a heartbeat, and so on. But this is an arms race between attackers and defenders, and there are many ways to fool fingerprint readers. When Apple introduced its iPhone fingerprint reader, hackers figured out how to fool it within days, and have continued to fool each new generation of phone readers equally quickly.

Not every use of biometrics requires the biometric data to be stored in a central server somewhere. Apple's system, for example, only stores the data locally: on your phone. That way there's no central repository to be hacked. And many systems don't store the biometric data at all, only a mathematical function of the data that can be used for authentication but can't be used to reconstruct the actual biometric. Unfortunately, OPM stored copies of actual fingerprints.

Ashley Madison has taught us all the dangers of entrusting our intimate secrets to a company's computers and networks, because once that data is out there's no getting it back. All biometric data, whether it be fingerprints, retinal scans, voiceprints, or something else, has that same property. We should be skeptical of any attempts to store this data en masse, whether by governments or by corporations. We need our biometrics for authentication, and we can't afford to lose them to hackers.

This essay previously appeared on Motherboard.
http://motherboard.vice.com/read/stealing-fingerprints

Office of Personnel Management hack:
http://motherboard.vice.com/read/the-us-agency-that-handles-all-federal-employee-data-has-been-hacked
http://www.npr.org/sections/thetwo-way/2015/07/09/421502905/opm-21-5-million-social-security-numbers-stolen-from-government-computers

OPM fingerprint files stolen:
https://www.washingtonpost.com/news/the-switch/wp/2015/09/23/opm-now-says-more-than-five-million-fingerprints-compromised-in-breaches/

China suspected in OPM hack:
http://www.wsj.com/articles/u-s-suspects-hackers-in-china-behind-government-data-breach-sources-say-1433451888

Home Depot hack:
http://money.cnn.com/2014/09/18/technology/security/home-depot-hack/

Fraud with Social Security Numbers:
http://blog.credit.com/2015/02/5-things-an-identity-thief-can-do-with-your-social-security-number-108597/
http://money.cnn.com/2014/11/11/technology/security/social-security-number-hack

Sony hack:
http://www.usatoday.com/story/news/nation-now/2014/12/18/sony-hack-timeline-interview-north-korea/20601645/

Ashley Madison hack:
http://fortune.com/2015/08/26/ashley-madison-hack/

Security problem with biometrics:
https://www.schneier.com/blog/archives/2009/01/biometrics.html

Potential value of fingerprints in the future:
http://www.zdnet.com/article/opm-data-breachs-big-question-whats-fingerprint-data-worth-in-future-cyber-attacks/

Beating fingerprint readers:
http://www.networkworld.com/article/2293129/data-center/120606-10-ways-to-beat-fingerprint-biometrics.html

Beating the iPhone fingerprint reader:
http://www.darkreading.com/vulnerabilities-and-threats/apple-iphone-5s-fooled-by-fake-finger/d/d-id/1111637
http://www.cnet.com/news/apples-touch-id-still-vulnerable-to-hack-security-researcher-finds/

** *** ***** ******* ********** **********

Automatic Face Recognition and Surveillance

ID checks were a common response to the terrorist attacks of 9/11, but they'll soon be obsolete. You won't have to show your ID, because you'll be identified automatically. A security camera will capture your face, and it'll be matched with your name and a whole lot of other information besides. Welcome to the world of automatic facial recognition. Those who have access to databases of identified photos will have the power to identify us. Yes, it'll enable some amazing personalized services; but it'll also enable whole new levels of surveillance. The underlying technologies are being developed today, and there are currently no rules limiting their use.

Walk into a store, and the salesclerks will know your name. The store's cameras and computers will have figured out your identity, and looked you up in both their store database and a commercial marketing database they've subscribed to. They'll know your name, salary, interests, what sort of sales pitches you're most vulnerable to, and how profitable a

customer you are. Maybe they'll have read a profile based on your tweets and know what sort of mood you're in. Maybe they'll know your political affiliation or sexual identity, both predictable by your social media activity. And they're going to engage with you accordingly, perhaps by making sure you're well taken care of or possibly by trying to make you so uncomfortable that you'll leave.

Walk by a policeman, and she will know your name, address, criminal record, and with whom you routinely are seen. The potential for discrimination is enormous, especially in low-income communities where people are routinely harassed for things like unpaid parking tickets and other minor violations. And in a country where people are arrested for their political views, the use of this technology quickly turns into a nightmare scenario.

The critical technology here is computer face recognition. Traditionally it has been pretty poor, but it's slowly improving. A computer is now as good as a person. Already Google's algorithms can accurately match child and adult photos of the same person, and Facebook has an algorithm that works by recognizing hair style, body shape, and body language -- and works even when it can't see faces. And while we humans are pretty much as good at this as we're ever going to get, computers will continue to improve. Over the next years, they'll continue to get more accurate, making better matches using even worse photos.

Matching photos with names also requires a database of identified photos, and we have plenty of those too. Driver's license databases are a gold mine: all shot face forward, in good focus and even light, with accurate identity information attached to each photo. The enormous photo collections of social media and photo archiving sites are another. They contain photos of us from all sorts of angles and in all sorts of lighting conditions, and we helpfully do the identifying step for the companies by tagging ourselves and our friends. Maybe this data will appear on handheld screens. Maybe it'll be automatically displayed on computer-enhanced glasses. Imagine salesclerks -- or politicians -- being able to scan a room and instantly see wealthy customers highlighted in green, or policemen seeing people with criminal records highlighted in red.

Science fiction writers have been exploring this future in both books and movies for decades. Ads followed people from billboard to billboard in the movie Minority Report. In John Scalzi's recent novel Lock In, characters scan each other like the salesclerks I described above.

This is no longer fiction. High-tech billboards can target ads based on the gender of who's standing in front of them. In 2011, researchers at Carnegie Mellon pointed a camera at a public area on campus and were able to match live video footage with a public database of tagged photos in real time. Already government and commercial authorities have set up facial recognition systems to identify and monitor people at sporting events, music festivals, and even churches. The Dubai police are working on integrating facial recognition into Google Glass, and more US local police forces are using the technology.

Facebook, Google, Twitter, and other companies with large databases of tagged photos know how valuable their archives are. They see all kinds of services powered by their technologies -- services they can sell to businesses like the stores you walk into and the governments you might interact with.

Other companies will spring up whose business models depend on capturing our images in public and selling them to whoever has use for them. If you think this is farfetched, consider a related technology that's already far down that path: license-plate capture.

Today in the US there's a massive but invisible industry that records the movements of cars around the country. Cameras mounted on cars and tow trucks capture license places along with date/time/location information, and companies use that data to find cars that are scheduled for repossession. One company, Vigilant Solutions, claims to collect 70 million scans in the US every month. The companies that engage in this business routinely share that data with the police, giving the police a steady stream of surveillance information on innocent people that they could not legally collect on their own. And the companies are already looking for other profit streams, selling that surveillance data to anyone else who thinks they have a need for it.

This could easily happen with face recognition. Finding bail jumpers could even be the initial driving force, just as finding cars to repossess was for license plate capture.

Already the FBI has a database of 52 million faces, and describes its integration of facial recognition software with that database as "fully operational." In 2014, FBI Director James Comey told Congress that the database would not include photos of ordinary citizens, although the FBI's own documents indicate otherwise. And just last month, we learned that the FBI is looking to buy a system that will collect facial images of anyone an officer stops on the street.

In 2013, Facebook had a quarter of a trillion user photos in its database. There's currently a class-action lawsuit in Illinois alleging that the company has over a billion "face templates" of people, collected without their knowledge or consent.

Last year, the US Department of Commerce tried to prevail upon industry representatives and privacy organizations to write a voluntary code of conduct for companies using facial recognition technologies. After 16 months of negotiations, all of the consumer-focused privacy organizations pulled out of the process because industry representatives were unable to agree on any limitations on something as basic as nonconsensual facial recognition.

When we talk about surveillance, we tend to concentrate on the problems of data collection: CCTV cameras, tagged photos, purchasing habits, our writings on sites like Facebook and Twitter. We think much less about data analysis. But effective and pervasive surveillance is just as much about analysis. It's sustained by a combination of cheap and ubiquitous cameras, tagged photo databases, commercial databases of our actions that reveal our habits and personalities, and -- most of all -- fast and accurate face recognition software.

Don't expect to have access to this technology for yourself anytime soon. This is not facial recognition for all. It's just for those who can either demand or pay for access to the required technologies -- most importantly, the tagged photo databases. And while we can easily imagine how this might be misused in a totalitarian country, there are dangers in free societies as well. Without meaningful regulation, we're moving into a world where governments and corporations will be able to identify people both in real time and backwards in time, remotely and in secret, without consent or recourse.

Despite protests from industry, we need to regulate this budding industry. We need limitations on how our images can be collected without our knowledge or consent, and on how they can be used. The technologies aren't going away, and we can't uninvent these capabilities. But we can ensure that they're used ethically and responsibly, and not just as a mechanism to increase police and corporate power over us.

This essay previously appeared on Forbes.com.
http://www.forbes.com/sites/bruceschneier/2015/09/29/the-era-of-automatic-facial-recognition-and-surveillance-is-here/

License-plate scanners:
http://betaboston.com/news/2014/03/05/a-vast-hidden-surveillance-network-runs-across-america-powered-by-the-repo-industry
http://betaboston.com/news/2014/03/05/massive-license-plate-location-database-just-like-instagram-digital-recognition-network-insists
http://cironline.org/reports/plans-expand-scope-license-plate-readers-alarm-privacy-advocates-6451
http://arstechnica.com/tech-policy/2012/09/your-car-tracked-the-rapid-rise-of-license-plate-readers
https://www.aclu.org/files/assets/071613-aclu-alprreport-opt-v05.pdf

FBI's photo database and facial recognition system:
http://www.fbi.gov/news/pressrel/press-releases/fbi-announces-full-operational-capability-of-the-next-generation-identification-system
http://www.nationaljournal.com/tech/2014/06/24/privacy-groups-sound-alarm-over-fbis-facial-recognition-technology
https://www.eff.org/deeplinks/2014/04/fbi-plans-have-52-million-photos-its-ngi-face-recognition-database-next-year
https://www.eff.org/deeplinks/2015/09/little-fanfare-fbi-ramps-biometrics-programs-yet-again-part-2

Facebook's photo database and facial recognition system:
http://www.businessinsider.com/facebook-350-million-photos-each-day-2013-9
http://www.theregister.co.uk/2015/09/07/facebook biometrics class action suit/

Privacy organizations pull out of NTIA process:
https://www.eff.org/deeplinks/2015/06/eff-and-eight-other-privacy-organizations-back-out-ntia-face-recognition-multi
http://www.slate.com/articles/technology/future tense/2015/06/facial recognition privacy t

Two articles that say much the same thing:
http://www.telegraph.co.uk/technology/11693965/Facial-recognition-technology-Is-Orwells-fiction-our-reality.html
http://www.theguardian.com/commentisfree/2015/jun/27/facebook-tag-pics-government

** *** ***** ******* ********** **********

Schneier News

I'm speaking at The Second Annual Cato Surveillance Conference in Washington, DC, on October 21, 2015.
http://www.cato.org/events/second-annual-cato-surveillance-conference

I'm speaking at the Privacy + Security Forum, October 21-23, 2015 at The

Marvin Center in Washington, DC.
http://www.privacyandsecurityforum.com/schedule/

I'm speaking at the Boston Book Festival on October 24, 2015.
http://www.bostonbookfest.org/

I'm speaking at CyberSEED 2015, October 29-30 at the University of Connecticut's Storrs Campus.
http://www.csi.uconn.edu/cyberseed/

I'm speaking at the 4th Annual Cloud Security Congress EMEA in Berlin on November 17, 2015.
https://cloudsecurityalliance.org/events/emea-congress-2015/

I'm speaking at NASA's Goddard Space Flight Center as part of their Information Science and Technology Colloquium Series, on December 16, 2015.
https://istcolloq.gsfc.nasa.gov/Fall2015/speaker/schneier.html

I was interviewed by the Logikull blog:
http://logikcull.com/blog/qa-with-bruce-schneier-what-if-your-law-firm-is-the-next-ashley-madison/

I gave a keynote at Free and Safe in Cyberspace 2015:
http://www.free-and-safe.org/program/
https://www.youtube.com/watch?v=WsZSrBub3b4&list=PL4aKyhySTbUMmKl8V9dpkvYMNfFXE2KvL&index=

I participated in a panel at Free and Safe in Cyberspace 2015, with Bart Preneel, Richard Stallman, Andreas Wild, Jovan Golic, Bjoern Rupp, Michael Sieber, Melle Van den Berg, Pierre Chastanet, and moderator Rufo Guerreschi.
http://www.free-and-safe.org/program/
https://www.youtube.com/watch?v=QJtgjqCe_IU&list=PL4aKyhySTbUMmKl8V9dpkvYMNfFXE2KvL&index=

I was a guest on "Adam Ruins Everything." The episode is about security theater. I am a disembodied head on a scooter.
https://www.youtube.com/watch?v=-LDzOi1dyAA
https://www.amazon.com/gp/product/B0163KQ5WM/ref=dv_dp_ep2
The scooter idea was a hack when I couldn't find the time to fly to LA for live filming. The whole thing was a lot of fun.

I was interviewed by BetaBoston on the subject of data privacy:
http://www.betaboston.com/news/2015/10/07/data-privacy-one-of-these-days/

** *** ***** ******* ********** **********

Resilient Systems News

Former Raytheon CEO Bill Swanson has joined our board of directors.

For those who don't know, Resilient Systems is my company. I'm the CTO, and we sell an incident-response management platform that...well...helps IR teams to manage incidents. It's a single hub that allows a team to collect data about an incident, assign and manage tasks, automate actions, integrate intelligence information, and so on. It's designed to be powerful, flexible, and intuitive -- if your HR or legal person needs to get involved, she has to be able to use it without any training. I'm

really impressed with how well it works. Incident response is all about people, and the platform makes teams more effective. This is probably the best description of what we do.

We have lots of large- and medium-sized companies as customers. They're all happy, and we continue to sell this thing at an impressive rate. Our Q3 numbers were fantastic. It's kind of scary, really.

http://fortune.com/2015/09/28/raytheon-chief-joins-resilient/

Resilient Systems:
https://www.resilientsystems.com/
https://www.resilientsystems.com/product/incident-response-security

** *** ***** ******* ********** **********

Bringing Frozen Liquids through Airport Security

Gizmodo reports that UK airport security confiscates frozen liquids:

> "He told me that it wasn't allowed so I asked under what grounds, given it is not a liquid. When he said I couldn't take it I asked if he knew that for sure or just assumed. He grabbed his supervisor and the supervisor told me that 'the government does not classify that as a solid'. I decided to leave it at that point. I expect they're probably wrong to take it from me. They'd probably not seen it before, didn't know the rules, and being a bit of an eccentric request, decided to act on the side of caution. They didn't spend the time to look it up."

As it happens, I have a comparable recent experience. Last week, I tried to bring through a small cooler containing, among other things, a bag of ice. I expected to have to dump the ice at the security checkpoint and refill it inside the airport, but the TSA official looked at it and let it through. Turns out that frozen liquids are fine. I confirmed this with TSA officials at two other airports this week.

One of the TSA officials even told me that what he was officially told is that liquid explosives don't freeze.

So there you go. The US policy is more sensible. And anyone landing in the UK from the US will have to go through security before any onward flight, so there's no chance at flouting the UK rules that way.

And while we're on the general subject, I am continually amazed by how lax the liquid rules are here in the US. Yesterday I went through airport security at SFO with an opened 5-ounce bottle of hot sauce in my carry-on. The screener flagged it; it was obvious on the x-ray. Another screener searched my bag, found it and looked at it, and then let me keep it.

And, in general, I never bother taking my liquids out of my suitcase anymore. I don't have to when I am in the PreCheck lane, but no one seems to care in the regular lane, either. It is different in the UK.

http://gizmodo.com/what-happens-if-you-take-frozen-liquids-through-airport-1729772148

According to a TSA blog post, frozen ice (not semi-melted) is allowed:
http://blog.tsa.gov/2009/11/response-to-tsa-takes-big-gulp-over.html

Hannibal Burgess routine about the TSA liquids rules.
https://youtu.be/kD0KBcrfWgs?t=44s:

** *** ***** ******* ********** **********

SHA-1 Freestart Collision

There's a new cryptanalysis result against the hash function SHA-1:

> Abstract: We present in this article a freestart collision example for SHA-1, i.e., a collision for its internal compression function. This is the first practical break of the full SHA-1, reaching all 80 out of 80 steps, while only 10 days of computation on a 64 GPU cluster were necessary to perform the attack. This work builds on a continuous series of cryptanalytic advancements on SHA-1 since the theoretical collision attack breakthrough in 2005. In particular, we extend the recent freestart collision work on reduced-round SHA-1 from CRYPTO 2015 that leverages the computational power of graphic cards and adapt it to allow the use of boomerang speed-up techniques. We also leverage the cryptanalytic techniques by Stevens from EUROCRYPT 2013 to obtain optimal attack conditions, which required further refinements for this work. Freestart collisions, like the one presented here, do not directly imply a collision for SHA-1.
>
> However, this work is an important milestone towards an actual SHA-1 collision and it further shows how graphics cards can be used very efficiently for these kind of attacks. Based on the state-of-the-art collision attack on SHA-1 by Stevens from EUROCRYPT 2013, we are able to present new projections on the computational/financial cost required by a SHA-1 collision computation. These projections are significantly lower than previously anticipated by the industry, due to the use of the more cost efficient graphics cards compared to regular CPUs. We therefore recommend the industry, in particular Internet browser vendors and Certification Authorities, to retract SHA-1 soon. We hope the industry has learned from the events surrounding the cryptanalytic breaks of MD5 and will retract SHA-1 before example signature forgeries appear in the near future. With our new cost projections in mind, we strongly and urgently recommend against a recent proposal to extend the issuance of SHA-1 certificates by a year in the CAB/forum (the vote closes on October 16 2015 after a discussion period ending on October 9).

Especially note this bit: "Freestart collisions, like the one presented here, do not directly imply a collision for SHA-1. However, this work is an important milestone towards an actual SHA-1 collision and it further shows how graphics cards can be used very efficiently for these kind of attacks." In other words: don't panic, but prepare for a future panic.

This is not that unexpected. We've long known that SHA-1 is broken, at

least theoretically. All the major browsers are planning to stop accepting SHA-1 signatures by 2017. Microsoft is retiring it on that same schedule. What's news is that our previous estimates may be too conservative.

There's a saying inside the NSA: "Attacks always get better; they never get worse." This is obviously true, but it's worth explaining why. Attacks get better for three reasons. One, Moore's Law means that computers are always getting faster, which means that any cryptanalytic attack gets faster. Two, we're forever making tweaks in existing attacks, which make them faster. (Note above: "...due to the use of the more cost efficient graphics cards compared to regular CPUs.") And three, we regularly invent new cryptanalytic attacks. The first of those is generally predictable, the second is somewhat predictable, and the third is not at all predictable.

Way back in 2004, I wrote: "It's time for us all to migrate away from SHA-1." Since then, we have developed an excellent replacement: SHA-3 has been agreed on since 2012, and just became a standard.

This new result is important right now:

> Thursday's research showing SHA1 is weaker than previously thought comes as browser developers and certificate authorities are considering a proposal that would extend the permitted issuance of the SHA1-based HTTPS certificates by 12 months, that is through the end of 2016 rather than no later than January of that year. The proposal argued that some large organizations currently find it hard to move to a more secure hashing algorithm for their digital certificates and need the additional year to make the transition.

As the paper's authors note, approving this proposal is a bad idea.

More on the paper here.
https://eprint.iacr.org/2015/967
https://sites.google.com/site/itstheshappening/

http://arstechnica.com/security/2015/10/sha1-crypto-algorithm-securing-internet-could-break-by-years-end/

Old blog posts on SHA-1 cryptanalysis:
https://www.schneier.com/blog/archives/2005/02/sha1_broken.html
https://www.schneier.com/blog/archives/2005/02/cryptanalysis_o.html
https://www.schneier.com/blog/archives/2013/11/microsoft_retir.html
https://www.schneier.com/blog/archives/2012/10/when_will_we_se.html

My 2004 essay:
https://www.schneier.com/essays/archives/2004/08/cryptanalysis_of_md5.html

SHA-3:
https://en.wikipedia.org/wiki/SHA-3
http://www.nist.gov/manuscript-publication-search.cfm?pub_id=919061

Proposal to extend the use of SHA:
https://cabforum.org/pipermail/public/2015-October/006048.html

** *** ***** ******* ********** **********

Since 1998, CRYPTO-GRAM has been a free monthly newsletter providing summaries, analyses, insights, and commentaries on security: computer and otherwise. You can subscribe, unsubscribe, or change your address on the Web at <https://www.schneier.com/crypto-gram.html>. Back issues are also available at that URL.

Please feel free to forward CRYPTO-GRAM, in whole or in part, to colleagues and friends who will find it valuable. Permission is also granted to reprint CRYPTO-GRAM, as long as it is reprinted in its entirety.

CRYPTO-GRAM is written by Bruce Schneier. Bruce Schneier is an internationally renowned security technologist, called a "security guru" by The Economist. He is the author of 12 books -- including "Liars and Outliers: Enabling the Trust Society Needs to Survive" -- as well as hundreds of articles, essays, and academic papers. His influential newsletter "Crypto-Gram" and his blog "Schneier on Security" are read by over 250,000 people. He has testified before Congress, is a frequent guest on television and radio, has served on several government committees, and is regularly quoted in the press. Schneier is a fellow at the Berkman Center for Internet and Society at Harvard Law School, a program fellow at the New America Foundation's Open Technology Institute, a board member of the Electronic Frontier Foundation, an Advisory Board Member of the Electronic Privacy Information Center, and the Chief Technology Officer at Resilient Systems, Inc. See <https://www.schneier.com>.

Crypto-Gram is a personal newsletter. Opinions expressed are not necessarily those of Resilient Systems, Inc.

Copyright (c) 2015 by Bruce Schneier.

** *** ***** ******* ********** *************

To unsubscribe from Crypto-Gram, click this link:

https://lists.schneier.com/cgi-bin/mailman/options/crypto-gram/mail%40petrajanusch-oldag.com?login-unsub=Unsubscribe

You will be e-mailed a confirmation message. Follow the instructions in that message to confirm your removal from the list.

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Rodgers, William (EEO)
Sent: Fri 10/16/2015 5:10:07 PM
Subject: RE: 2107 VECI labels

thanks

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Friday, October 16, 2015 11:40 AM
To: Rodgers, William (EEO)
Subject: RE: 2107 VECI labels

Looks okay.

I handed off the CoC to Dave Wright last week. I reminded him yesterday.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Friday, October 16, 2015 9:36 AM
To: Snyder, Jim
Cc: Giles, Michael (EEO); Allen, Gregory (EEO); Wright, DavidA; Sigelko, Jenny (EEO)
Subject: 2107 VECI labels

Hello Jim,

1) We are developing 2017 VECI labels which identify interim Tier 3 standards. Does the abbreviation used below adequately describe the interim standard in your view?

	AUDI AG VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations:		2017 MY
U.S. EPA: IntT3B125 LDV	OBD: CA II	Fuel: Gasoline
California: ULEV II PC	OBD: CA II	Fuel: Gasoline
Adjustments needed.		DFI/AIR/2TC/CAC/2TWC/2WR-HO2S/2HO2S
Group: HVGAV04.0NUA Evap: HVGAR0155NAH		079 010 533 ?

Note – the Audi logo is misplaced in the label and I was unable to edit the drawing.

2) Can you update us on the progress of the A3 e-tron and A3 e-tron ultra Certificate of Conformity?

Regards,

Bill Rodgers

EEO

To: Petrino, Michael A.[michael.petrino@kirkland.com]; Bishop, Brant W.[bbishop@kirkland.com]; Kaul, Meetu[Kaul.Meetu@epa.gov]; Engel, Bethany (ENRD)[Bethany.Engel@usdoj.gov]; Van Eaton, Josh (ENRD)[Josh.Van.Eaton@usdoj.gov]; Orehowsky, Gregory[Orehowsky.Gregory@epa.gov]; Kevin P Holewinski[kpholewinski@JonesDay.com]; Rauskolb, Bill[Bill.Rauskolb@vw.com]
Cc: Drake, Stuart[sdrake@kirkland.com]; Glick, Michael A.[michael.glick@kirkland.com]; McCarthy, Kevin P.[kmccarthy@kirkland.com]; Glaser, Danica (ENRD)[Danica.Glaser@usdoj.gov]
From: Belser, Evan
Sent: Fri 10/16/2015 7:59:58 PM
Subject: RE: Volkswagen Section 208 Request

Receipt confirmed.

Thank you.
Evan

Evan Belser

Chief, Mobile Source Enforcement Branch, Air Enforcement Division

National Coordinator for Administrative Litigation, Office of Civil Enforcement

Office of Enforcement and Compliance Assurance

United States Environmental Protection Agency

202-564-6850

From: Petrino, Michael A. [mailto:michael.petrino@kirkland.com]
Sent: Friday, October 16, 2015 2:54 PM
To: Bishop, Brant W.; Kaul, Meetu; Engel, Bethany (ENRD); Van Eaton, Josh (ENRD); Orehowsky, Gregory; Belser, Evan; Kevin P Holewinski; Rauskolb, Bill
Cc: Drake, Stuart; Glick, Michael A.; McCarthy, Kevin P.; Glaser, Danica (ENRD)
Subject: RE: Volkswagen Section 208 Request

The production should arrive by messenger within an hour from now.

From: Bishop, Brant W.

Sent: Friday, October 16, 2015 2:31 PM
To: Kaul, Meetu; Petrino, Michael A.; Engel, Bethany (ENRD); Van Eaton, Josh (ENRD); Orehowsky, Gregory; Belser, Evan; Kevin P Holewinski; Rauskolb, Bill
Cc: Drake, Stuart; Glick, Michael A.; McCarthy, Kevin P.; Glaser, Danica (ENRD)
Subject: RE: Volkswagen Section 208 Request

It should be deliverable this afternoon. Mike, please you nail down more specific time and keep Meetu advised.

Brant W. Bishop, P.C. | Kirkland & Ellis LLP

655 Fifteenth Street, NW | Washington DC 20005

(202) 879-5067 **DIRECT** | (202) 654-9549 **DIRECT FAX** | bbishop@kirkland.com

From: Kaul, Meetu [mailto:Kaul.Meetu@epa.gov]
Sent: Friday, October 16, 2015 2:29 PM
To: Petrino, Michael A.; Engel, Bethany (ENRD); Van Eaton, Josh (ENRD); Orehowsky, Gregory; Belser, Evan; Kevin P Holewinski; Rauskolb, Bill
Cc: Drake, Stuart; Bishop, Brant W.; Glick, Michael A.; McCarthy, Kevin P.; Glaser, Danica (ENRD)
Subject: RE: Volkswagen Section 208 Request

Thank you.

When will the disc be delivered? I'll need to make sure there is someone available for receiving them (I'm out of the office today)

Thanks,
Meetu

Ms.Meetu Kaul, Attorney-Advisor

Air Enforcement Division
United States Environmental Protection Agency
Direct: 202-564-5472
Email: kaul.meetu@epa.gov

From: Petrino, Michael A. [mailto:michael.petrino@kirkland.com]
Sent: Friday, October 16, 2015 1:57 PM
To: Engel, Bethany (ENRD); Kaul, Meetu; Van Eaton, Josh (ENRD); Orehowsky, Gregory; Belser, Evan; Kevin P Holewinski; Rauskolb, Bill
Cc: Drake, Stuart; Bishop, Brant W.; Glick, Michael A.; McCarthy, Kevin P.; Glaser, Danica (ENRD)
Subject: RE: Volkswagen Section 208 Request

Will do, Beth.

From: Engel, Bethany (ENRD) [mailto:Bethany.Engel@usdoj.gov]
Sent: Friday, October 16, 2015 1:53 PM
To: Petrino, Michael A.; Kaul, Meetu; Van Eaton, Josh (ENRD); Orehowsky, Gregory; Belser, Evan (Belser.Evan@epa.gov); Kevin P Holewinski; Rauskolb, Bill
Cc: Drake, Stuart; Bishop, Brant W.; Glick, Michael A.; McCarthy, Kevin P.; Glaser, Danica (ENRD)
Subject: RE: Volkswagen Section 208 Request

Thanks Mike. Going forward, please include Danica Glaser – cc'd here – on correspondence regarding production of documents, administratively or otherwise.

Beth

Bethany Engel

Trial Attorney

Environmental Enforcement Section

United States Department of Justice

PO Box 7611, Ben Franklin Station

Washington, DC 20044-7611

202.514.6892 (ph)

202.616.2427 (fax)

Overnight Deliveries

601 D Street NW, Room 6915

Washington, DC 20004

From: Petrino, Michael A. [mailto:michael.petrino@kirkland.com]
Sent: Friday, October 16, 2015 1:38 PM
To: Kaul, Meetu <Kaul.Meetu@epa.gov>; Van Eaton, Josh (ENRD) <JVanEaton@ENRD.USDOJ.GOV>; Engel, Bethany (ENRD) <BEngel@ENRD.USDOJ.GOV>; Orehowsky, Gregory <Orehowsky.Gregory@epa.gov>; Belser, Evan (Belser.Evan@epa.gov) <Belser.Evan@epa.gov>; Kevin P Holewinski <kpholewinski@JonesDay.com>; Rauskolb, Bill <Bill.Rauskolb@vw.com>
Cc: Drake, Stuart <sdrake@kirkland.com>; Bishop, Brant W. <bbishop@kirkland.com>; Glick, Michael A. <michael.glick@kirkland.com>; McCarthy, Kevin P. <kmccarthy@kirkland.com>
Subject: Volkswagen Section 208 Request

All,

Please see the attached correspondence from Stuart Drake.

Best regards,

Mike Petrino

Michael A. Petrino
Kirkland & Ellis LLP
655 Fifteenth St. NW Washington, D.C. 20005
Tel +1-202-879-5170 Fax +1-202-654-9638

Michael.Petrino@kirkland.com

****
The information contained in this communication is confidential, may be attorney-client privileged, may constitute inside information, and is intended only for the use of the addressee. It is the property of Kirkland & Ellis LLP or Kirkland & Ellis International LLP. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify us immediately by return e-mail or by e-mail to postmaster@kirkland.com, and destroy this communication and all copies thereof, including all attachments.
****

****
The information contained in this communication is confidential, may be attorney-client privileged, may constitute inside information, and is intended only for the use of the addressee. It is the property of Kirkland & Ellis LLP or Kirkland & Ellis International LLP. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify us immediately by return e-mail or by e-mail to postmaster@kirkland.com, and destroy this communication and all copies thereof, including all attachments.
****

****
The information contained in this communication is confidential, may be attorney-client privileged, may constitute inside information, and is intended only for the use of the addressee. It is the property of Kirkland & Ellis LLP or Kirkland & Ellis International LLP. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify us immediately by return e-mail or by e-mail to postmaster@kirkland.com, and destroy this communication and all copies thereof, including all attachments.
****

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Jackson, Cleophas[jackson.cleophas@epa.gov]
From: Blubaugh, Jim
Sent: Sun 10/18/2015 10:15:05 PM
Subject: Re: China - Byron no go

Hi Byron,

Sorry to hear that you won't be joining Cle and I in China. I certainly understand VW takes priority on this front. I will send a note over to ICCT and MEP letting them know.

Good luck this week.
Jim

Sent from my iPhone

On Oct 16, 2015, at 5:32 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

> Hi Jim,
>
> Chris has asked that I withdraw from the China trip as we are moving through some critical steps with VW this coming week. Can you let me know the best method to appropriately notify our hosts regarding this change? Let me know if I should give Drew a call as well.
>
> Cle is well able to cover our compliance messages at the Workshop and the follow up meetings. He knows them well and knows our focus on visible risk based compliance oversight.
>
> If you would like to discuss this, please call my cell phone.
>
> Thanks,
>
> Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

To: Bunker, Byron[bunker.byron@epa.gov]
From: Drew Kodjak
Sent: Mon 10/19/2015 12:04:06 AM
Subject: FYI - Slides for Beijing and draft summary of revised China Clean Air Law
New regulatory teeth to control mobile source emissions in China V1.docx
ATT00001.txt
ICCT_Drew_Final.pptx

******

****

****
****

****

****

New regulatory teeth to control mobile source emissions in China

On August 29, the Chinese National People's Congress adopted the revised National Air Pollution Prevention and Control Law (new Air Law thereafter) to be effective on Jan 1, 2016. The twenty-eight year old law was last amended in 2000. The recent revision is a significant one with almost doubled number of articles compared to the 2000 version, featuring great strides in enhancing, clarifying and specifying authorities to enforce ambient air pollutants emissions standards. Specifically, the section of Motor Vehicle and Engine Emissions Control (Section 3 of Chapter 4) grows into eighteen articles (Article 50-67) from only four, and ten of them are entirely new.

This policy brief will overview some highlights in the new Air Law related to mobile source emissions control, then provides a detailed review and comparison of vehicle emissions compliance and enforcement authorities between old and new Air Law. Finally we provide high-level recommendation to China for establishing a fuller and stronger vehicle emissions compliance system with the new and clearer empowerments from the new Air Law.

Overview of new authorities in mobile source emissions control

There are several major enhancements in the new Air Law related to vehicle and engine emissions control, as summarized below. Translation of mobile source emissions related articles, and article-by-article comparison between the old and the new law are provided in the appendices.

- *Expanded regulated pollutants* to include volatile organic compounds (VOCs) and Greenhouse gases (GHGs).
- *Identified new non-road mobile sources* including off-road mobile machines and civil aircrafts.
- *Empowered new authority of emissions recall* to the National Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ), and the Ministry of Environmental Protection (MEP), and also enhanced, clarified and specified authorities for other compliance and enforcement actions on road and non-road vehicles and engines at post-production (and in-use) stages.
- *Included new and clarified requirements on industry to demonstrate compliance by data reporting and disclosure* to regulatory agencies and the pubic with regard to emissions standard compliance, and emissions control maintenance technologies.

VW FOIA, EPA 06/20/2017 2017-FFP_034327

- *Included clear requirements against defeat devices and in-use tampering* of emissions control devices including on-board diagnostics systems.
- *Clarified punishment and elevated civil penalties for violation*. Empowered Ministry of Industry and Information Technology to suspend the new production of noncompliant vehicles and engines. MEP and provincial environmental agencies can impose a fine between one and three times as the market value of noncompliant products.
- *Clarified local governments' authority to implement more stringent in-use emissions testing standards* (pass/fail thresholds) than the national government.
- *Included new authority of Ministry of Communication (Transportation) to establish regional Emissions Control Area (ECA)* for shipping emissions control.

By filling holes and clarifying grey areas in the old law, the new Air Law establishes a much more comprehensive architecture and provides a more effective blueprint for enforcement of vehicle emission standards than the previous version. The new authorities will enable various compliance actions throughout vehicle/engine useful life. The following section provides detailed review and comparison of standard implementation and enforcement authorities, and existing and potential compliance actions between the old and the new Air Law.

Pre-production certification

Article 52 stipulates that motor vehicle or off-road engine manufacturers must test their newly produced vehicles and engines for emissions to make sure they meet the national standards. Only new vehicles and engines in compliance can be sold. The testing and compliance information should be published and available for public access. This new requirement may change or bring new additions to the current new model emissions type approval procedures.

Currently, before mass production and being allowed to sell a new vehicle/engine model, all vehicle/engine vehicle manufacturers must apply for Type Approval Certificates from Vehicle Emission Control Center of MEP (VECC-MEP) for their new vehicle models and engines. As part of the process, manufacturers submit vehicle prototypes to third-party testing laboratories accredited by MEP[1] for type approval testing. All of the accredited labs are partially state-owned and are often stake-held by auto manufacturers. The test labs then submit testing and type approval reports to VECC-MEP for approval and issuing the certificates if the reports suggest a pass.

In practice, all reports submitted to date are passing reports, meaning that laboratories

[1] See website of VECC for list of accredited laboratories (http://www.vecc-mep.org.cn/jcjg/index.jsp).

VW FOIA, EPA 06/20/2017 2017-FFP_034328

are not required to provide any report / data on vehicles or engines tested that do not pass the certification requirements. Therefore VECC-MEP does not receive information and data on the failed certification tests. Also this process induced fraud at the test laboratories[2] that essentially erodes the merits of MEP's type approval.

Article 52 in the new Air Law paves the way for a revised system similar to that adopted in the US, with which manufacturers may self-test their new vehicles and models, and MEP conducts confirmatory tests with targeted new models at its own test lab(s). The Article also enables early engagement of consumers in supervising emissions information released by the manufacturers.

Defeat devise

Under Chapter 7 (Legal Responsibilities), Article 109 states that provincial EPBs or MEP can impose a fine on manufacturers that produce or sell non-compliant vehicle or engine products, or adopt defeat devices or false emissions control components, and confiscate illegal income from selling such products. If violation is severe and manufacturers in question refuse to make corrections or pay the fine, MIIT can suspend the new production of noncompliant models.

Although not articulated under Chapter 4 in the new Air Law, adoption of defeat devises to bypass emissions tests and standards is prohibited in the vehicle emissions standards. For example, this is clearly written in Section 5.1.2 in the China 5 emissions standard for light-duty vehicles (China 5 standard thereafter). However, penalty for violating this requirement was neither stipulated in the old Air Law nor in the emissions standards. This omission has largely hindered potential compliance actions from MEP or EPBs to address this issue. The new Air Law made a very necessary fix.

Conformity test and inspection at production and new sales

Article 52 states that provincial EPBs and MEP shall strengthen the supervision and inspection of emissions from newly produced and sold motor vehicles and engines through on-site inspections, sample testing and other measures. Quality supervision, industrial, and commercial agencies shall support the environmental agencies in these efforts. Article 110 articulates that local industry and commercial bureaus can impose a fine on dealers that sell non-compliant vehicle and engine products. In addition, consumers have the rights to return and get refunds for if their newly purchased vehicles are not complying with relevant emissions standards.

As part of the type approval requirements in China, manufacturers need to ensure that

[2] News article exposing fraud at accredited test labs: http://finance.sina.com.cn/consume/puguangtai/20140315/092618517293.shtml

VW FOIA, EPA 06/20/2017 2017-FFP_034329

production vehicles continue to meet and conform to the approved vehicle type. It is a means of evidencing manufacturers' ability to mass-produce a series of products that exactly match the specification, performances and other requirements outlined in the type approval application. Although specific language of authority in conducting Conformity of Production tests is absent from in the old Air Law, it is part of the requirements in the vehicle emissions standards. For example, Section 7 in the China 5 standard specified procedures of COP tests by MEP. Failing the COP tests may lead to revoke of type approval certificates of the vehicles in question.

In practice, MEP's technical arm VECC conducts a number of random COP tests. Some of tests are conducted by selecting and testing vehicles right off the end of the assembly line, and some (though very rarely) are performed on vehicles obtained from the dealers. Despite occasional attempts from local EPBs to conduct random emissions inspection of new sales vehicles at dealership, there were little follow-ups (of real compliance and enforcement actions) due to lack of clear authority of enforcement.

Both Articles in the new Air Law provide clear backup to legalize and formalize such testing and investigations at production and sale stages for emissions compliance. The Articles also clarify the roles of various agencies in compliance actions, that is, the environmental agencies conduct the tests and investigations while quality supervision, industrial and commercial agencies support and enforce.

In-use compliance

There are multiple Articles touching upon various aspects of authorizes for compliance actions during vehicle in-use stage, including in-use conformity or compliance testing, anti-tampering, Inspection and Maintenance (I/M), data reporting and release, and recall.

In-use emissions conformity is part of the requirements in vehicle emissions standards. Per these standards, manufacturers must take appropriate actions to make sure their type-approved vehicles continue to meet the emissions standards during their useful life. The standards also specified detailed test procedures of in-use emissions testing and decision criteria.

For example, in China 5 standard, light-duty vehicles operated for less than 5 years (or 100 thousand km, whichever met first) must be emission tested for in-use conformity. Properly maintained in-use light-duty vehicles will be sampled and tested by accredited labs following specified testing procedures (basically same procedures as those in the type approval testing). LDV in-use testing also includes checking OBD fault codes and IUPR. The rule language for heavy-duty vehicles is relatively vague, stating all heavy-duty vehicles must demonstrate consistent in-use emissions performance as what they are certified to, but does not specify any testing procedures or methods.

VW FOIA, EPA 06/20/2017 2017-FFP_034330

There are two types of in-use emissions testing: initial tests by manufacturers and verification tests by the regulatory agency (VECC-MEP, the same agency that issues type approval certificates). In general, in-use conformity/compliance testing can be summarized in five steps: i) manufacturers test their own in-use vehicles and submit results to VECC-MEP; ii) VECC reviews and evaluates in-use testing reports; iii) based on manufacturers' reports and additional information such as feedback from I/M program or warranty, if VECC deems certain vehicles are non-compliant, it will enter further investigation procedures involving choosing vehicles for verification testing and examining and ensuring vehicles are well maintained to be used as valid test vehicles; iv) testing; and v) require manufacturers to submit remedy plans if non-compliance is confirmed.

However, much of the above only remains on paper due to the similar reason for poor COP – lack of real authority to enforce. So far VECC-MEP has not really conducted any in-use conformity/compliance testing at the national level, though Beijing EPB had implemented routine in-use tests since 2006[3].

Therefore, again, the more definite and enhanced non-compliance penalties in Article 109-110 will provide tangible and strong back up for regulatory agencies to implement the above in-use compliance actions. In addition, Article 53 states that local EPBs (township level and above) may conduct random on-site in-use emissions inspection and testing at parking facilities, repair shops, and at roadside (using remote sensing and other technologies). Public security authorities shall support these efforts. The concept of on-site random testing was raised in the old Air Law too. The new Air Law expanded the spectrum of testing methods/approaches that enable regulatory agencies to conduct more accurate and frequent testing, and also specified the roles of various agencies.

Penalties

Stage	Existing Authority/compliance actions	New Authority/potential compliance actions
Pre-production	MEP issues Type approval certificates: certified third-party test labs conduct tests. Reports	• Traditional type approval; or • OEM self-test, then submit and publish test results to MEP and the public. MEP only conducts

[3] http://www.bjepb.gov.cn/bjepb/413526/413560/413590/414960/438934/index.html, and http://www.bjepb.gov.cn/bjepb/413526/413560/413590/414960/425630/index.html

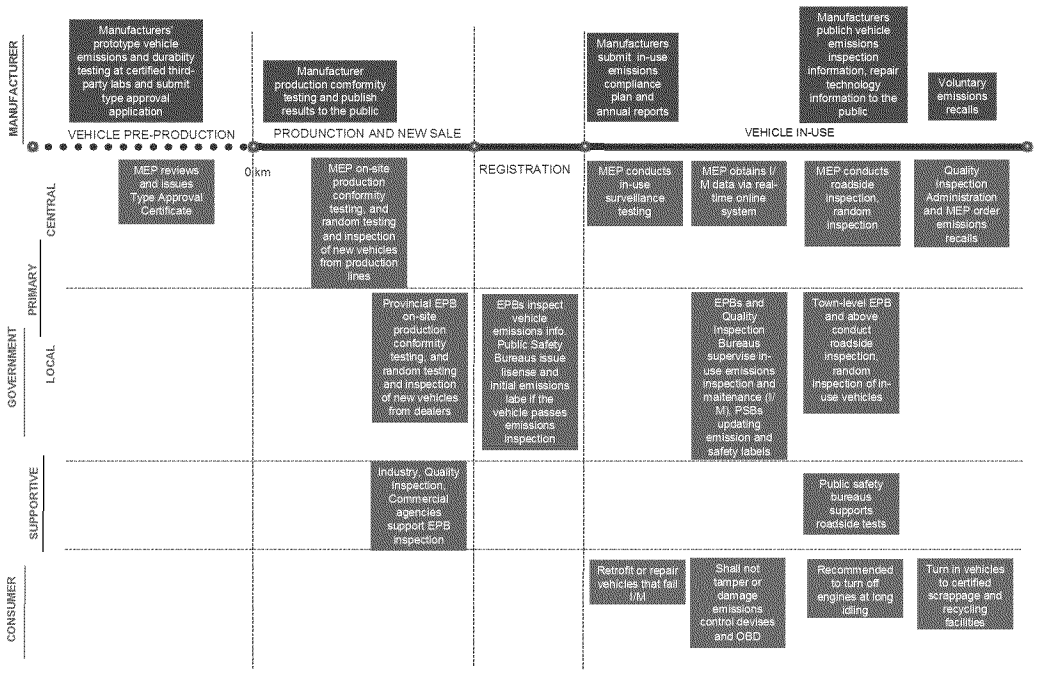
VW FOIA, EPA 06/20/2017 2017-FFP_034331

		submit to MEP for type approval.	
Production/Sale		No clear authority in the Law, but in the emission standards, MEP may conduct Conformity of Production (at assembly lines)	Clear authorizes of • MEP conducting COP tests over vehicles/engines sampled from production line or from dealership • Provincial EPB conducting random inspection/tests at dealership
Registration		No clear authority	• EPB physical inspection of emissions control devises, report to MEP
In-use	Testing	No clear authority in the Law, but in the emission standards, there is vague requirement of all new vehicles must meet emissions standards throughout useful life	Clear authorizes of • MEP conducting in-use testing, and/or roadside inspection and testing • Local EPBs conducting on-site, roadside inspections and remote sensing tests
	Anti-tampering	None	• Local EPBs and above impose a fine to vehicle owners for tampering emissions control or OBD systems
	I/M	Local EPBs or transportation bureaus supervise I/M facilities	• Local EPBs and Quality Accreditation bureaus supervise I/M facilities
	Recall	None	• Quality Inspection Administration and MEP jointly conduct emissions recalls
	Data	None	• Provincial transportation bureaus and MOT require OEM and importers to publish repair information • I/M stations must provide real-time data to EPBs and MEP
Penalty at all stages		MEP and provincial EPBs impose small fine on OEMs producing (importing) non-compliant vehicles	• MEP and provincial EPBs impose large fine on OEMs producing non-compliant vehicles and adopting defeat devices, and destroy noncompliant vehicles • MIIT revokes production certificate if no correction of above issues • Local commercial bureaus and Customs impose large fine on importers and dealers selling noncompliant vehicles • Provincial EPB and MEP impose a fine on OEMs or importers not publishing required emissions data

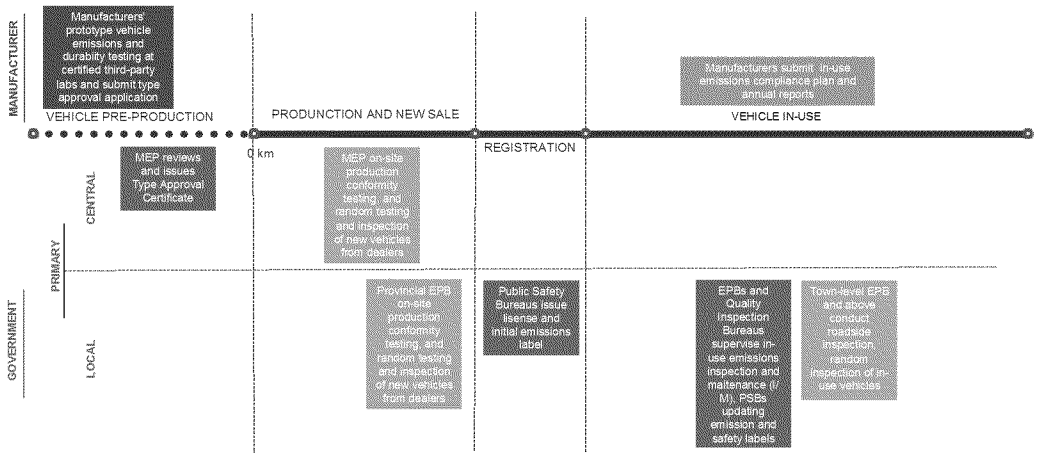
VW FOIA, EPA 06/20/2017 2017-FFP_034332

		Provincial transportation bureaus and MOT impose a fine on OEMs and importers not publishing required repair data

Table x summarizes the comparison of the above authorizes, and Figure x visualizes the various potential compliance actions authorized by the new Air Law on a timescale representing vehicle useful life.



Authorities and potential compliance actions under the New Air Law



Authorities and compliance actions under the old Air Law

Recommendations

Appendix A. Translation of mobile source emission control articles in the new Air Law

Chapter I General Provisions

Article 2 General principles of air pollution prevention shall include: the goal of improving atmospheric environmental air quality, focusing on controlling emissions at their sources with reasonable planning ahead, transforming economic development path, optimizing industrial structure and layout, and adjusting energy structures.

The law comprehensively addresses the prevention and control of air pollution from coal, industries, motor vehicles and vessels, fugitive dust, agriculture as well as other pollution sources; promotes joint regional air pollution prevention and control, co-efforts to reduce air pollutants including particulate matter, sulfur dioxide, nitrogen oxide, volatile organic compounds, ammonia and greenhouse gases.

Chapter IV Air Pollution Prevention and Control Measures

Section 3 Prevention and control of air pollution from motor vehicles, vessels and other non-road mobile sources

Article 50 The state promotes low-carbon and environmentally friendly travel, controlling the number of motor vehicles based on city planning, developing an urban public transport system and promoting public transportation.

The state promotes energy-saving and new-energy motor vehicles, vessels and non-road mobile machinery, restricts the development of highly polluting and energy consumptive motor vehicles, vessels and non-road mobile machinery, and reduces fossil fuel consumption through financial, taxation incentives and government procurement.

Provincial, municipal and local governments, if conditions permit in their governed regions, may implement the national motor vehicle emissions standards ahead of the national schedule. If so, the relevant local governments should report to the environmental department of the State Council for recordkeeping.

Municipal governments shall strengthen and improve urban traffic management, optimize transportation planning, and ensure smooth traffic flow on pedestrian sidewalks and non-motor vehicle lanes.

Article 51 Pollutants emitted from motor vehicles, vessels and non-road mobile machinery shall not exceed stipulated emissions standards.

It is prohibited to produce, import or sell motor vehicles, vessels and non-road mobile machinery not in compliance with stipulated emissions standards.

Article 52 Manufacturers of motor vehicles and non-road mobile machinery shall conduct emissions testing of their newly produced motor vehicles and non-road mobile machinery for compliance. Only new vehicles and machines in compliance can be sold. The testing information should be published and available for public access.

The competent environmental protection agencies of provincial governments and above shall strengthen the supervision and inspection of emissions from newly produced and sold motor vehicles and non-road mobile machinery through on-site inspections, sample testing and other measures. Other governmental agencies such as quality supervision, industrial and commercial administrations shall support the environmental agencies in these efforts.

Article 53 In-use motor vehicles must be regularly inspected by motor vehicle emission testing institutions for exhaust emissions according to relevant national or local regulations. Only vehicles passing such in-use emissions inspections are to be permitted to operate on roads. For those failing to pass the test, the traffic administrative department of public security bureaus shall not issue them required safety technical inspection labels. The competent environmental protection administration of local governments at town level or above may supervise and conduct random emissions tests of in-use motor vehicles in parking lots or repair shops［旧三十五条］. Without interrupting the traffic, the relevant government agencies may use remote sensing and/or other technologies to randomly test and supervise emissions from in-use motor vehicles. Relevant traffic administrative

departments of public security bureaus shall support these efforts.

Article 54 Motor vehicle emissions inspection institutions must be certified and use official testing equipment to test emissions from motor vehicles, following test protocols set by the competent department of environmental protection administration under the State Council. Test results shall be shared with the competent environmental protection department online and in real-time. Motor vehicle emissions testing institutions and their legal representatives (managers) are responsible for the authenticity and accuracy of the test data.

The competent environmental protection departments, as well as certification and accreditation administration departments, shall supervise and inspect the emissions testing carried out at testing facilities.

Article 55 Manufacturers and importers of motor vehicles shall release information on vehicle emissions testing results, emission control and repair technologies of their vehicles to the public.

Motor vehicle repair shops shall repair in-use motor vehicles according to air pollution prevention and control requirements and relevant national technological protocols, and make the vehicles meet required emissions standards［旧三十三条］. Competent transportation departments and environmental protection departments shall strengthen their supervision and management according to the law.

Motor vehicle owners are prohibited to tamper with the emissions tests, such as by temporarily changing exhaust pollution control devices on their motor vehicles to pass vehicle emission tests. Motor vehicle repair facilities are forbidden to provide such fraud repair services to motor vehicle owners. It is forbidden to damage vehicle on-board diagnostic systems.

Article 56 The competent department of environmental protection administration, together with other relevant departments of transportation, housing, urban-rural development, agriculture administration and water administration, shall supervise and inspect air pollutant emissions of non-road mobile machinery. If emissions exceed standards, the machinery shall not be used.

Article 57 The state promotes environment-friendly travels, and encourages drivers of vehicles burning fossil fuel to turn off their vehicle engines when idling for three or more minutes to reduce emissions.

Article 58 The state shall establish an environmental recall system for motor vehicles and non-road mobile machinery.

After being informed of emissions noncompliance by regulatory agencies, manufacturers and importers of motor vehicles and non-road mobile machinery must recall their affected products if the noncompliance is proven to have design or production defects or if they fail the durability requirements in relevant emission standards. If the manufacturers or importers do not recall their affected products, the department of quality supervision under the State Council will collaborate with the competent department of environmental protection administration under the State Council to order the companies in question to issue a recall.

Article 59 In-use heavy duty diesel vehicles and non-road mobile machinery without emission control devices, or with inadequate devices that do not conform to relevant emissions requirements, shall have one installed or replaced with an appropriate pollution

control device.

Article 60 In-use motor vehicles that do not comply with relevant emissions standards shall be repaired. Vehicles that still fail to meet emissions standards after repairing and applying appropriate emissions control technologies must be scrapped. Vehicle owners shall send or sell their vehicles to vehicle scrap page and recycling facilities, which shall record, dismantle, and destroy the vehicles according to relevant national requirements.

The state encourages and supports the early retirement of high-emission motor vehicles, vessels and non-road mobile machinery.

Article 61 City-level governments may, depending on local air quality, designate and declare areas where the use of highly polluting non-road mobile machinery is prohibited.

Article 62 Engines and emissions related equipment on vessels must be inspected by official vessel testing and inspection institutions. Only vessels that pass the test and conform to relevant emissions standards can be operated.

Article 63 Inland ships and sea-river vessels shall use general diesel fuels according to the national standards. After reaching a port, ocean-going vessels shall use marine fuel that meets pollutant control requirements.

Ports shall plan, design, and construct an on-shore power infrastructure at newly-built docks, and gradually upgrade existing docks with on-shore power infrastructure. Vessels shall use on-shore power upon reaching ports if the option is available.

Article 64 The competent transportation department of the State Council may designate atmospheric pollutant emissions control areas in coastal regions, and vessels traveling in the certain areas must meet the relevant vessel emission standards.

Article 65 It is prohibited to produce, import and sell fuels for motor vehicles, vessels and non-road mobile machinery that fail to meet relevant standards［旧三十四条］; it is prohibited to sell general diesel fuel or other non-motor fuel to motor vehicle and motorcycle owners (for the fuel to be used on these vehicles); and it is prohibited to sell residual oil and heavy oil to non-road mobile machinery, inland ships and sea-river vessels.

Article 66 Hazardous substances in engine oil, nitrogen oxide reducing agents, additives for fuels, lubricants, other additives, and other specifications shall meet relevant standards. These substances shall not reduce the effectiveness and durability of pollution control devices on vehicles and vessels, nor increase emissions of any new ambient air quality pollutant.

Article 67 The state promotes pollution control of civil aircrafts and encourages effective measures to reduce air pollutant emissions during the design, production and use of civil aircrafts.

VW FOIA, EPA 06/20/2017 2017-FFP_034337

Chapter V Joint Air Pollution Prevention and Control in Key Regions

Article 88 The competent department of economic affairs under the State Council and competent department of environmental protection administration under the State Council, jointly push for more stringent requirements for environment protection, energy consumption, safety and quality in the key regions, based on local industrial development status and ambient air quality conditions.

Local governments of provinces, autonomous regions and municipalities in the key regions shall adopt more stringent vehicle ambient air emissions standards, standardize in-use vehicle emissions inspection test methods and limits, and adopt qualified matching motor fuel.

Chapter VII Legal Liabilities

Article 103 If any entity or individual commits any of the following acts in violation of the Law, the qualified supervision, industry and commerce administration departments of town-level local governments or above shall require the entity or individual to make corrections, confiscate raw materials, products and illegal income, and impose a fine on the entity or individual for more than one time, but less than three times of the value of goods:

(1) Selling coal and petroleum coke that cannot meet quality standards;

(2) Producing or selling raw materials and products with VOC content that fails to meet quality standards or requirements;

(3) Producing and selling the fuel of motor vehicles, vessels and non-road mobile machines, engine oil, nitrogen oxide reducing agents, fuel and lubricant additives, and other additives that fail to meet quality standards;

(4) Selling high pollution fuels in forbidden areas that prohibit the act of burning substances.

Article 104 If any entity or individual commits any of the following acts in violation of the Law, the entry-exit inspection and quarantine institutions shall require the entity or individual to make corrections, confiscate raw materials, products and illegal income, and fine the entity or individual more than one time, but less than three times of the value of goods; if the importing act can be defined as smuggling, the entity shall be punished by Customs:

(1) Importing coals or petroleum coke that cannot meet quality standards;

(2) Importing raw materials and products with VOC content that cannot meet quality standards or requirements;

(3) Importing fuel oil used by motor vehicles, vessels and non-road mobile machines, engine oil, nitrogen oxides reducing agents, fuel and lubricant additives, and other additives that cannot meet quality standards.

Article 106 If any entity or individual, in violation of the Law, uses marine fuel oil that cannot meet quality standards, the maritime administration agency and the competent department of fisheries shall impose a fine on the entity or individual for more than RMB10,000, but less than RMB100,000.

Article 109 If any entity or individual, in violation of the Law, manufactures any vehicle or non-road mobile machinery that fails to meet pollutant emission standards, the competent environmental protection administration of local governments at or above province level shall require the entity or individual to

make corrections, confiscate their illegal income, impose a fine on the violating entity or individual for more than one time, but less than three times of the value of goods, and confiscate and destroy the noncompliant motor vehicles and non-road mobile machinery. If the above actions are denied by the manufacturer, the competent motor vehicles industry department of the State Council shall suspend the production of the affected vehicle models.

If the manufacturers of motor vehicles and non-road mobile machinery in violation of the Law sell new vehicles or machines with low-quality or false emissions control devises that are different from those equipped on certified vehicle or engine models and cannot meet relevant emissions standards, the competent environmental protection administration of local governments at or above the province level shall require the suspension of the production plants for rectification, confiscate the companies' illegal income, impose a fine on the violating entities or individuals for more than one time, but less than three times of the value of goods, and confiscate and destroy the noncompliant motor vehicles and non-road mobile machinery. The competent motor vehicles production department of the State Council shall suspend the production of motor vehicle and engine models in question.

Article 110 If any entity or individual, in violation of the Law, imports or sells any vehicle or non-road mobile machinery that fails to meet pollutant emission standards, the industrial and commercial administrative departments and the entry-exit inspection and quarantine institutions of the governments at or above the county level shall confiscate their illegal income, impose a fine on the violating entities or individuals for more than one time, but less than three times of the value of related goods; and confiscate and destroy the noncompliant vehicle of non-road mobile machinery. If the importing act can be defined as smuggling, the entity shall be punished by Customs.

If any vehicle or non-road mobile machinery sold fails to meet pollutant emission standards, the seller shall be responsible for repairing, replacing or accepting the return of goods; if any losses are incurred to the consumer buying the vehicle, the seller shall compensate for the losses.

Article 111 If manufacturers or importers of motor vehicles, in violation of the Law, fail to release to the public information about their vehicles' emissions test or emissions control technologies, the competent environmental protection administration of local governments at or above province level shall require the violating entities or individuals to make corrections and impose fines of more than RMB 50,000, but less than RMB 500,000.

If manufacturers or importers of motor vehicles, in violation of the Law, fail to release relevant information about emissions repair and maintenance technologies to the public, the competent environmental protection administration of local governments at or above the province level shall order the entity or individual to make corrections and impose fines of more than RMB 50,000, but less than RMB 500,000.

VW FOIA, EPA 06/20/2017 2017-FFP_034341

Article 112 If any vehicle testing and supervision institution, in violation of the Law, forge an emission test result or issue a fake emission test report for vehicles or any non-road mobile machinery, the competent environmental protection administration of local government at or above the county level shall confiscate illegal incomes and impose fines of more than RMB 100,000, but less than RMB 500,000; in serious cases, the department in charge of accreditation shall revoke the testing qualifications of the institution.

Entities that forge the emission test results or issue the fake emission test reports of vessels shall be punished by the maritime administrative department according to the Law.

If any entity uses fraudulent methods such as temporarily replacing vehicle exhaust pollution control devices to pass vehicle emission tests, or destroying motor vehicle emission on-board diagnostic systems, the competent environmental protection administration of local government at or above the county level shall fine the owner 5,000 RMB, and fine the vehicle maintenance entity RMB 5,000 per motor vehicle.

Article 113 Drivers who operate motor vehicles that fail to pass emission tests on the road in violation of the Law, shall be punished by the traffic administrative department of the public security organ according to the Law.

Article 114 If any entity or individual, in violation of the Law, uses non-road mobile machinery that fails to meet emission standards and requirements, or uses heavy diesel vehicle and non-road mobilemachinery without installing and replacing pollution control devices, the competent environmental protection administration of local government at or above the county level shall order the entity to make corrections and impose fines of RMB 5,000.

Those who use high emission non-road mobile machinery in forbidden areas shall be punished by the competent environmental protection administration of local government according to the Law.

VW FOIA, EPA 06/20/2017 2017-FFP_034342

Appendix B. Article-by-article comparison between the old and new Air Law

CHAPTER	ARTICLE	OLD	NEW	CHANGE

VW FOIA, EPA 06/20/2017 2017-FFP_034343

Vehicle compliance and enforcement after discovery of Volkswagen's defeat device
大众失效装置事件后的机动车达标管理与执行

Drew Kodjak, Executive Director
国际清洁交通委员会执行董事

The 5th Sino-US Mobile Source Emission Control Workshop
第五届中美机动车排放达标监管研讨会
Beijing China 中国北京
October 2015

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

VW FOIA, EPA 06/20/2017 2017-FFP_034344

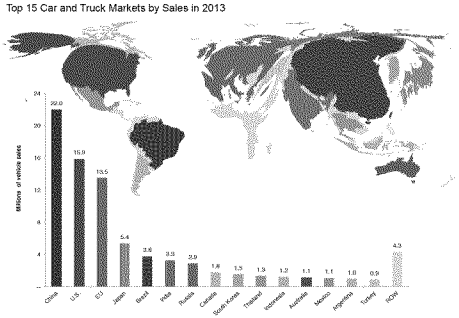
ICCT mission and activities
ICCT目标和简介

The mission of ICCT is to dramatically improve the environmental performance and efficiency of cars, trucks, buses and transportation systems in order to protect and improve public health, the environment, and quality of life.

国际清洁交通委员会(ICCT)宗旨是改善包括轻、重型车车、航空和船舶等所有交通部门及整个交通系统的能效和环境影响，从而促进人类健康。

- Non-profit research organization
- Air Pollution and Climate Impacts
- Focus on regulatory policies and fiscal incentives
- Activity across modes including aviation and marine
- Global outreach, with special focus on largest markets

- 非盈利独立研究组织
- 着眼于空气污染和气候变化影响
- 研究主要针对标准法规政策策、辅助性政策
- 研究方向覆盖所有交通部门
- 项目涉及全球主要汽车市场场、全球性视角



icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Timeline of Volkswagen Defeat Device Investigation and Discovery

- **2012** – ICCT's European office concerned with elevated real world NOx emissions from passenger diesels in Europe.
- **2013** – ICCT contracts with West Virginia University to conduct real world emissions testing on three passenger diesel vehicles in California. CARB provides in-kind support via its test center in El Monte.
- **May 2014** – ICCT publishes its findings which show two of the three cars with 5 – 35X times the legal limit under normal driving conditions. We inform EPA, CARB, and VW.
- **December 2014** – VW agrees to a voluntary recall of passenger diesels.
- **May 2015** – CARB retests recalled vehicles and finds some improvement, but not enough.
- **July-September 2015** – US EPA informs VW that it will not be granted license to sell 2016 vehicles in the US if the Agency's questions are not addressed fully. VW admits to defeat devices on September 3, 2015.
- **September 18, 2015** – US EPA, DOJ, and CARB announce a notice of violation against VW for using illegal defeat devices.
- **September 22, 2015** – VW announces that 11 million diesel cars worldwide have the same "defeat device" software.
- **September 25, 2015** – US EPA and CARB issue updated requirements related to evaluation of defeat devices

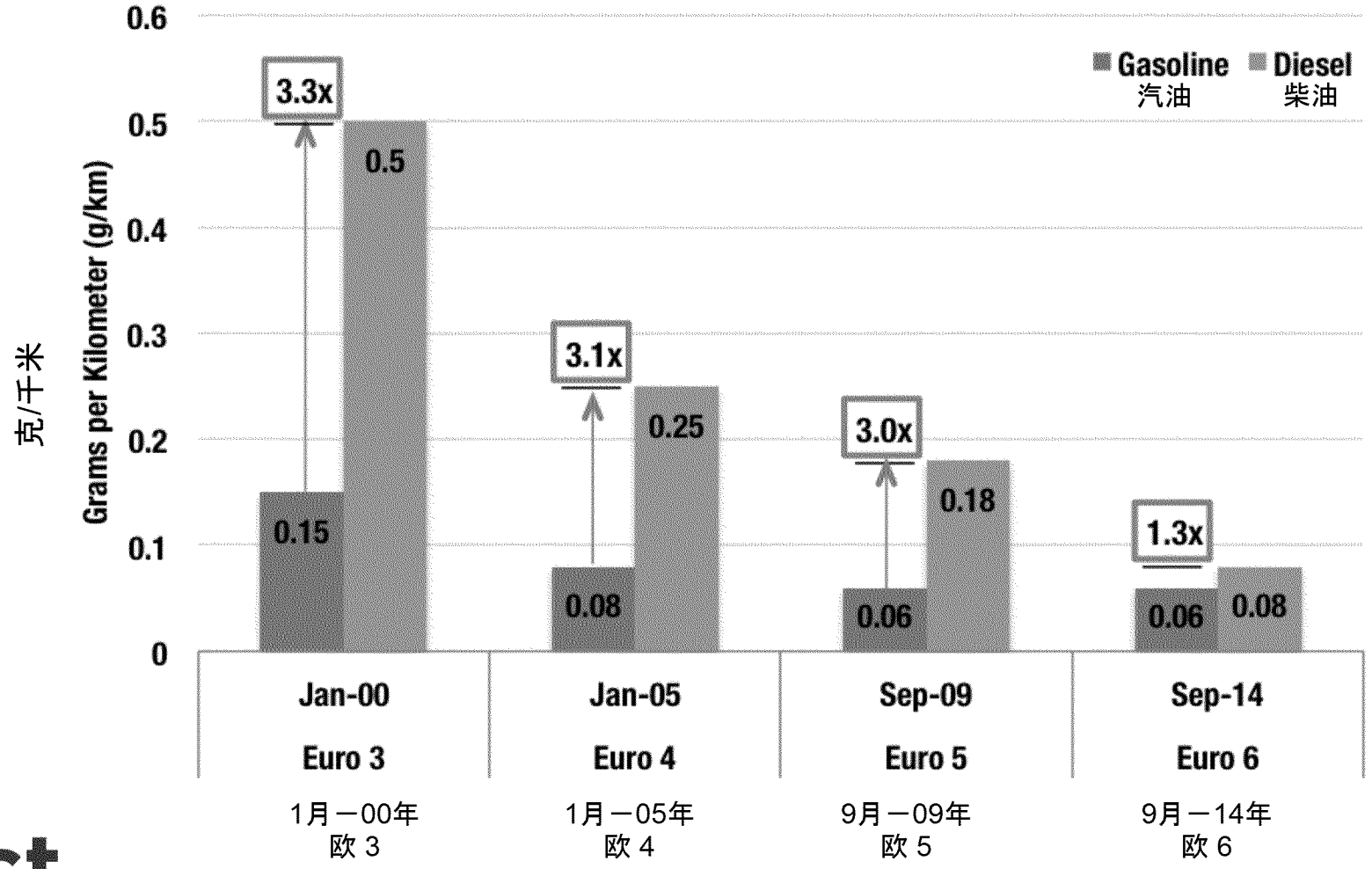
大众失效装置调查和发现的时间轴

- **2012** – ICCT 的欧洲办事处关注欧洲乘用车实际的高 NOx 排放
- **2013** – ICCT 与西弗吉尼亚大学签订合同，在加州对三辆乘用柴油车进行现实世界排放测试。CARB 通过他们在 El Monte 的实验室提供实物支持。
- **5月 2014** – ICCT 公布了调查结果，显示三辆车中有两辆在正常驾驶条件下排放是法定上限的5 – 35X 倍。我们通知了EPA, CARB, 和 VW。
- **12月 2014** – VW 同意自愿召回乘用柴油车。
- **5月 2015** – CARB 重新检测召回的车辆并发现了一些改进，但并不足够。
- **7-9月 2015** – US EPA 通知 VW，如果他们不充分回答问题，EPA 将不会给他们颁发销售2016年汽车所必需的认证证书。VW 在2015年9月3日承认了失效装置的存在。
- **9月 18日, 2015** – US EPA, DOJ 和 CARB发表了对于VW使用违法失效装置的通知知。
- **9月 22日, 2015** – VW

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

LDDV NOx Standards in Europe are not as stringent as LDGV

LDDV NOx 标准在欧洲不如 LDGV 严格



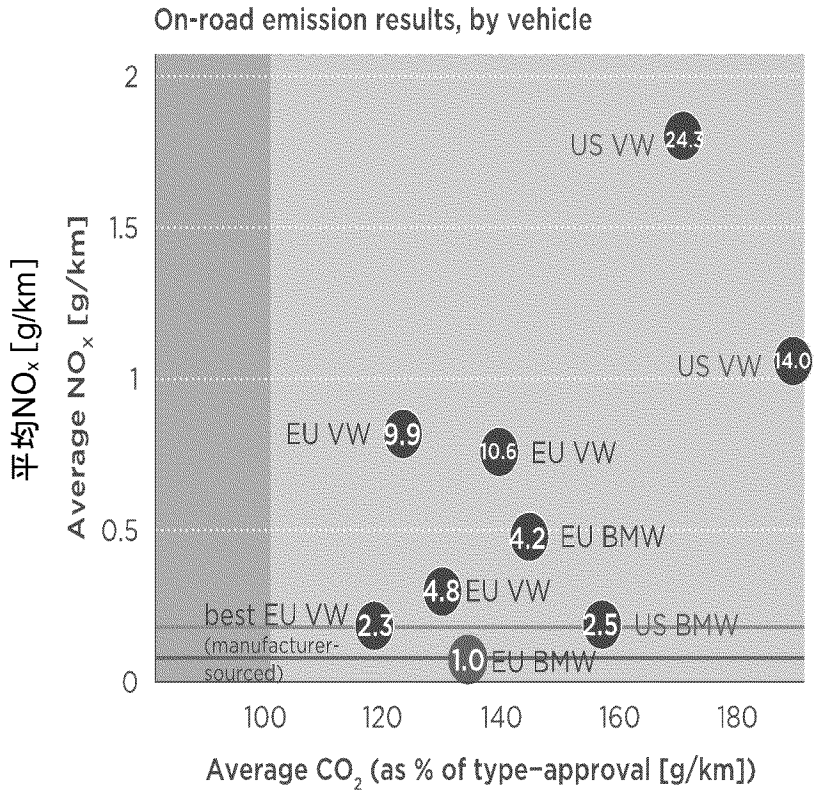
icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

ICCT's Diesel emissions meta-study

ICCT 轻型柴油车排放研究

On-road Euro 6 conformity factors for selected cars (US factors would be 2x)

道路欧6部分车辆的达标因子（美国的因子为2倍）



Above type-approval
Below or equal to type-approval
Above Euro 5 limit
Above Euro 6, below Euro 5 limit
Below Euro 6 limit
Euro 5 limit
Euro 6 limit

高于型号认证
等于或低于型号认证
高于欧5
高于欧6，小于欧5
低于欧6
欧5
欧6

15 test vehicles in total (6 manufacturers), with different NO_x control technologies:
- 10 selective catalytic reduction (SCR)
- 4 exhaust gas recirculation (EGR)
- 1 lean NO_x trap (LNT)

Average Euro 6 NO_x conformity factors (ratio of on-road emissions to legal limits):
- all cars: 7.1
- best performer (Vehicle C, SCR): 1.0
- bad performer (Vehicle H, LNT): 24.3
- worst performer (Vehicle L, SCR): 25.4

15个测试车辆（6家生产商）有不同的NOx控制技术：
- 10 选择性催化还原 (SCR)
- 4 废气再循环 (EGR)
- 1 NOx 吸附 (LNT)

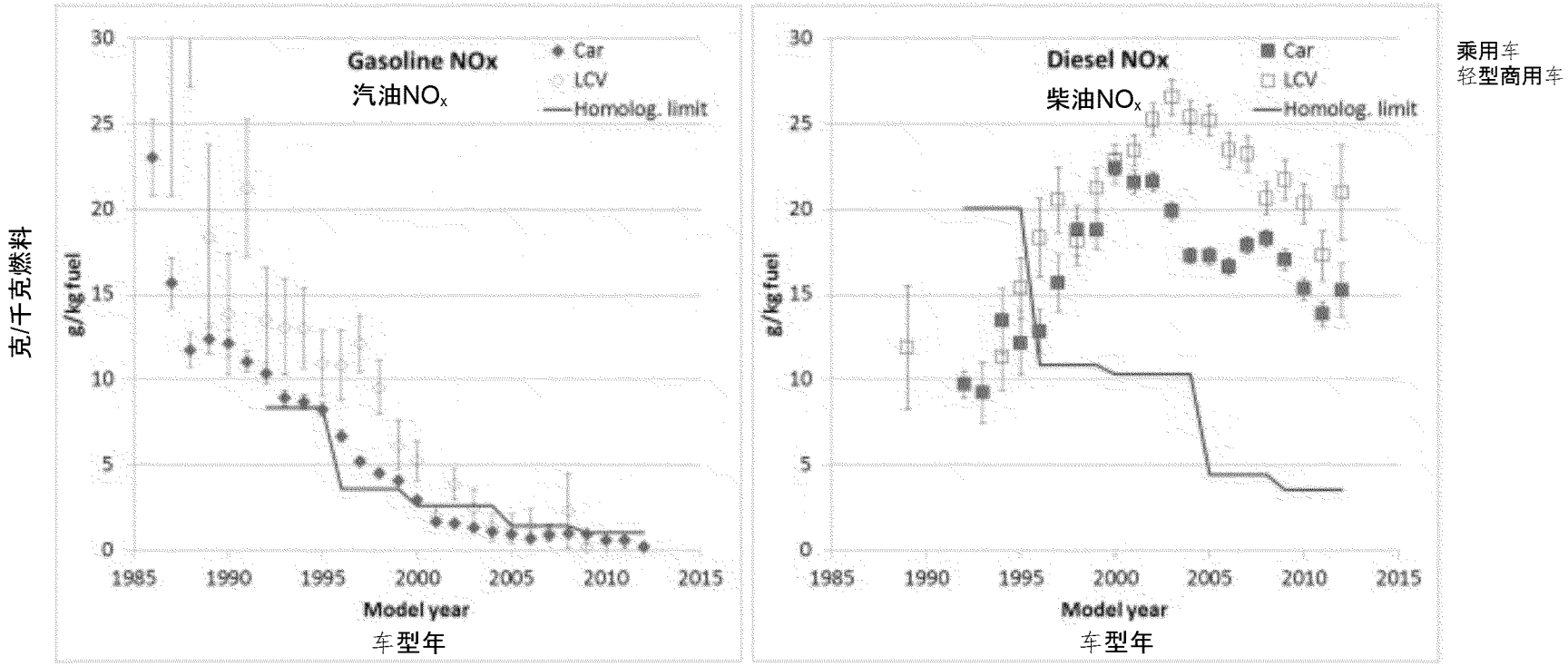
欧6平均达标因子（道路排放与法定上限之比）：
- 所有车辆：7.1
- 最好(C, SCR)：1.0
- 较差(H, LNT)：24.3
- 最差(L, SCR)：25.4

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

http://www.theicct.org/real-world-exhaust-emissions-modern-diesel-cars

On-road emission behavior confirmed by **13 years** of Remote Sensing data

13年遥感数据证实的道路排放数据也证实了轻型柴油车在用排放高的问题



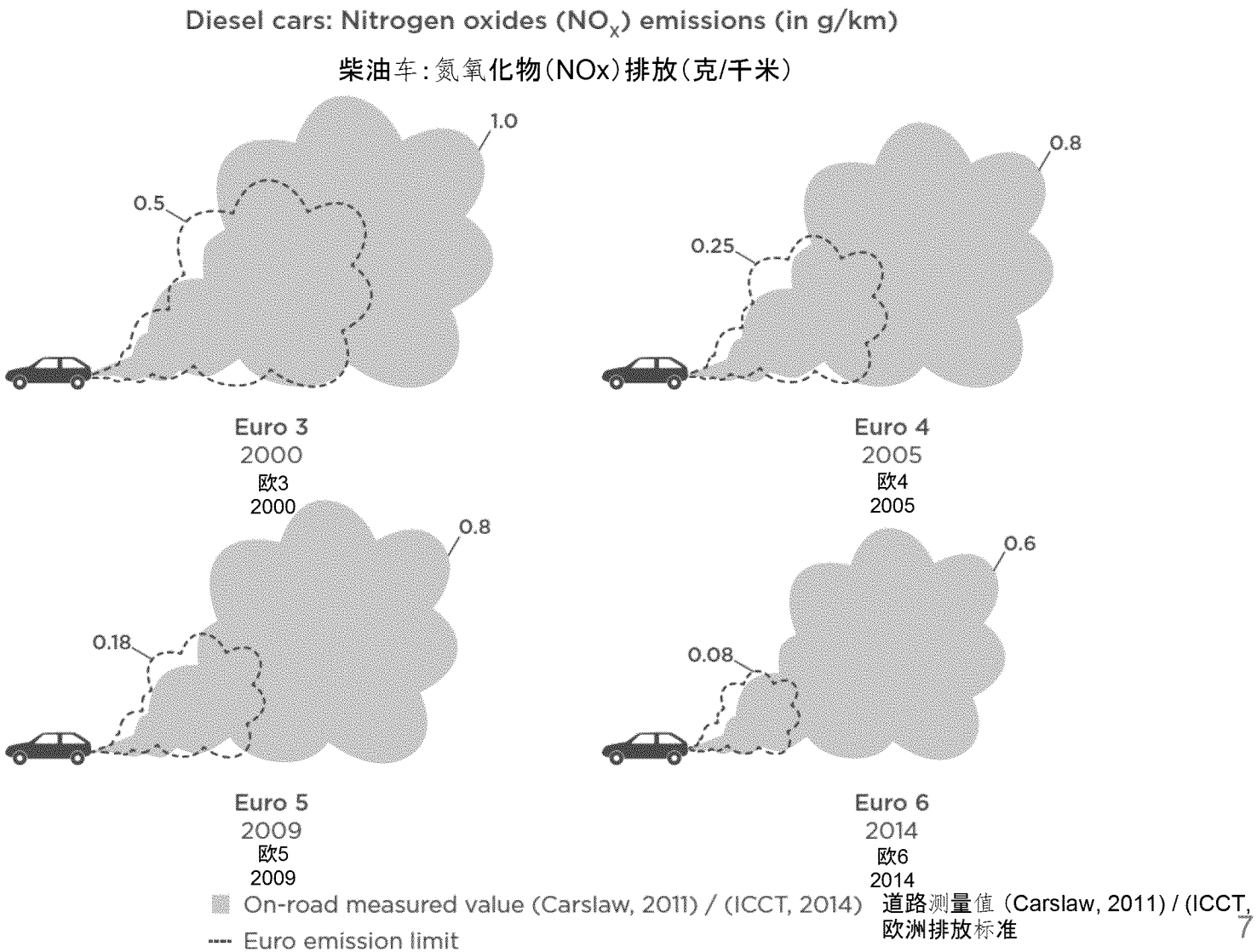
Chen & Borken-Kleefeld, Real-driving emissions from cars and light commercial vehicles - Results from 13 years remote sensing at Zurich/CH Atmospheric Environment, 88:157-164 (May 2014)

Chen & Borken-Kleefeld, 乘用车及轻型商用车的实际道路排放 — 13年在苏黎世的遥感监测结果 Atmospheric Environment, 88:157-164 (5月 2014)

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Real-world NO_X: Euro 6 Diesel cars are (on average) worse than they should have been 15 years ago

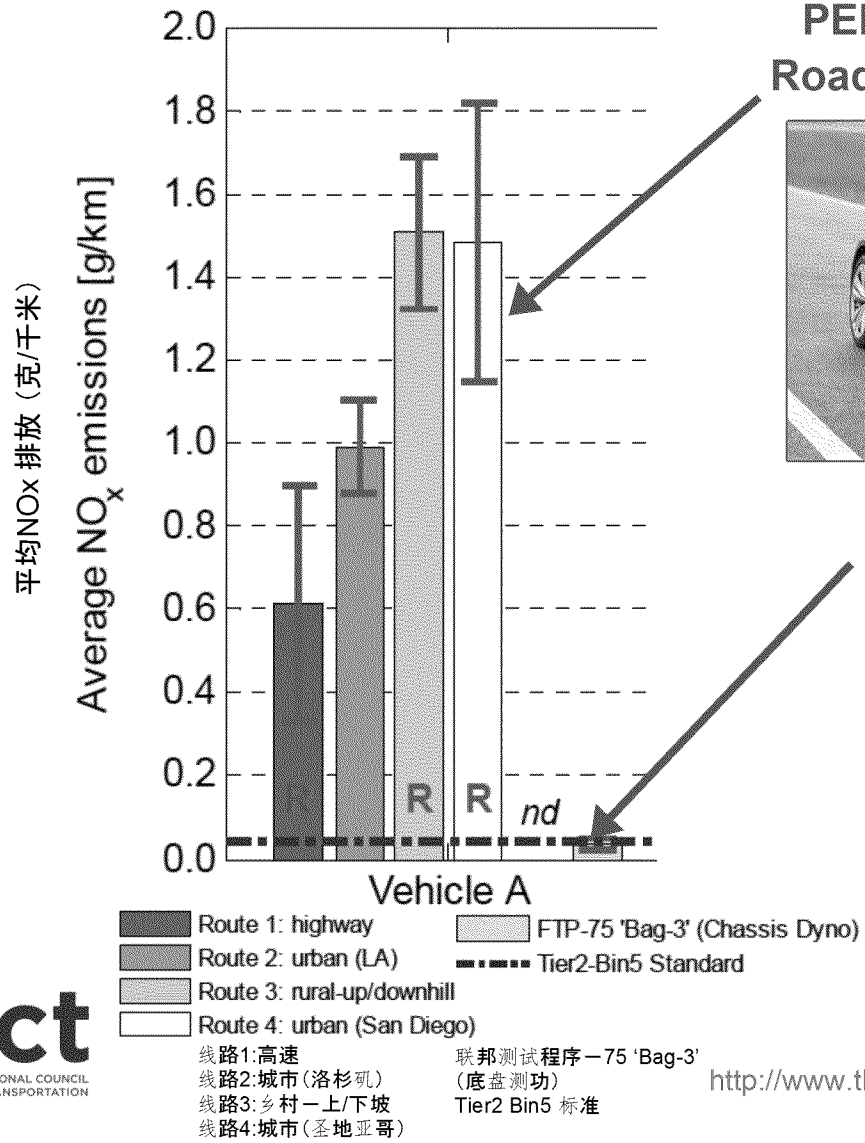
NO_X实际排放：欧6柴油车（平均水平平）比他们15年前应该达到的水平还糟糕



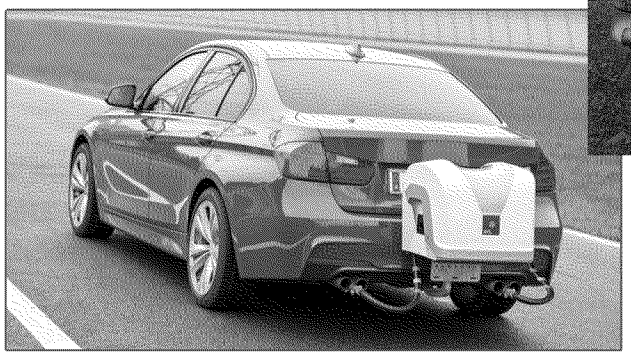
icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

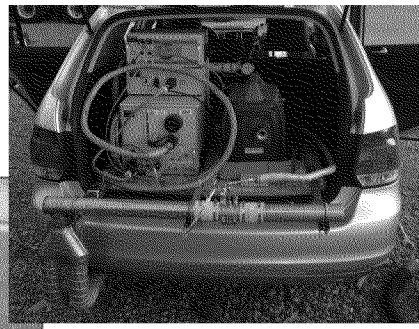
From laboratory to road: PEMS makes it possible to accurately measure real-world emissions

从实验室到道路上：PEMS使得精细测量实际排放成为可能



PEMS进行的道路测试
Road tests with PEMS





底盘测功实验
Chassis dyno measurements

Photo credit: AVL / ERMES Group
Vehicle photos unrelated to the results shown
图片来自: AVL / ERMES Group
汽车照片与显示结果无关

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

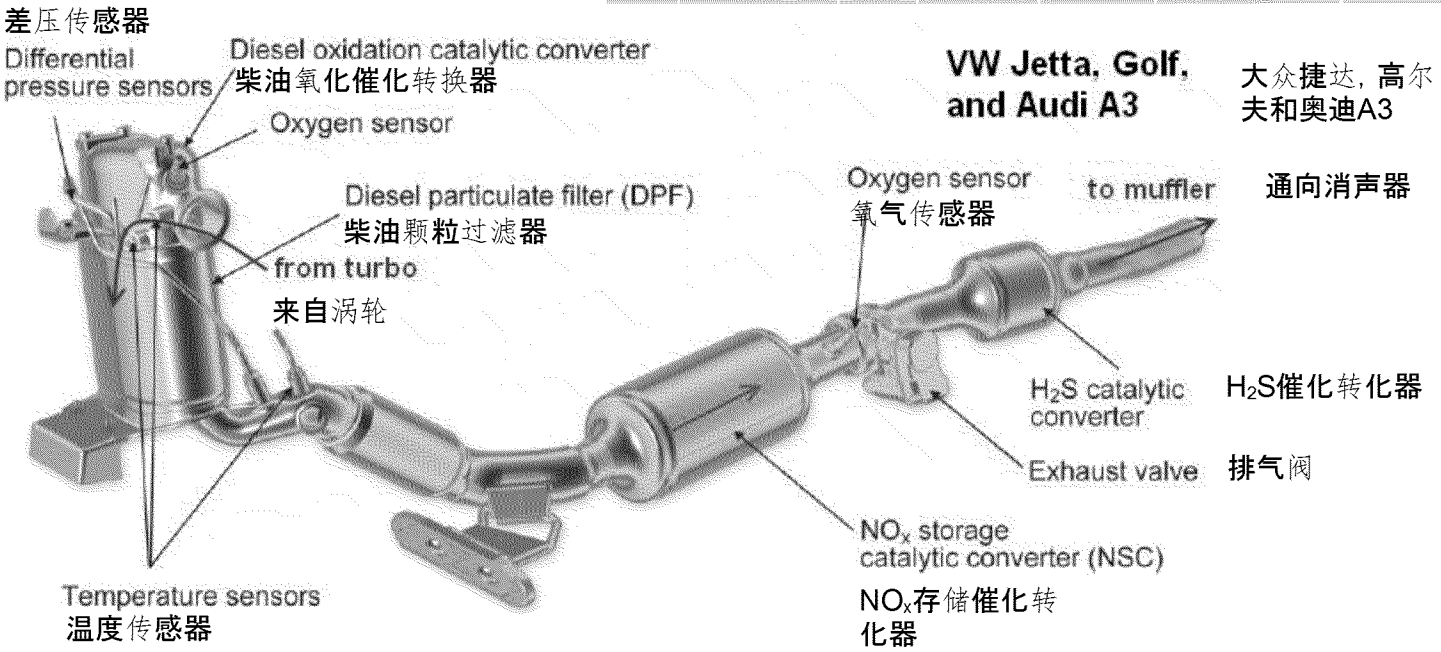
http://www.theicct.org/use-emissions-testing-light-duty-diesel-vehicles-us

ICCT PEMS Testing: Test Vehicles

ICCT PEMS 测试：测试车辆

No	Make	MY	Engine	Mileage	Aftertreatment	Emissions Limit
1	**VW Jetta Wagon TDI**	2012	2.0L	4710	**DOC+DPF + LNT**	Tier 2 Bin 5/ ULEV II
2	VW Passat TDI	2012	2.0L	15226	DOC+DPF + SCR	Tier 2 Bin 5/ ULEV II
3	BMW X5 xDrive35D	2012	3.0L V6	15000	DOC+ DPF + SCR	Tier 2 Bin 5/ ULEV II

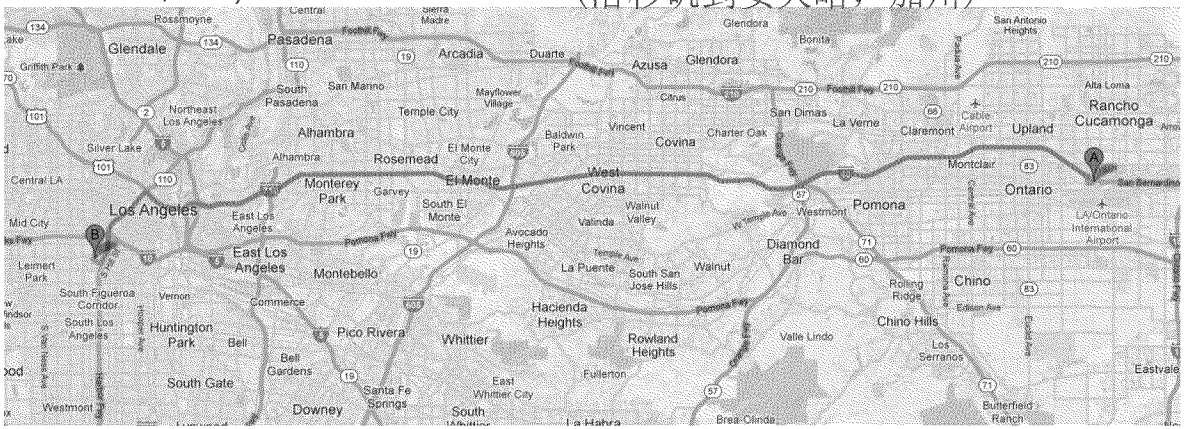
号码	车型	车型年	发动机	里程	后处理装置	排放标准
1	**大众捷达旅行车 TDI**	2012	2.0L	4710	**氧化催化+颗粒过滤 + NO_x吸附**	Tier 2 Bin 5/ ULEV II
2	大众帕萨特 TDI	2012	2.0L	15226	氧化催化+颗粒过滤 + 选择性催化还原	Tier 2 Bin 5/ ULEV II
3	宝马 X5 xDrive35D	2012	3.0L V6	15000	同上	Tier 2 Bin 5/ ULEV II



PEMS Testing Routes　PEMS 测试路线

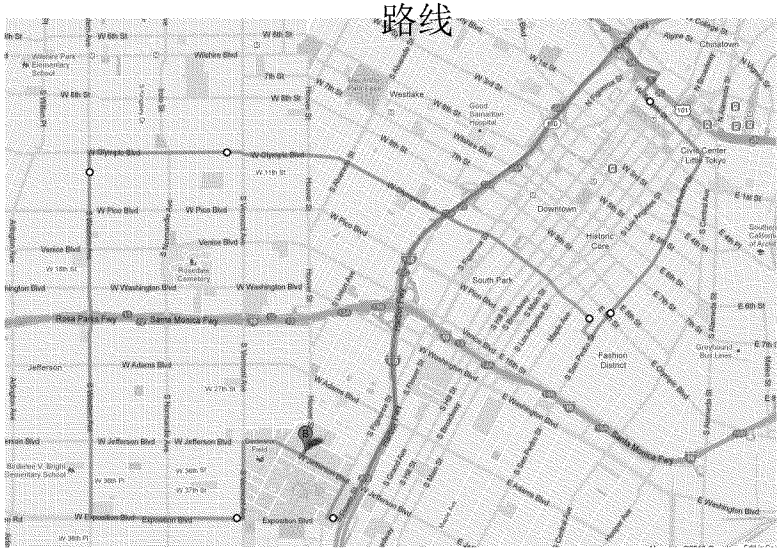
Route 1 – Highway (Los Angeles to Ontario, CA)

线路 1 – 高速（洛杉矶到安大略，加州）



Route 2 – Urban (Los Angeles) – similar to original route used for development of the LA-4 / FTP-72

线路2 – 城市（洛杉矶）– 类似原来用于研发LA-4 / FTP-72的路线



Route 4 – Urban (San Diego)

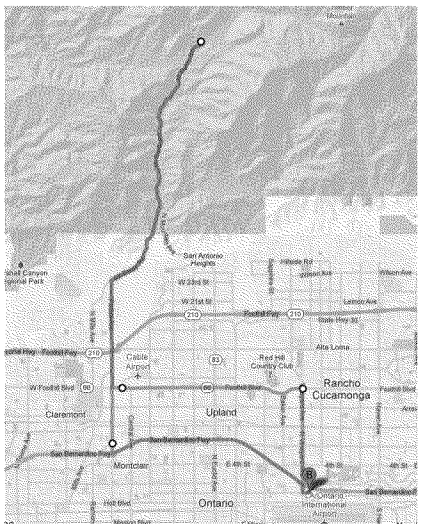
线路4 – 城市（圣地亚哥）

Route 5 – Urban (San Francisco)

线路5 – 城市（旧金山）

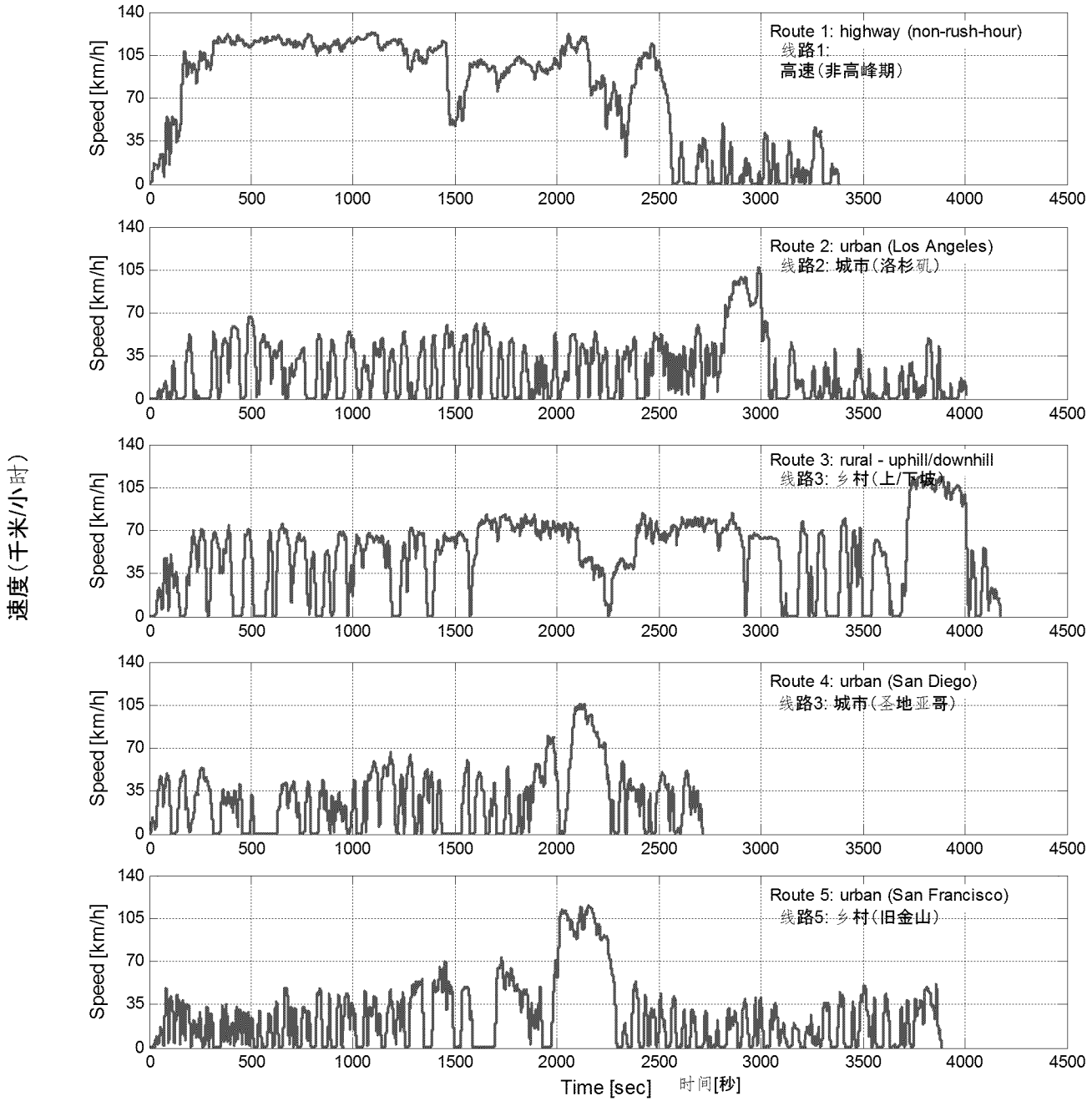
Route 3 - Suburban and Uphill/Downhill

线路 3 - 非城市地区及上下坡



icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Route description – Speed traces 线路描述 — 速度图谱

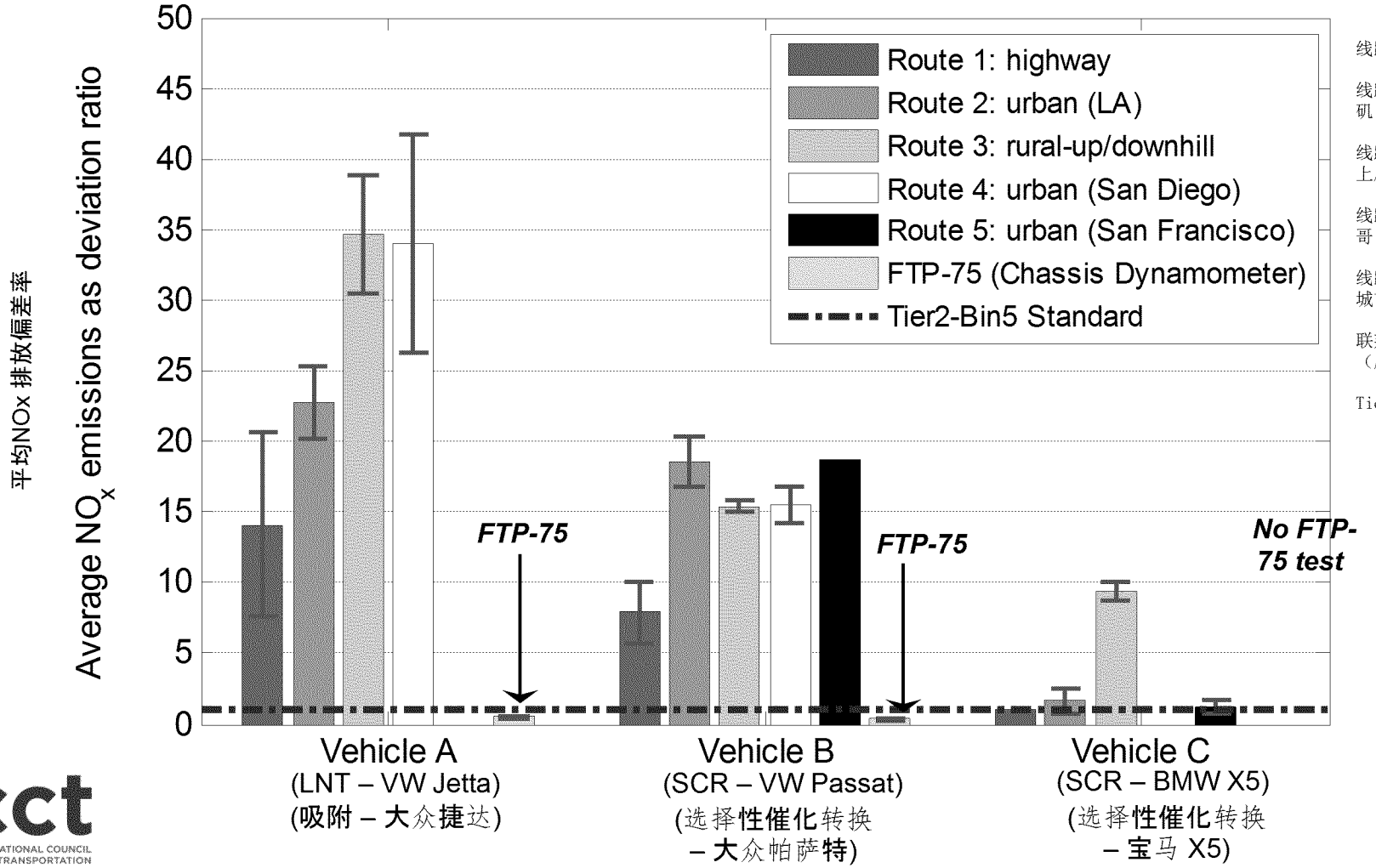


Route NOx emissions (total distance/total NOx)

线路NOx排放（总距离、总NOx）

- Lowest NO_x during highway driving
- The BMW X5 had high NOx emissions only during up/downhill driving

- 最低的 NO_x 发生在高速
- 宝马 X5 只在上/下坡有高NO_x排放



线路1:高速

线路2:城市（洛杉矶）

线路3:乡村－上/下坡

线路4:城市（圣地亚哥）

线路5:城市（旧金山）

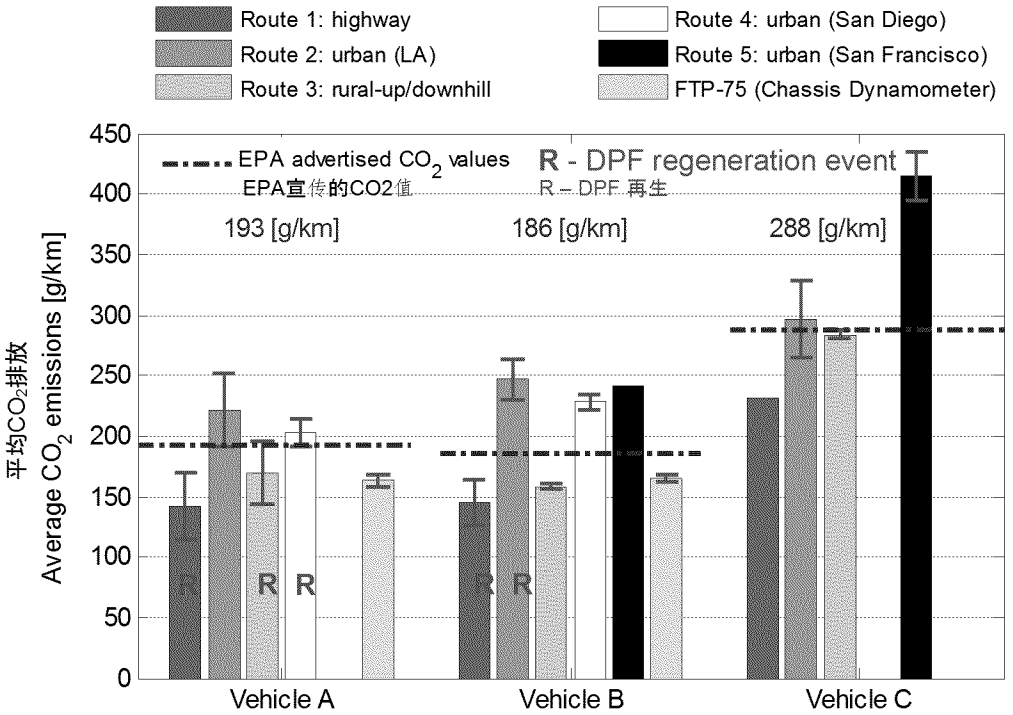
联邦测试程序－75（底盘测功）

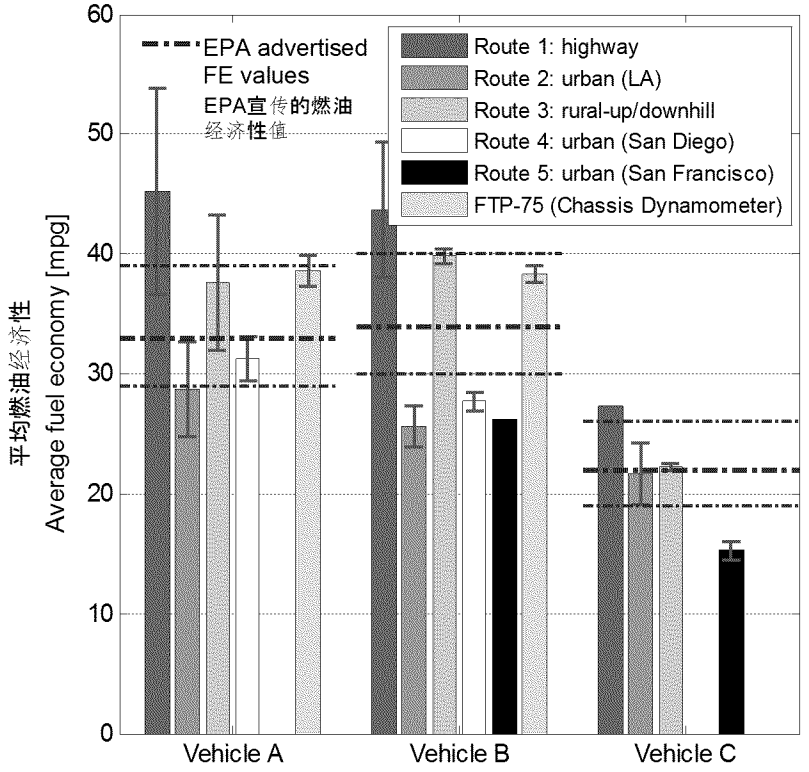
Tier2 Bin5 标准

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Results - Routes CO2 Emissions

结果 - 线路 CO2 排放





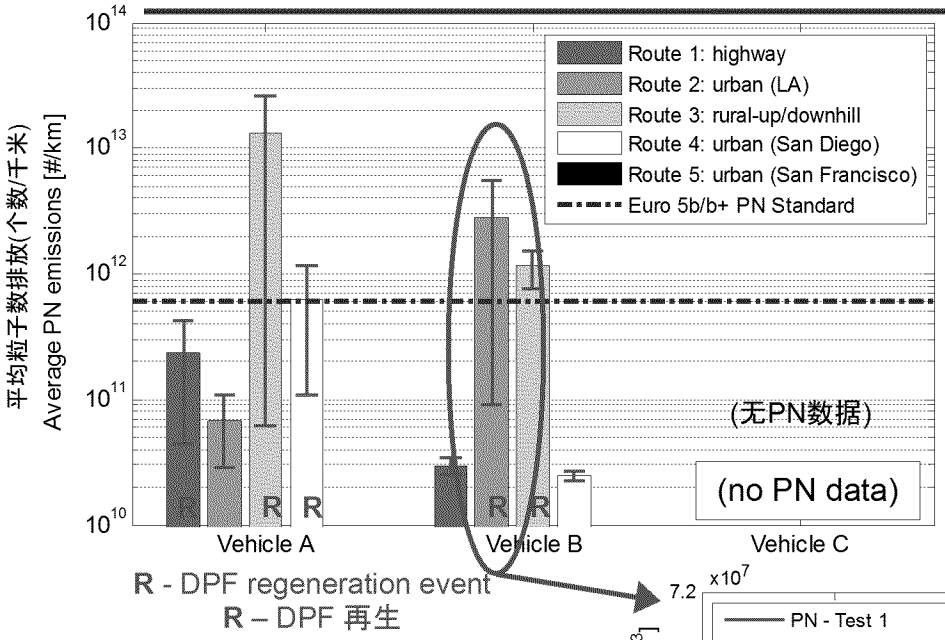
- Highway driving (i.e. Route 1) showed lowest CO_2 emissions / best fuel economy
- Urban/suburban driving showed highest CO_2 emissions / lowest fuel economy
- A 31% increase in CO_2 observed between non-rush-hour and rush-hour highway driving for *Vehicle A*
- Increased CO_2 emissions observed during DPF regeneration events for *Vehicles A* and *B*

- 高速行驶（如线路1）有最低的CO2排放/最好的燃油经济性
- 城市/郊区行驶有最高的CO2排放/最低的燃油经济性
- 车辆A在非高峰期和高峰期的高速行驶中显示出31%CO2的增长
- 车辆A和B在DPF再生时显示出升高的CO2排放

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Results – PN Emissions & DPF regeneration

结果 – PN Emissions & DPF regeneration

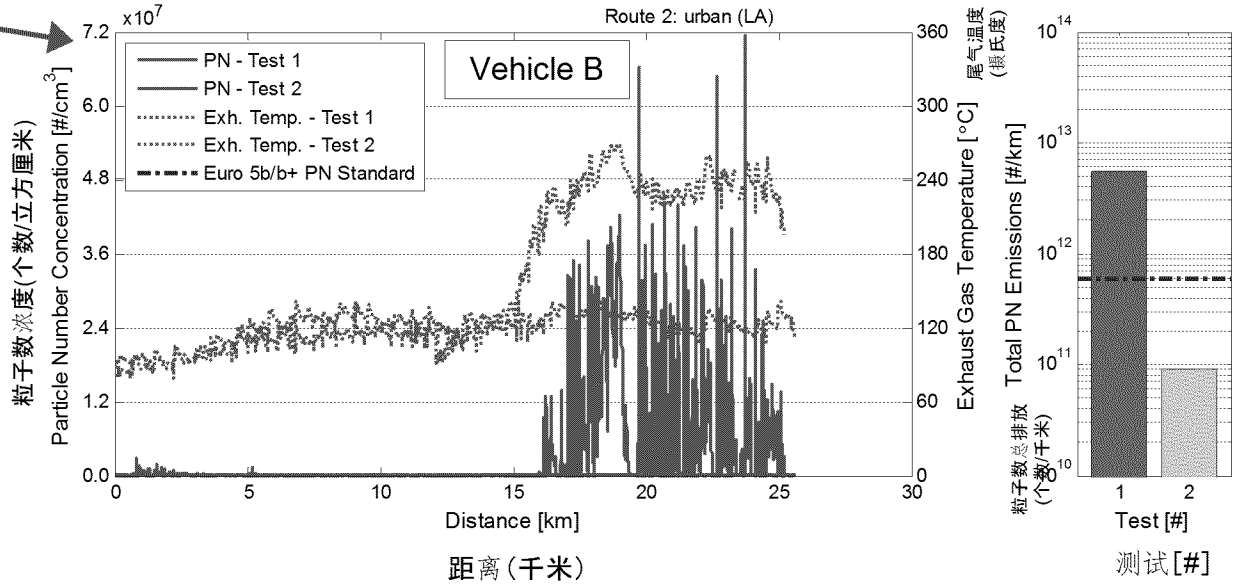


- Euro 5b/b+ standard: $6x10^{11}$ [#/km]
- In general PN remain one order of magnitude below Euro 5b/b+ standard for tests without DPF regeneration events
- PN increased by up to two orders of magnitude during DPF regeneration events

- 欧5b/b+ 标准：$6x10^{11}$ [#/km]
- 一般如果没有DPF再生，PN比欧5b/b+ 标准低一个数量级
- 有DPF再生时，PN能最多增加两个数量级

Caution: PN inferred from PPS measurements => sampling conditioning and particle counting not strictly according to PMP method

注意：由PPS测量得到的PN => 采集条件及粒子计数未严格按照PMP方法



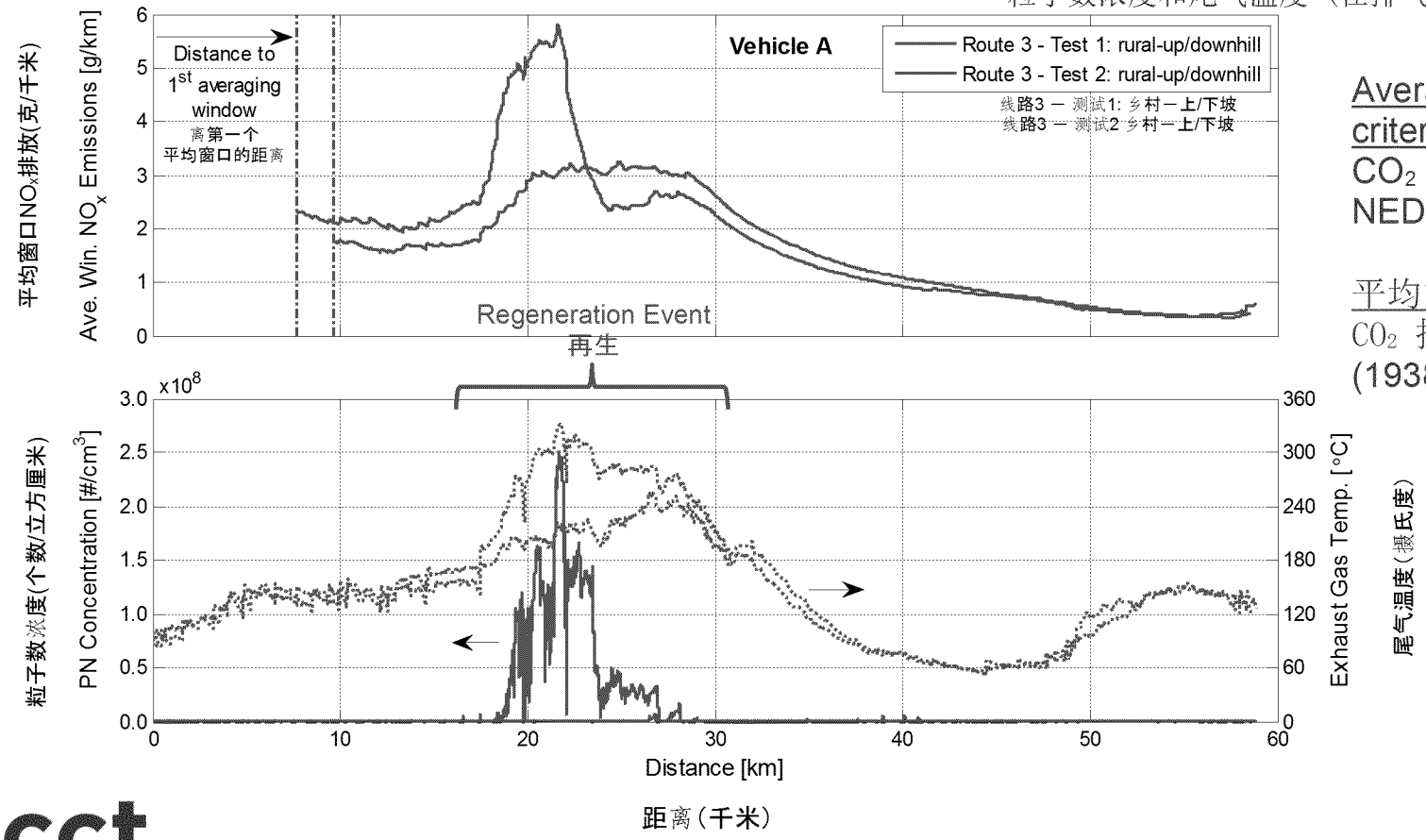
icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Up/Downhill NOx & PN Emissions – Impact of Particulate Trap Regeneration

上/下坡 NOx & PN 排放 — 微粒捕集再生的影响

- Comparison of tests with and without DPF regeneration for WV Jetta, Route 3 (up/downhill)
  - Continuous averaging window NO_x emissions vs. distance
  - Particle number concentrations and exhaust gas temperatures (at exhaust tip) vs. distance

- 有无DPF再生对捷达测试结果的影响，线路3（上/下坡）
  - 连续平均窗口NO_x 排放 vs. 距离
  - 粒子数浓度和尾气温度（在排气管）vs. 距离

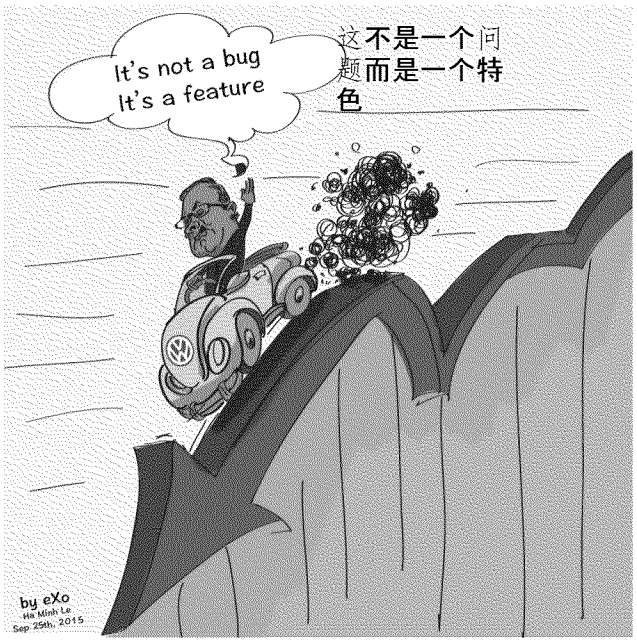


Averaging Window criteria:
CO_2 emissions over NEDC (1938.6g)

平均窗口标准：
CO_2 排放超过NEDC (1938.6g)

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Some illustrative cartoons 最近的漫画对此事的说明



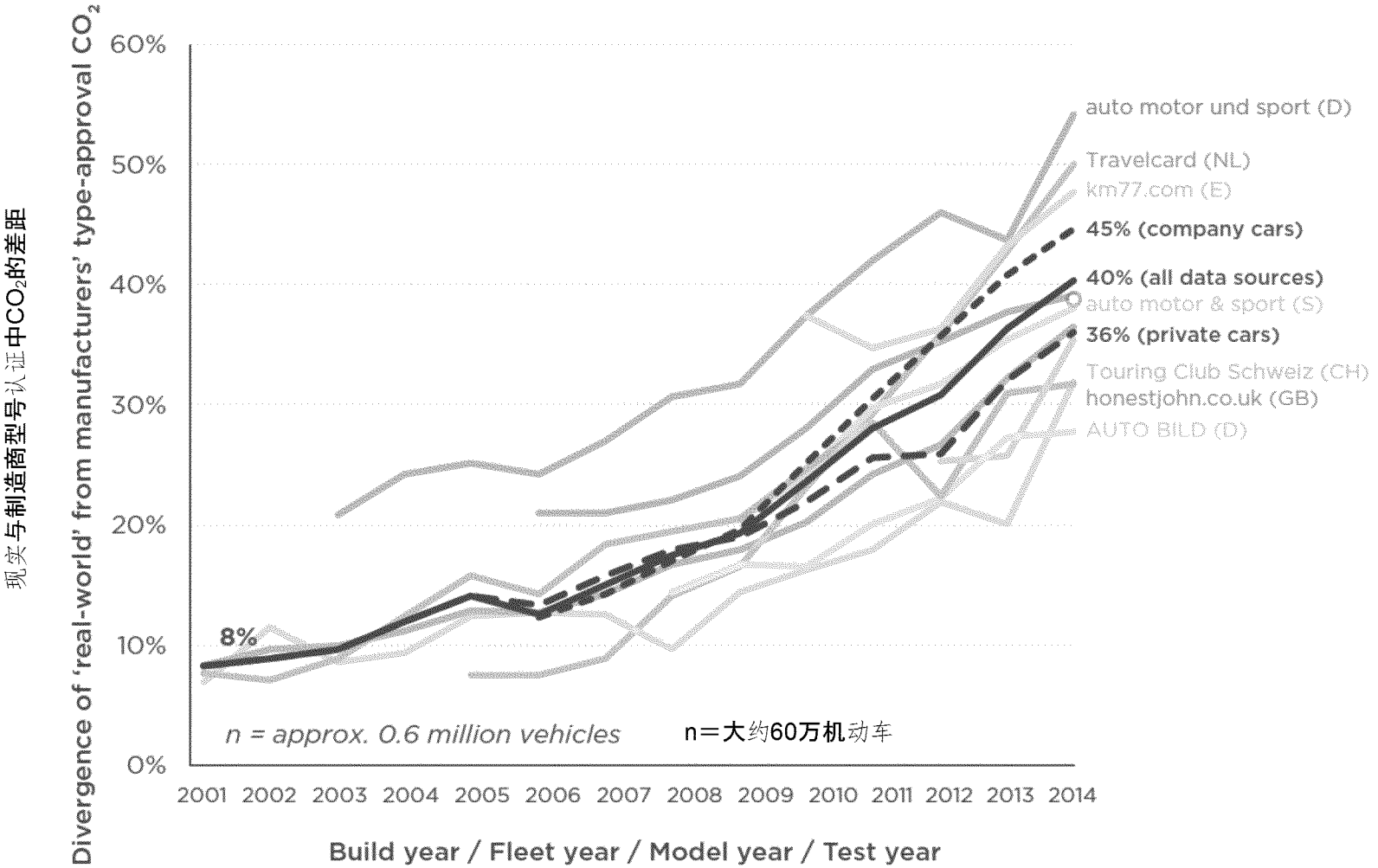
律师事务所

'We've found the problem. You're looking at £18billion plus parts and labour'

"我们找到了问题。你看到的是180亿加上零件和劳动力"

Real-world CO_2: the increasing gap

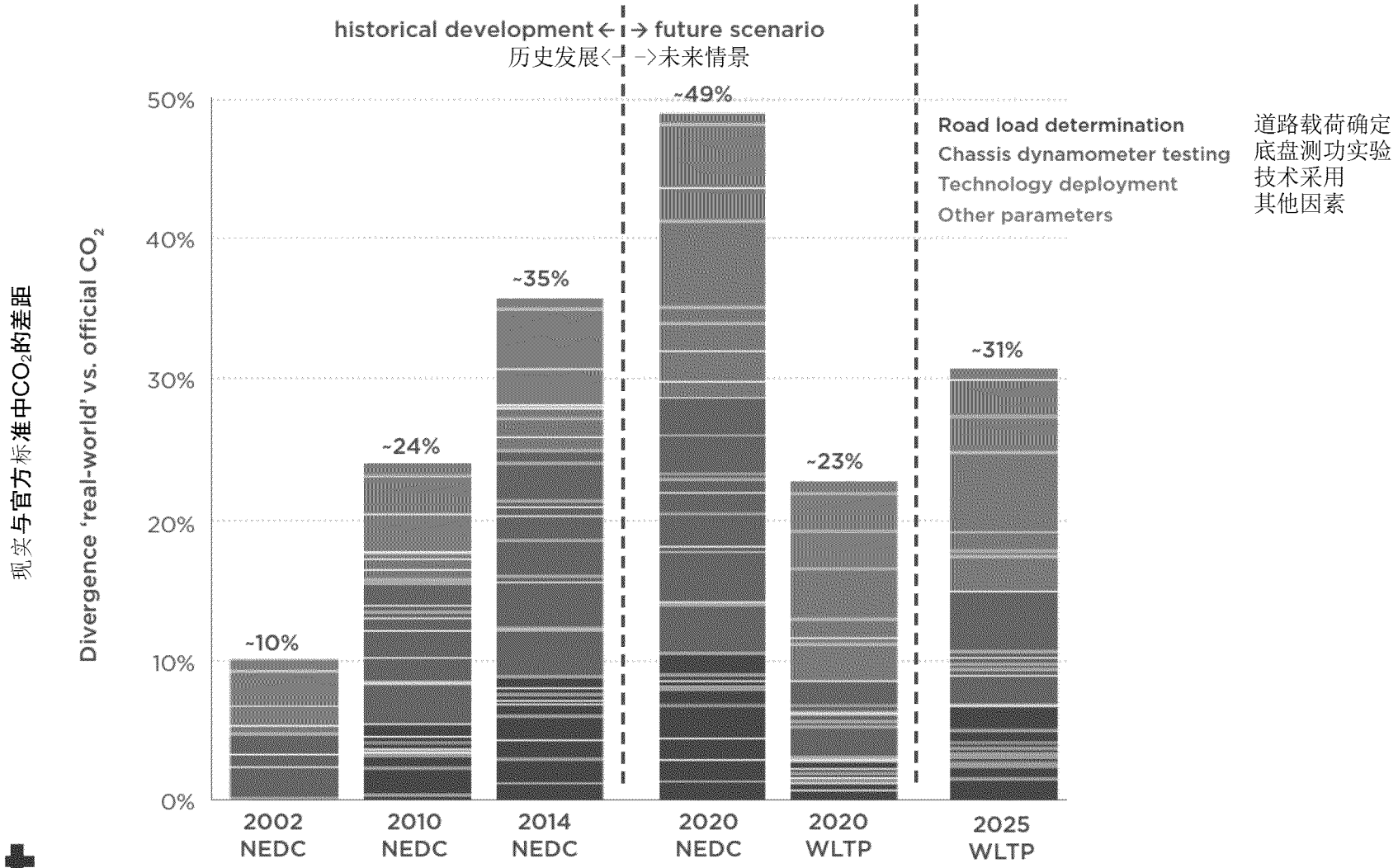
实际 CO_2 排放：日益扩大的差距



icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Real-world CO_2: reasons for the gap

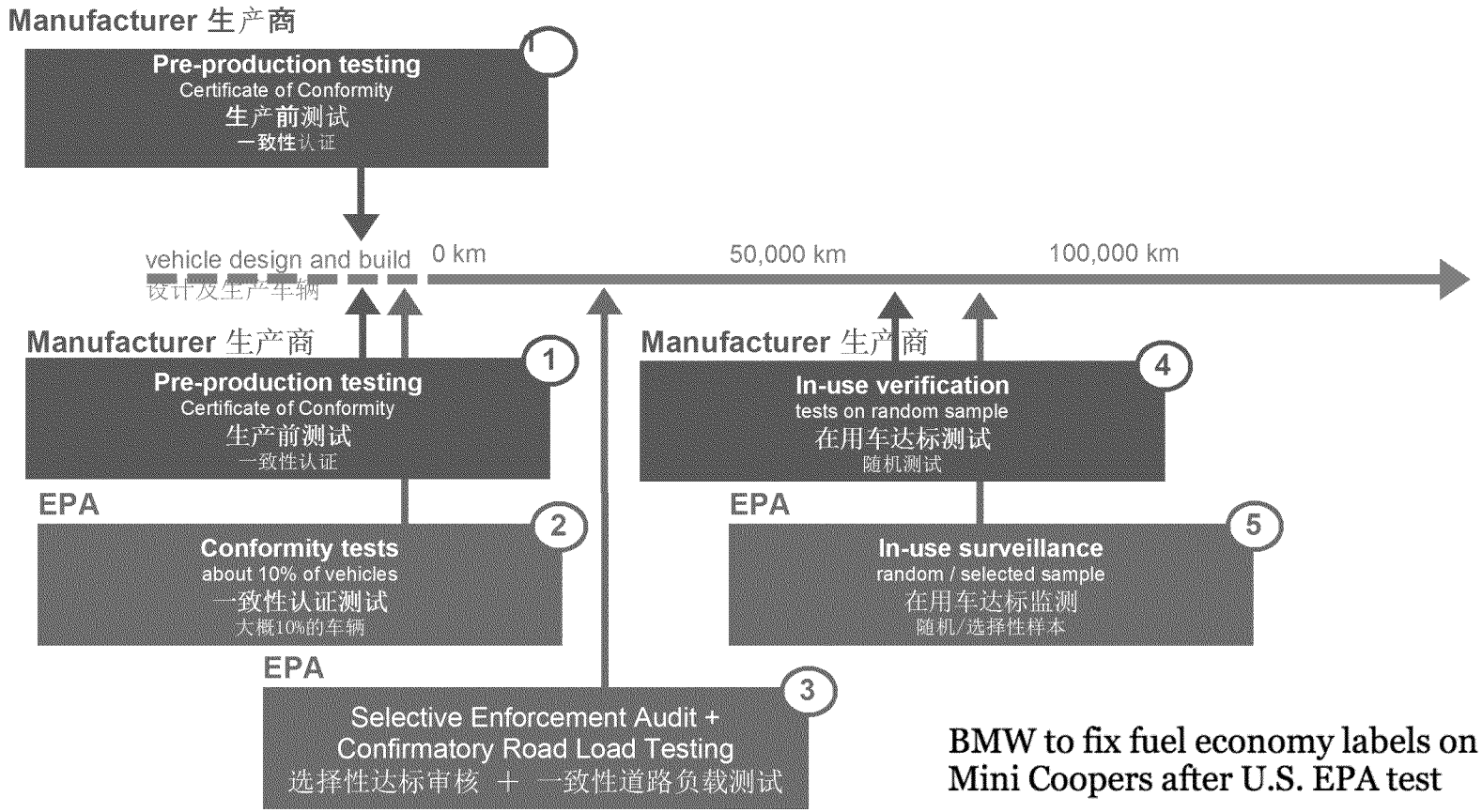
实际CO_2排放：造成差距的原因



VW FOIA, EPA 06/20/2017 2017-FFP_034361

Regular government confirmatory testing is invaluable
Vehicle emissions certification/testing in the EU and US

在欧洲和美国，政府定期的验证测试是无价的汽车排放认证/检测



BMW to fix fuel economy labels on Mini Coopers after U.S. EPA test

DETROIT | Wed Oct 22, 2014 11:08am EDT

U.S. Fines Hyundai, Kia for Fuel Claims

Penalty of $300 Million Is Largest Ever, Could Set Pricey Precedent for Other Auto Makers

宝马在EPA测试后修正Mini Cooper的燃油经济型标志
美国因燃油问题罚款现代，起亚

http://www.theicct.org/blogs/staff/bought-tiger-got-hello-kitty-how-fix-vehicle-fuel-economy-fraud-china

ICCT's position brief on reducing real-world driving emissions

ICCT 对于减少实际排放的建议

VW scandal is an opportunity to act fast, close the "real-world gap" using **readily available policy elements**:

- **Accelerated (2017) adoption of WLTP by NEDC regions:** Better cycle + robust procedure = more realistic results in the short term
- **Defeat device screening programs:** CARB and EPA's program a useful template for other world regions. EU member states urged to start screening immediately
- **In-use compliance programs:** Real world testing programs can be built on the basis of the European RDE experience, but using vehicles sourced from the real market (no more "golden cars"), and expanding the testing conditions to cover a wide range of operating conditions

- 大众事件是一个采取迅速行动动，利用**现成政策要素**减少"现实差距"的机会：
- **加速（2017）NEDC地区采用WLTP的进程程：更好的周期 + 可信的程序 = 短期内更多实际成果**
- **失效装置筛选：**CARB 和 EPA 的项目给世界其他地区提供了有用的模版。敦促欧盟成员国立即开始筛选。
- **在用车辆达标管理：**现实测试可以基于欧洲的RDE经验，但车辆需从市场获得（不再用"理想车辆"），并且扩大测试条件以涵盖不同的运行状况

POSITION BRIEF

icct

POLICY SOLUTIONS TO REDUCE VEHICLE EXHAUST EMISSIONS UNDER REAL-WORLD DRIVING CONDITIONS

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

List of publications 相关报告、资料列表

- Fact sheet: Light-duty diesel in-use tests: http://www.theicct.org/news/epas-notice-violation-clean-air-act-volkswagen-press-statement
- ICCT Report: Real-world exhaust emissions from modern diesel cars: http://www.theicct.org/real-world-exhaust-emissions-modern-diesel-cars
- WVU Report: In-use emissions testing of light-duty diesel vehicles in the U.S.: http://www.theicct.org/use-emissions-testing-light-duty-diesel-vehicles-us
- U.S. EPA notice of violation: http://www3.epa.gov/otaq/cert/documents/vw-nov-caa-09-18-15.pdf
- ICCT Policy Briefing: Policy solutions to reduce vehicle exhaust emissions under real-world driving conditions: http://www.theicct.org/position-brief-oct2015-policy-solutions-real-world-emissions
- FAQ: In-use NOx emissions from diesel passenger cars: http://www.theicct.org/news/faq-use-nox-emissions-diesel-passenger-cars
- ICCT Report: NOx control technologies for Euro 6 diesel passenger cars: http://www.theicct.org/nox-control-technologies-euro-6-diesel-passenger-cars
- Real-world vehicle fuel economy gap continues to widen in Europe: http://www.theicct.org/news/real-world-vehicle-fuel-economy-gap-continues-widen-europe-press-release

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Further questions? 其他问题请联系

- Drew Kodjak, Executive Director, (Washington DC), drew@theicct.org
- John German, US program co-lead (Ann Arbor), john@theicct.org
- Nic Lutsey, U.S. program co-lead (Washington DC), nic@theicct.org
- Anup Bandivadekar, passenger vehicles program lead (San Francisco), anup@theicct.org

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

To: Kaul, Meetu[Kaul.Meetu@epa.gov]
Cc: Dorothee Saar[saar@duh.de]; Jürgen Resch[resch@duh.de]; Barbara Metz[metz@duh.de]
From: Simon Annen
Sent: Mon 10/19/2015 9:39:43 AM
Subject: letters from Environmental NGO to CEOs of German car industry
removed.txt
ENG 20150921-Schreiben DUH an die Audi AG.pdf
Antwort Audi AG 29092015.pdf
Antwort BMW_25092015.pdf
Antwort Daimler 25092015.pdf
Antwort Ford 25092015.pdf
Antwort Porsche 25092015.pdf
Antwort Volkswagen AG 25092015.pdf
Antwortmail Opel.pdf

Dear Mrs. Kaul,

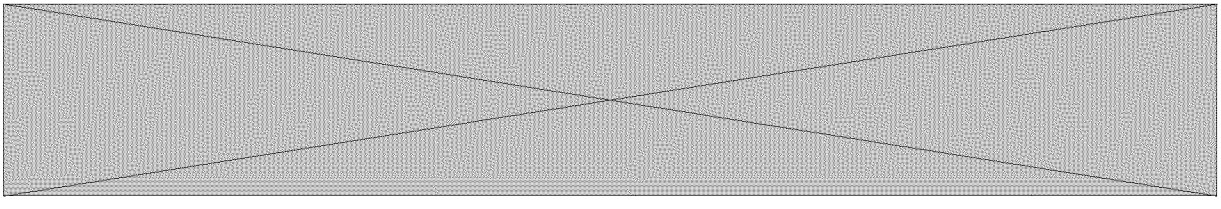
with best wishes from our CEO Jürgen Resch, please find attached a letter we (Environmental Action Germany, DUH) sent to CEOs of German car industry and asked them several questions, among them which defeat devices they use and under what conditions they work.

Please also find attached the answer letter from the CEOs (in german).

Kind regards

Simon Annen | Projektassistenz Verkehr und Luftreinhaltung

Deutsche Umwelthilfe e.V. | Bundesgeschäftsstelle Berlin | Hackescher Markt 4 | 10178 Berlin
Telefon: +49 30 2400867 737 | Telefax: +49 30 2400867 19
E-Mail: annen@duh.de | www.duh.de |



DUH e.V. | BGF: J. Resch, S. Müller-Kraenner | Vorstand: Prof. Dr. H. Kächele, B. Jäkel, C.-W. Bodenstein-Dresler | AG Hannover VR 202112
Bank: VoBa Konstanz-Radolfzell | Kto. 210677216 | BLZ 692 910 00 | IBAN DE89692910000210677216 | BIC GENODE61RAD

Deutsche Umwelthilfe

Deutsche Umwelthilfe e.V. · Hackescher Markt 4 · 10178 Berlin

Fax: 0841-8938 295
Rupert Stadler
Vorstandsvorsitzender
Audi AG
Über die Rechtsabteilung
Herrn Hermann Kremer
85045 Ingolstadt

BUNDESGESCHÄFTSSTELLE BERLIN
Hackescher Markt 4/
Neue Promenade 3 (Eingang)
10178 Berlin
Jürgen Resch
Bundesgeschäftsführer
Telefon 030 2400867-0
Telefax 030 2400867-19
E-Mail resch@duh.de
Internet www.duh.de

Berlin, 21 September 2015

Your company's statement regarding the use of defeat devices in new Euro 5 and Euro 6 diesel or gasoline direct injection vehicles of all of your company's brands

Deadline for comments: Friday, 25 September 2015 – to be re ceived by us by 3 p.m.

Dear Mr Stadler,

Since 13 October 2004, the Deutsche Umwelthilfe e.V., (German Environmental Aid Association, DUH), Fritz-Reichle-Ring 4, 78315 Radolfzell, has been registered in the list of qualified entities under § 4 of the Act on Applications for an Injunction, effective as of 11 October 2004.

The DUH is, therefore, able to prevent violations of the law against unfair competition and other consumer protection laws by taking appropriate measures of collective redress. For years, it has concerned itself with – as you know – the reduction of toxic emissions from combustion and, in this case in particular, diesel engines.

Within the framework of our education campaign "Diesel exhaust fumes kill" initiated in Frankfurt last Thursday – at the same time as the o pening of the IAA by Dr Merkel – we have referred to our own measurements as well as to investigations of the ICCT and our European umbrella association T&E. According to the investigations that you are also familiar with, in real operation Euro 6 diesel cars demonstrate similarly extremely elevated NOx/NO2 values as those involved in the current investigations of the CalEPA and the EPA in Washington concerning VW and Audi models (cf. indictment sent to VW and Audi on 18 September 2015).

Deutsche Umwelthilfe e.V.
Bundesgeschäftsführer: Jürgen Resch, Sascha Müller-Kraenner
Vorstand: Prof. Dr. Harald Kächele,
Burkhard Jäkel, Carl-Wilhelm Bodenstein-Dresler
Vereinsregister: Hannover Nr. 202112

Bank details
Geschäftskonto: Volksbank Konstanz-Radolfzell
IBAN: DE89 6929 1000 0210 6772 16 | BIC: GENODE61RAD
Spendenkonto: Bank für Sozialwirtschaft Köln
IBAN: DE45 3702 0500 0008 1900 02 | BIC: BFSWDE33XXX

Die Deutsche Umwelthilfe e.V. ist als gemeinnützig anerkannt. Die Jahresabschlüsse unterliegen der freiwilligen Kontrolle durch ein unabhängiges Wirtschaftsprüfungsunternehmen.

Article 5 of Regulation (EC) No. 715/2007 states:

Requirements and tests

(1) The manufacturer shall equip vehicles so that the components likely to affect emissions are designed, constructed and assembled so as to enable the vehicle, in normal use, to comply with this Regulation and its implementing measures.
(2) The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited.

The DUH is in possession of indications that the vehicles of your company obviously also exhibit NO_2 values that are many times higher than expected and which cannot be explained by normal variations between the test roll and on-road operation and which point to the presence of "test cycle recognition" and/or defeat devices or, under certain operating conditions, do not function correctly.

I urge you to answer the following questions Friday, 25 September 2015, submitting them to us no later than by 3 p.m. They relate to all the brands you are responsible for and all their models of Euro 5 and Euro 6 stages of all fuels (esp. diesel engines and gasoline direct injection engines):

1. Which models recognise test situations via the f actory-provided operating software and then change the impact of the emission reduction device and switch to another map with increased emission values? Please explain in brief the nature and intensity.
2. What are the parameters that cause these vehicle s to recognise the test situation? (E.g. ambient temperature > 30 degrees, accelerometer, steering wheel position, velocity pattern of the test cycles on file etc.)
3. Is the supply of keratin in vehicles with SCR sy stems above or below a certain ambient temperature – except during a cold start – ge nerally or in combination with other parameters inhibited or throttled?
4. Which diesel models that have SCR that are appro ved for the European market switch off urea injection at speeds above 120 km/h (or higher/lower) (please quote the velocity as of which the respective model throttles or stops the injection of urea)
5. In the event that, with diesel models equipped w ith SCR, the urea tank drops below a minimum level:
   - do the OBD always automatically point out to the driver in good time that he needs to fill the tank up or is no notification given?
   - does this lead (with an empty or nearly empty tank) to the statutory emergency operation or does the operating software just regulate the urea injection in the SCR system without any error message in the OBD?

VW FOIA, EPA 06/20/2017 2017-FFP_034368

Deutsche Umwelthilfe

6. Please inform us of the results of the RDE value s for Euro 6 diesel cars models that you currently have at hand.
7. With respect to the measurement of fuel consumpt ion and CO2 emissions, which car models have the operating software that recognises the test mode?

We wish to remind you that the DUH intends to undertake selective measurements on the production vehicles already on the market in order to verify your details. We will take legal action in response to any wrong answers or non-responses (which we regard as on a par with wrong answers) and also inform the public and the supervisory authorities.

In this respect, we call on you to provide a full statement by the due date and time. The dramatic damage to the credibility of Volkswagen AG as a result the continuous misinformation of American government agencies by Volkswagen and Audi that went on for over a year is a cautionary example.

Yours sincerely,

Jürgen Resch

Federal Chairman

The following people will receive copies of this letter:

- Alexander Dobrindt - BMVI (Federal Ministry of Tr ansport and Digital Infrastructure)
- Barbara Hendricks - BMUB (Federal Ministry for th e Environment)
- Sigmar Gabriel - BMWi (Federal Ministry for Econo mic Affairs and Energy)
- EU COMM Karmenu Vella/Violeta Bulc/Elzbieta Bienk owska
- Stephan Weil – State of Lower Saxony
- Meetu Kaul, U.S. EPA, Air Enforcement Division
- Annette Hebert – CalEPA/ARB

To: Belser, Evan[Belser.Evan@epa.gov]; Orehowsky, Gregory[Orehowsky.Gregory@epa.gov]
Cc: Werner, Jacqueline[Werner.Jacqueline@epa.gov]
From: Kaul, Meetu
Sent: Mon 10/19/2015 12:24:11 PM
Subject: FW: letters from Environmental NGO to CEOs of German car industry
removed.txt
ENG 20150921-Schreiben DUH an die Audi AG.pdf
Antwort Audi AG 29092015.pdf
Antwort BMW_25092015.pdf
Antwort Daimler 25092015.pdf
Antwort Ford 25092015.pdf
Antwort Porsche 25092015.pdf
Antwort Volkswagen AG 25092015.pdf
Antwortmail Opel.pdf

This appears to be from the Government of Germany to VW et al, sharing their data requests with us.

Evan, not sure if you have had any further conversations with Germany on this.

I"ve only looked over super briefly.

Ms.Meetu Kaul, Attorney-Advisor

Air Enforcement Division
United States Environmental Protection Agency
Direct: 202-564-5472
Email: kaul.meetu@epa.gov

From: Simon Annen [mailto:annen@duh.de]
Sent: Monday, October 19, 2015 5:40 AM
To: Kaul, Meetu
Cc: Dorothee Saar; Jürgen Resch; Barbara Metz
Subject: letters from Environmental NGO to CEOs of German car industry

Dear Mrs. Kaul,

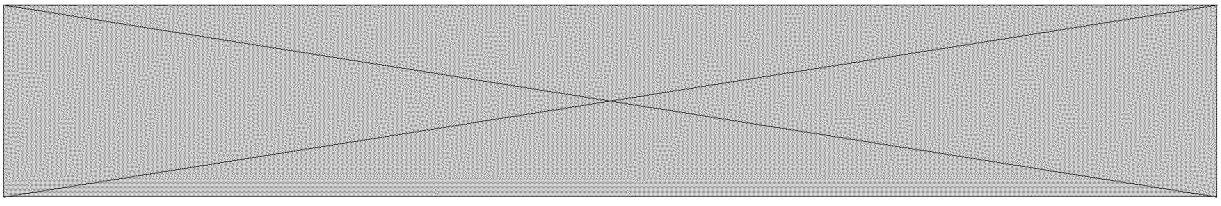
with best wishes from our CEO Jürgen Resch, please find attached a letter we (Environmental Action Germany, DUH) sent to CEOs of German car industry and asked them several questions, among them which defeat devices they use and under what conditions they work.

Please also find attached the answer letter from the CEOs (in german).

Kind regards

Simon Annen | Projektassistenz Verkehr und Luftreinhaltung

Deutsche Umwelthilfe e.V. | Bundesgeschäftsstelle Berlin | Hackescher Markt 4 | 10178 Berlin
Telefon: +49 30 2400867 737 | Telefax: +49 30 2400867 19
E-Mail: annen@duh.de | www.duh.de |



DUH e.V. | BGF: J. Resch, S. Müller-Kraenner | Vorstand: Prof. Dr. H. Kächele, B. Jäkel, C.-W. Bodenstein-Dresler | AG Hannover VR 202112
Bank: VoBa Konstanz-Radolfzell | Kto. 210677216 | BLZ 692 910 00 | IBAN DE89692910000210677216 | BIC GENODE61RAD

Deutsche Umwelthilfe

Deutsche Umwelthilfe e.V. · Hackescher Markt 4 · 10178 Berlin

Fax: 0841-8938 295
Rupert Stadler
Vorstandsvorsitzender
Audi AG
Über die Rechtsabteilung
Herrn Hermann Kremer
85045 Ingolstadt

BUNDESGESCHÄFTSSTELLE BERLIN
Hackescher Markt 4/
Neue Promenade 3 (Eingang)
10178 Berlin
Jürgen Resch
Bundesgeschäftsführer
Telefon 030 2400867-0
Telefax 030 2400867-19
E-Mail resch@duh.de
Internet www.duh.de

Berlin, 21 September 2015

Your company's statement regarding the use of defeat devices in new Euro 5 and Euro 6 diesel or gasoline direct injection vehicles of all of your company's brands

Deadline for comments: Friday, 25 September 2015 – to be re ceived by us by 3 p.m.

Dear Mr Stadler,

Since 13 October 2004, the Deutsche Umwelthilfe e.V., (German Environmental Aid Association, DUH), Fritz-Reichle-Ring 4, 78315 Radolfzell, has been registered in the list of qualified entities under § 4 of the Act on Applications for an Injunction, effective as of 11 October 2004.

The DUH is, therefore, able to prevent violations of the law against unfair competition and other consumer protection laws by taking appropriate measures of collective redress. For years, it has concerned itself with – as you know – the reduction of toxic emissions from combustion and, in this case in particular, diesel engines.

Within the framework of our education campaign "Diesel exhaust fumes kill" initiated in Frankfurt last Thursday – at the same time as the o pening of the IAA by Dr Merkel – we have referred to our own measurements as well as to investigations of the ICCT and our European umbrella association T&E. According to the investigations that you are also familiar with, in real operation Euro 6 diesel cars demonstrate similarly extremely elevated NOx/NO2 values as those involved in the current investigations of the CalEPA and the EPA in Washington concerning VW and Audi models (cf. indictment sent to VW and Audi on 18 September 2015).

Deutsche Umwelthilfe e.V.
Bundesgeschäftsführer: Jürgen Resch, Sascha Müller-Kraenner
Vorstand: Prof. Dr. Harald Kächele,
Burkhard Jäkel, Carl-Wilhelm Bodenstein-Dresler
Vereinsregister: Hannover Nr. 202112

Bank details
Geschäftskonto: Volksbank Konstanz-Radolfzell
IBAN: DE89 6929 1000 0210 6772 16 | BIC: GENODE61RAD
Spendenkonto: Bank für Sozialwirtschaft Köln
IBAN: DE45 3702 0500 0008 1900 02 | BIC: BFSWDE33XXX

Die Deutsche Umwelthilfe e.V. ist als gemeinnützig anerkannt. Die Jahresabschlüsse unterliegen der freiwilligen Kontrolle durch ein unabhängiges Wirtschaftsprüfungsunternehmen.

Deutsche Umwelthilfe

Article 5 of Regulation (EC) No. 715/2007 states:

Requirements and tests

(1) The manufacturer shall equip vehicles so that the components likely to affect emissions are designed, constructed and assembled so as to enable the vehicle, in normal use, to comply with this Regulation and its implementing measures.
(2) The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited.

The DUH is in possession of indications that the vehicles of your company obviously also exhibit NO_2 values that are many times higher than expected and which cannot be explained by normal variations between the test roll and on-road operation and which point to the presence of "test cycle recognition" and/or defeat devices or, under certain operating conditions, do not function correctly.

I urge you to answer the following questions Friday, 25 September 2015, submitting them to us no later than by 3 p.m. They relate to all the brands you are responsible for and all their models of Euro 5 and Euro 6 stages of all fuels (esp. diesel engines and gasoline direct injection engines):

1. Which models recognise test situations via the f actory-provided operating software and then change the impact of the emission reduction device and switch to another map with increased emission values? Please explain in brief the nature and intensity.
2. What are the parameters that cause these vehicle s to recognise the test situation? (E.g. ambient temperature > 30 degrees, accelerometer, steering wheel position, velocity pattern of the test cycles on file etc.)
3. Is the supply of keratin in vehicles with SCR sy stems above or below a certain ambient temperature – except during a cold start – ge nerally or in combination with other parameters inhibited or throttled?
4. Which diesel models that have SCR that are appro ved for the European market switch off urea injection at speeds above 120 km/h (or higher/lower) (please quote the velocity as of which the respective model throttles or stops the injection of urea)
5. In the event that, with diesel models equipped w ith SCR, the urea tank drops below a minimum level:
   - do the OBD always automatically point out to the driver in good time that he needs to fill the tank up or is no notification given?
   - does this lead (with an empty or nearly empty tank) to the statutory emergency operation or does the operating software just regulate the urea injection in the SCR system without any error message in the OBD?

VW FOIA, EPA 06/20/2017 2017-FFP_034373

Deutsche Umwelthilfe

6. Please inform us of the results of the RDE value s for Euro 6 diesel cars models that you currently have at hand.
7. With respect to the measurement of fuel consumpt ion and CO2 emissions, which car models have the operating software that recognises the test mode?

We wish to remind you that the DUH intends to undertake selective measurements on the production vehicles already on the market in order to verify your details. We will take legal action in response to any wrong answers or non-responses (which we regard as on a par with wrong answers) and also inform the public and the supervisory authorities.

In this respect, we call on you to provide a full statement by the due date and time. The dramatic damage to the credibility of Volkswagen AG as a result the continuous misinformation of American government agencies by Volkswagen and Audi that went on for over a year is a cautionary example.

Yours sincerely,

Jürgen Resch

Federal Chairman

The following people will receive copies of this letter:

- Alexander Dobrindt - BMVI (Federal Ministry of Tr ansport and Digital Infrastructure)
- Barbara Hendricks - BMUB (Federal Ministry for th e Environment)
- Sigmar Gabriel - BMWi (Federal Ministry for Econo mic Affairs and Energy)
- EU COMM Karmenu Vella/Violeta Bulc/Elzbieta Bienk owska
- Stephan Weil – State of Lower Saxony
- Meetu Kaul, U.S. EPA, Air Enforcement Division
- Annette Hebert – CalEPA/ARB

To: Allen, Laura[Allen.Laura@epa.gov]; Abrams, Dan[Abrams.Dan@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Senn, John[Senn.John@epa.gov]; Millett, John[Millett.John@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Hull, George[Hull.George@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Grantham, Nancy[Grantham.Nancy@epa.gov]; StClair, Christie[StClair.Christie@epa.gov]; Davis, Jay[Davis.Jay@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Brooks, Phillip[Brooks.Phillip@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Purchia, Liz[Purchia.Liz@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]
From: Gong, Kristiene
Sent: Mon 10/19/2015 1:46:13 PM
Subject: Volkswagen Clips 10/17-10/18

NY Times:

http://www.nytimes.com/2015/10/19/business/the-owner-has-a-crucial-part-in-volkswagen-diesel-repair.html?_r=0

Essential Part of the Volkswagen Diesel Repair Is the Owner

By CHRISTOPHER JENSEN OCT. 18, 2015

Even as Volkswagen embarks on the task of fixing the emissions systems it disabled on almost 500,000 of its diesel vehicles in the United States, the automaker faces another hurdle: persuading owners to make the repair at all.

That's because the software that allowed Volkswagen to fool federal emissions tests also lowered the car's performance and fuel economy while the device was turned on. So for owners, the prospect of having a car's emissions cleaned up, only to have the car perform worse — whatever the pollution — is not sitting well.

"If we take a 10 percent hit in our gas mileage, I can live with that, but I won't be happy," said Patrick Downs, who lives in Port Angeles, Wash., and owns a 2013 Jetta TDI.

"If it is 25 percent or more and the performance is degraded to the point where the car has a lot less torque and pickup, that is going to make me very unhappy," he added. "That is going to make me consider not getting the fix."

It was well known among owners of Volkswagen diesels that the cars' advertised fuel economy — as shown on the window sticker — was almost always lower than their real-world performance.

Volkswagen could have saved fuel or improved performance by allowing more pollutants to pass through its cars' exhaust systems, researchers said.

Michael Horn, head of Volkswagen's American unit, told a congressional panel this month that the repairs he outlined — which will take years and require significant new equipment — might result in a slightly lower top speed in the cars. But he was careful to say that the cars' fuel economy would not be lower than the rating on the window sticker.

That's not satisfactory, said Jeff Hinton, the owner of a 2013 Passat diesel. "Every TDI owner will tell you, 'I get much better numbers, miles to the gallon, than any number that is on that Monroney sticker,'" Mr. Hinton, 36, said in a telephone interview from Morrisville, N.C., using a term for the window sticker.

"On recent trips, 500 miles plus, I've gotten 52 to 55 miles per gallon," Mr. Hinton said. The Environmental Protection Agency rating on the window sticker of his Passat is 40 miles per gallon on the highway.

"I wouldn't want my car recalled or reprogrammed or retrofitted in any way if it is going to hurt the performance, because that is not what I paid for," he said.

The E.P.A. cannot force owners to repair their vehicles, said Julia Ortiz, a spokeswoman for the agency.

Automakers also cannot require owners to carry out the emissions recall, just as they cannot force owners to take vehicles in to complete a safety recall.

Some states require vehicles to pass emissions tests before they can be registered each year. But those tests are far less sophisticated than the E.P.A.'s, and the Volkswagens that are not repaired are sure to pass them, said John German, a senior fellow at the International Council on Clean Transportation, which played a crucial role in discovering the automaker's deceit.

That loophole means the air pollution consequences of Volkswagen's action — at least on a small scale — are irreparable if enough owners refuse to have their vehicles fixed.

Despite their small size, the Volkswagen diesels produce a large amount of nitrogen oxide pollutants, Mr. German said, up to 40 times what is allowed under the Clean Air Act. The Passat sedan is emitting an amount of nitrogen oxides similar to that of a modern, medium-duty truck, he said, while the Jetta — and its sibling the Golf — have emissions similar to those of a typical modern 18-wheeler, he said. The Jetta and Golf use a different emissions system than the Passat.

Volkswagen must come up with an incentive plan to make repairing the engines irresistible, said Dan Becker, the director of the Safe Climate Campaign at the Center for Auto Safety.

"Volkswagen made this disaster; it is its responsibility to fix it," he said in a telephone interview. "We need to recognize that consumers may need to have an incentive to do what the law requires."

General Motors, for example, last year offered $25 gift cards to owners of about 2.6 million older small cars that could have defective ignition switches. But unlike the case with the Volkswagens, that was for a potentially fatal defect that has been linked to at least 124 deaths.

The average completion rate of repairs on recalled vehicles in the United States is 75 percent over 18 months, according to the National Highway Traffic Safety Administration.

Some states try to address the issue of owners who do not comply with air pollution recalls.

New Jersey has a law requiring owners to have emissions recalls carried out on their vehicles and to provide proof in order to register them. But it has never been used and it would be "premature and speculative" to discuss how that law might apply to Volkswagen, said Mairin Bellack, a spokeswoman for the state's Motor Vehicle Commission.

California also requires owners to have their vehicles repaired, said Stanley Young, a spokesman for the California Air Resources Board. The automaker has until Nov. 20 to submit a remedy to California regulators, which must then be approved.

"If it turns out that there is not enough of a response, we do have in California the option of putting a block on registration until the fix is done," he said. "But that is only as a last resort."

Even before Volkswagen announced the recall remedy, diesel owners fretted about the impact.

"Do not take your car to the dealer for service (if it's out of warranty) as they will automatically install the eventual software fix if you do," an owner wrote on the Volkswagen Owners Club website. "This software fix will allow the car to pass emissions, but it will lower MPG, decrease performance and finally reduce component life of the engine and emissions system."

But some emissions experts say it's hard to predict the consequences, since it is not clear exactly what Volkswagen did.

Federal regulators have said the automaker installed software that signaled the emissions system to work during the E.P.A. tests, but then at least partly disabled it during routine driving.

Even the motivation is unclear.

"Fuel economy could be a factor but it need not be the factor," said Arvind Thiruvengadam, research professor at West Virginia University, which helped uncover VW's cheating. "Meeting lower emissions means it is also a lot of burden on other components of the vehicle."

Part of the strategy, then, could have been to minimize mechanical wear and tear, he said.

Mr. German at the International Council on Clean Transportation said that what all this meant to diesel owners would not be clear until Volkswagen provided far more information.

He said there might be a loss in fuel economy, although he would be surprised if it was significant. "It shouldn't be, like eight miles per gallon or anything like that," he said.

Consumer Reports tested two Volkswagen diesels, with and without the cheating software activated. In one of the cases, a 2015 Jetta TDI got 53 m.p.g. without the modification used to cheat, compared with 50 m.p.g. with it. The advertised fuel economy was 45 miles per gallon.

Mr. German said he would be surprised if the smooth delivery of power without hesitation or surges was a major problem because vehicles today have advanced fuel-injection systems and sophisticated computers.

"It is rare for there to be a drivability problem," he said. "You can almost always figure out some way to manage it."

That leaves owners like Mr. Downs in Washington State, who is waiting to see how his Jetta diesel will be affected and what to do about the recall. But he readily acknowledges he is pondering the environmental downside of not repairing the car.

"What does this mean in terms of actual environmental impact?" he said. "It is millions of cars. That weighs heavy on my mind."

NYSE Post:

http://nysepost.com/vw-commercials-getting-a-new-view-in-light-of-emissions-scam-21918

VW commercials getting a new view in light of emissions scam

Oct 19 2015

"Diesel in Latin means 'soiled, '" chimes in one other pal within the backseat.

"See how clear it's!" she exclaims, holding up the spotless scarf.

When asked by the House of Representatives' Energy and Commerce Committee' s Oversight and Investigation subcommittee recently, instead of coming clean, Volkswagen US CEO Michael Horn just chose to blame it on the software engineers. The device converts smog-triggering nitrogen oxide into harmless oxygen and nitrogen gases.

For years, the company aired memorable TV spots using terms such as *miraculous* to describe the car*s seemingly too-good-to-be-true balance of peppy acceleration, 40-mile-per-gallon gas mileage and low greenhouse gas emissions. While the FTC can't send anyone to jail, it has authority to protect consumers and impose wide-ranging penalties.

"That a separate device was included in the redesigned 2016 cars could suggest a multi-year effort by the company to influence USA emissions tests that continued even after regulators began pressing the company last year about irregularities with the emissions produced by the older cars".

VW is now working with regulators to continue the certification process needed to sell its 2016 diesel cars. Those could potentially include paying cash restitution to the affected vehicle owners and forcing VW to buy new national ads admitting the company lied to its customers. If you

would like to discuss another topic, look for a relevant article.

The ads have additionally been faraway from the corporate's web sites and YouTube channel. Jeannine Minivan, the spokesperson from Volkswagen, confirmed that the 2016 models feature new software dubbed "auxiliary emissions control device" and this information was disclosed to the California and US EPA regulators last week.

VW is now coordinating with the Environmental Protection Agency on an anticipated recall of the nearly 500,000 bought within the D.R. because the suspect software program first appeared in its 2009 diesel fashions. Owners can key of their auto identification quantity stamped on the dashboard close to the driving force's windshield.

Automotive News:

http://www.autonews.com/article/20151019/RETAIL01/310199946/a-month-into-vw-scandal-no-sales-meltdown

A month into VW scandal, no sales meltdown

Dealers reporting mixed results

Ryan Beene

October 19, 2015 - 12:01 am ET

Not too bad, all things considered.

That's what Volkswagen dealers say about the brand's U.S. sales momentum as its diesel emissions scandal enters its second month.

The inability to sell diesel vehicles because of the stop-sale order is taking a toll, but dealers say they have yet to see an exodus of customers from their showrooms as heavy dealer and customer incentives provide a floor under sales.

"It's not a meltdown, but it's not business as usual either," said Mike Sullivan, president of the 11-franchise LAcarGUY network of dealerships, which has two VW stores in greater Los Angeles.

Spooky month

To post a year-on-year U.S. sales gain for October, the VW brand would need a 16% gain over September's sales without the benefit of diesel car sales.

	U.S. sales Sept.	U.S. sales Oct.
2009	17,358	17,037
2010	19,943	20,084
2011	27,036	28,028
2012	36,339	34,311
2013	31,920	28,129
2014	25,996	30,312
2015	26,141	

Source: Automotive News Data Center

Sullivan's VW dealership in Hawthorne, Calif., is on pace to hit its usual monthly volume of around 135 to 140 new VWs. His larger VW store in Santa Monica is off to a slower start, he says, pacing to end the month down by about 30 percent from its typical volume of 200 new VWs a month.

"It's a little off, but nobody's boycotting the stores," Sullivan said.

Sullivan: Sales are “a little off.”

VW dealers across the country are reporting mixed results for the first two weeks of October, which dealers say are typically weaker than the second half of a given month.

Eking out a year-on-year sales gain for the full month would take a minor miracle. Last October, the VW brand sold 30,312 new vehicles, a 7.8 percent gain from October 2013. To beat that total this month, dealers would need to boost sales by 16 percent from September and do so without the diesel-powered models that have accounted for about 20 percent of VW's U.S. sales this year.

Meanwhile, interest in the VW brand from online car shoppers is waning. Consideration and purchase intent for VW vehicles on edmunds.com, already on the decline this year, fell last week to their lowest levels all year, according to the car-shopping website.

Since VW's emissions violations were announced by the EPA on Sept. 18, VW brand traffic at kbb.com fell by 13 percent from the same period in 2014.

At truecar.com, overall VW traffic Oct. 4-10 was off 9 percent compared with the weekly average rate seen for the two months before the scandal, a larger than normal fluctuation, says Eric Lyman, vice president of industry insights at TrueCar. Interest in VW's diesel models, still grounded by the brand's stop-sale order, plummeted by 57 percent in the same window.

Even so, dealers are seeing enough conventional showroom traffic to reassure them that the bottom won't drop out this month. At Herzog-Meier Volkswagen in Beaverton, Ore., diesels account for about 30 percent of monthly, sales says Chris Meier, the dealer principal. But with those models off the market for now, he says, sales of gasoline-powered VWs are picking up and if the store's current momentum continues he could end up posting a small net gain over October 2014.

One big draw is a flood of incentive cash from Volkswagen of America that's intended to help shield dealers from the crisis engulfing the brand and the corporate headquarters in Germany. VW launched a $2,000 owner-loyalty incentive on Oct. 1 that could be combined with any other VW new-car lease or finance offer on gasoline or hybrid models.

The incentive gave a shot in the arm to Open Road Auto Group's two VW dealerships during the first weekend of the month, says Michael Morais, Open Road's president. Through the first two weeks, he says, sales are up at his VW store in Bridgewater, N.J., and his flagship store in downtown Manhattan compared with last October. Diesels account for a smaller share of Open Road's VW sales than the national average, Morais says.

"We remain on track, and the programs are definitely working," Morais said, noting that consumers can finance a new Passat midsize sedan for roughly the same monthly payment as leasing a Honda Civic. "We're making deals, and we're making gross."

Inventory availability and VW's limited selection of crossovers are having as much of an impact on sales as the diesel scandal, if not more, says Chris Curran, president of Curran Volkswagen in Stratford, Conn.

Curran says his midmonth sales were flat compared with last October but could be down by the end of the month. Stocks of the Jetta compact car, Tiguan compact crossover and the 2015 Passat are slim, and a re-engineered 2016 Passat with updated styling and new connectivity technology is months away, Curran says.

Those factors, plus a relatively limited set of existing VW owners nearby to attract with the $2,000 loyalty bonus, have sent sales at Hendrick Volkswagen Frisco in suburban Dallas tumbling to start the month, says Alan Brown, the dealership's general manager and chairman of VW's national dealer council. Brown says sales are on pace to be down by a third from the roughly 90 new VWs he sells in an average month at the Frisco location, "significantly off" from the pace seen in recent months at the store, which is less than a year old.

"The owner loyalty is really helping the dealer who has a customer base," Brown said. "I don't have as much action because I don't have as many people."

Last week, VW announced new dealer advertising support programs at the regional and dealership level to help boost demand. It also created a $2,000 bonus toward a gasoline-powered VW that dealers could offer to consumers who had put down deposits on diesel cars that could not be delivered because of the stop-sale order.

Dealers are also anxious to hear how and when Volkswagen will be able to fix its noncompliant diesels at the brand's national dealer meeting Thursday, Oct. 22, in Orlando and for VW executives to provide a clearer picture of what to expect in the months ahead,

So far, LAcarGUY's Sullivan said, VW has been "dragging their feet on saying anything other than lots of things they're working on. They've got to start saying something a little more profound and specific."

Mashable:

http://mashable.com/2015/10/18/volkswagen-emissions-scandal/#NvYDrmBw2GqY

French authorities search Volkswagen office in emissions scandal

BY MARCUS GILMER AND HEIDI MOORE

10 hours ago

Authorities raided a pair of Volkswagen's offices in France on Friday, hitting the company's French headquarters in Villers-Cotterêts and another office in Paris, all in connection with the company's recent emissions scandal.

Investigators from France's environment and public health office conducted the searches Friday at Volkswagen France's offices and seized computer equipment, the Paris prosecutor's office said Sunday. A spokeswoman for Volkswagen France, Leslie Peltier, confirmed the searches and said

Volkswagen is fully cooperating with the police.

According to CNN, authorities in Italy led a similar raid on the Bologna headquarter's of Lamborghini, which is owned by Volkswagen.

The company is struggling to respond to a far-reaching controversy in which Volkswagen and several of its brands — including Porsche and Audi — installed software that was designed to deliberately mislead regulators about the cars' diesel emissions. The software saved Volkswagen the trouble and expense of installing bulky mechanical hardware to reduce the power of their pollutants.

That software tweak, in turn, allowed Volkswagen to falsely claim that the cars — including the hipster-favorite Volkswagen Golf — were environmentally friendly. Many owners, looking to be eco-friendly, felt betrayed by the company's deception.

In the wake of the scandal, Martin Winterkorn stepped down as CEO and the carmaker is feeling heat from all over, including here in the United States where the EPA is investigating if the company used a second piece of software to cheat on emissions tests.

Dispatch Times:

http://www.dispatchtimes.com/new-volkswagen-disclosure-may-broaden-emissions-scandal/139392/

NEW VOLKSWAGEN DISCLOSURE MAY BROADEN EMISSIONS SCANDAL

Oct 18, 2015

The German automaker still has a lot of 'splainin to do about the revelations that it surreptitiously installed "defeat device" software created to cheat on emissions tests in vehicles

with its 2.0-liter turbodiesel engines.

Volkswagen is now in the process of writing to drivers affected, with the German auto manufacturer set to recall cars in January 2016.

"We have a long list of questions for VW about this", Janet McCabe, acting assistant administrator for air quality at the Environmental Protection Agency told the AP.

Hendricks and Gabriel, who leads the SPD, both called for a binding quota for electric cars, with Hendricks also calling for a government subsidy for buying such vehicles.

In the United Kingdom, the consumer magazine 'Which?' has surveyed Volkswagen owners and found that 90 percent of them want compensation over the diesel emissions issue.

Last month, VW became embroiled in the biggest scandal in its history, when USA authorities accused it of fitting diesel cars with devices that can switch on pollution controls when they detect the vehicle is undergoing testing. BMW, Mercedes-Benz, Jeep and even Chevrolet (the Cruze) also sell diesel cars in the USA , but they use different technologies to reduce pollutants, and there's no indication that their emissions test results aren't on the up and up.

The system apparently quickly heats up the NOx trap – the device that traps harmful nitrogen oxides from diesel exhaust – which makes it perform better. Due out as early as 2017, the new electric Phaeton – originally rolled out in 2002 – would go head to head with the Tesla Model S in Europe. VW first told U.S. regulators about the new software on September 29.

He added: "But when I speak to other associations who are not in the press they say that that may not be the case". Thousands of 2016 Beetles, Golfs, Jettas and Passats will remain quarantined in US ports until a fix can be developed, approved and carried out. Herbert Diess announced major product decisions: a reorientation of the diesel strategy with the most advanced technologies, the development of a standardized electric architecture for passenger cars and light commercial vehicles, and a new approach for the next generation of the Phaeton.

"The punitive actions from the EPA are only gong to get more aggressive". The staffer spoke on the condition of anonymity because he was not authorized to talk publicly about the ongoing investigation. The company purposefully made "clean diesel" cars that deceived regulators and customers over their pollution levels, and now it's trying to make a few amends by rolling out a new electric-vehicle initiative.

Ledger Gazette:

http://www.ledgergazette.com/german-authorities-to-order-recall-of-2-4-mn-vw-vehicles/114496/

German authorities to order recall of 2.4 mn VW vehicles

BY SHAUN BARTEL ON OCTOBER 17, 2015 WORLD

Volkswagen says it will recall a total of 8.5 million diesel vehicles Europe-wide as police raided the carmaker's office in Italy and those of its sports auto unit Lamborghini over a global pollution-cheating scandal. "Recalls to fix key safety issues that go to the core of a vehicle's operation nearly always occur voluntarily, with the KBA monitoring". Millions more cars are affected worldwide. Embroiled in the worst scandal of its 78-year history, VW also said it plans for an overall shift from diesel technology to electric and plug-in hybrid cars in the near future.

"Volkswagen will be pro-active in approaching and informing customers", the carmaker said. Apart from the company's VW brand, Audi, SEAT and Skoda cars can also be checked.

"Rectifications of the vehicles will begin from January 2016 and will be free of charge for our customers", VW said. It's unclear when the remaining USA cars would be fixed.

Germany's Transport Minister Alexander Dobrindt is set to announce details of the recall later Thursday.

The solutions could involve both software and hardware measures. VW Group had previously suggested that owners bring their cars into dealerships for repairs on a voluntary basis. New parts necessary to fix a few vehicles will probably be ready by next September, he said. But generally manufacturers agree to recalls when asked by the EPA, spokeswoman Laura Allen said.

The company said Friday that it would hire Christine Hohmann-Dennhardt as an executive on the company's top management body tasked with integrity and legal affairs effective from January 1.

Volkswagen has already been ordered to recall almost 500,000 vehicles in the USA, after regulators revealed that it had installed "defeat devices" to ensure they pumped out far less toxic emissions in official tests than on the roads.

Volkswagen on Wednesday denied a report by newsweekly Der Spiegel, which reported based on anonymous sources that at least 30 managers were involved in the decision to install software that disabled emissions controls when vehicles were driven under normal conditions but turned the controls on when the cars were being tested.

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Mon 10/19/2015 1:46:15 PM
Subject: etron

Bill, I didn't send the Etron's CD UDDS yet, Dan is still improving it. He found some calculation issues. Looking to get the CO2 and FE per UDDS later today.

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Rodgers, William (EEO)
Sent: Mon 10/19/2015 1:47:09 PM
Subject: RE: etron

Great, thanks for the follow up Jim.

Bill

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Monday, October 19, 2015 9:46 AM
To: Rodgers, William (EEO)
Subject: etron

Bill, I didn't send the Etron's CD UDDS yet, Dan is still improving it. He found some calculation issues. Looking to get the CO2 and FE per UDDS later today.

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Walter Benjamin Fisherow[Walter.Benjamin.Fisherow@usdoj.gov]
From: Brooks, Phillip
Sent: Mon 10/19/2015 2:13:22 PM
Subject: Fwd: Volkswagen Clips 10/17-10/18

Sent from my iPhone

Begin forwarded message:

From: "Gong, Kristiene" <Gong.Kristiene@epa.gov>
Date: October 19, 2015 at 9:46:13 AM EDT
To: "Allen, Laura" <Allen.Laura@epa.gov>, "Abrams, Dan" <Abrams.Dan@epa.gov>, "Conger, Nick" <Conger.Nick@epa.gov>, "Senn, John" <Senn.John@epa.gov>, "Millett, John" <Millett.John@epa.gov>, "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>, "Hull, George" <Hull.George@epa.gov>, "Valentine, Julia" <Valentine.Julia@epa.gov>, "Grantham, Nancy" <Grantham.Nancy@epa.gov>, "StClair, Christie" <StClair.Christie@epa.gov>, "Davis, Jay" <Davis.Jay@epa.gov>, "Bunker, Byron" <bunker.byron@epa.gov>, "Cohen, Janet" <cohen.janet@epa.gov>, "Brooks, Phillip" <Brooks.Phillip@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Grundler, Christopher" <grundler.christopher@epa.gov>, "Giles-AA, Cynthia" <Giles-AA.Cynthia@epa.gov>, "Purchia, Liz" <Purchia.Liz@epa.gov>, "Werner, Jacqueline" <Werner.Jacqueline@epa.gov>, "Belser, Evan" <Belser.Evan@epa.gov>, "Kaul, Meetu" <Kaul.Meetu@epa.gov>
Subject: Volkswagen Clips 10/17-10/18

NY Times:

http://www.nytimes.com/2015/10/19/business/the-owner-has-a-crucial-part-in-volkswagen-diesel-repair.html?_r=0

Essential Part of the Volkswagen Diesel Repair Is the Owner

By CHRISTOPHER JENSEN OCT. 18, 2015

Even as Volkswagen embarks on the task of fixing the emissions systems it disabled on almost 500,000 of its diesel vehicles in the United States, the automaker faces another hurdle: persuading owners to make the repair at all.

That's because the software that allowed Volkswagen to fool federal emissions tests also lowered the car's performance and fuel economy while the device was turned on. So for owners, the prospect of having a car's emissions cleaned up, only to have the car perform worse — whatever the pollution — is not sitting well.

"If we take a 10 percent hit in our gas mileage, I can live with that, but I won't be happy," said Patrick Downs, who lives in Port Angeles, Wash., and owns a 2013 Jetta TDI.

"If it is 25 percent or more and the performance is degraded to the point where the car has a lot less torque and pickup, that is going to make me very unhappy," he added. "That is going to make me consider not getting the fix."

It was well known among owners of Volkswagen diesels that the cars' advertised fuel economy — as shown on the window sticker — was almost always lower than their real-world performance.

Volkswagen could have saved fuel or improved performance by allowing more pollutants to pass through its cars' exhaust systems, researchers said.

Michael Horn, head of Volkswagen's American unit, told a congressional panel this month that the repairs he outlined — which will take years and require significant new equipment — might result in a slightly lower top speed in the cars. But he was careful to say that the cars' fuel economy would not be lower than the rating on the window sticker.

That's not satisfactory, said Jeff Hinton, the owner of a 2013 Passat diesel. "Every TDI owner will tell you, 'I get much better numbers, miles to the gallon, than any number that is on that Monroney sticker,'" Mr. Hinton, 36, said in a telephone interview from Morrisville, N.C., using a term for the window sticker.

"On recent trips, 500 miles plus, I've gotten 52 to 55 miles per gallon," Mr. Hinton said. The Environmental Protection Agency rating on the window sticker of his Passat is 40

miles per gallon on the highway.

"I wouldn't want my car recalled or reprogrammed or retrofitted in any way if it is going to hurt the performance, because that is not what I paid for," he said.

The E.P.A. cannot force owners to repair their vehicles, said Julia Ortiz, a spokeswoman for the agency.

Automakers also cannot require owners to carry out the emissions recall, just as they cannot force owners to take vehicles in to complete a safety recall.

Some states require vehicles to pass emissions tests before they can be registered each year. But those tests are far less sophisticated than the E.P.A.'s, and the Volkswagens that are not repaired are sure to pass them, said John German, a senior fellow at the International Council on Clean Transportation, which played a crucial role in discovering the automaker's deceit.

That loophole means the air pollution consequences of Volkswagen's action — at least on a small scale — are irreparable if enough owners refuse to have their vehicles fixed.

Despite their small size, the Volkswagen diesels produce a large amount of nitrogen oxide pollutants, Mr. German said, up to 40 times what is allowed under the Clean Air Act. The Passat sedan is emitting an amount of nitrogen oxides similar to that of a modern, medium-duty truck, he said, while the Jetta — and its sibling the Golf — have emissions similar to those of a typical modern 18-wheeler, he said. The Jetta and Golf use a different emissions system than the Passat.

Volkswagen must come up with an incentive plan to make repairing the engines irresistible, said Dan Becker, the director of the Safe Climate Campaign at the Center for Auto Safety.

"Volkswagen made this disaster; it is its responsibility to fix it," he said in a telephone interview. "We need to recognize that consumers may need to have an incentive to do what the law requires."

General Motors, for example, last year offered $25 gift cards to owners of about 2.6 million older small cars that could have defective ignition switches. But unlike the case with the Volkswagens, that was for a potentially fatal defect that has been linked to at least 124 deaths.

The average completion rate of repairs on recalled vehicles in the United States is 75 percent over 18 months, according to the National Highway Traffic Safety Administration.

Some states try to address the issue of owners who do not comply with air pollution recalls.

New Jersey has a law requiring owners to have emissions recalls carried out on their vehicles and to provide proof in order to register them. But it has never been used and it would be "premature and speculative" to discuss how that law might apply to Volkswagen, said Mairin Bellack, a spokeswoman for the state's Motor Vehicle Commission.

California also requires owners to have their vehicles repaired, said Stanley Young, a spokesman for the California Air Resources Board. The automaker has until Nov. 20 to submit a remedy to California regulators, which must then be approved.

"If it turns out that there is not enough of a response, we do have in California the option of putting a block on registration until the fix is done," he said. "But that is only as a last resort."

Even before Volkswagen announced the recall remedy, diesel owners fretted about the impact.

"Do not take your car to the dealer for service (if it's out of warranty) as they will automatically install the eventual software fix if you do," an owner wrote on the Volkswagen Owners Club website. "This software fix will allow the car to pass emissions, but it will lower MPG, decrease performance and finally reduce component life of the engine and emissions system."

But some emissions experts say it's hard to predict the consequences, since it is not clear exactly what Volkswagen did.

Federal regulators have said the automaker installed software that signaled the emissions system to work during the E.P.A. tests, but then at least partly disabled it during routine driving.

Even the motivation is unclear.

"Fuel economy could be a factor but it need not be the factor," said Arvind Thiruvengadam, research professor at West Virginia University, which helped uncover VW's cheating. "Meeting lower emissions means it is also a lot of burden on other components of the vehicle."

Part of the strategy, then, could have been to minimize mechanical wear and tear, he said.

Mr. German at the International Council on Clean Transportation said that what all this meant to diesel owners would not be clear until Volkswagen provided far more information.

He said there might be a loss in fuel economy, although he would be surprised if it was significant. "It shouldn't be, like eight miles per gallon or anything like that," he said.

Consumer Reports tested two Volkswagen diesels, with and without the cheating software activated. In one of the cases, a 2015 Jetta TDI got 53 m.p.g. without the modification used

to cheat, compared with 50 m.p.g. with it. The advertised fuel economy was 45 miles per gallon.

Mr. German said he would be surprised if the smooth delivery of power without hesitation or surges was a major problem because vehicles today have advanced fuel-injection systems and sophisticated computers.

"It is rare for there to be a drivability problem," he said. "You can almost always figure out some way to manage it."

That leaves owners like Mr. Downs in Washington State, who is waiting to see how his Jetta diesel will be affected and what to do about the recall. But he readily acknowledges he is pondering the environmental downside of not repairing the car.

"What does this mean in terms of actual environmental impact?" he said. "It is millions of cars. That weighs heavy on my mind."

NYSE Post:

http://nysepost.com/vw-commercials-getting-a-new-view-in-light-of-emissions-scam-21918

VW commercials getting a new view in light of emissions scam

Oct 19 2015

"Diesel in Latin means 'soiled, '" chimes in one other pal within the backseat.

"See how clear it's!" she exclaims, holding up the spotless scarf.

When asked by the House of Representatives' Energy and Commerce Committee' s Oversight and Investigation subcommittee recently, instead of coming clean, Volkswagen US CEO Michael Horn just chose to blame it on the software engineers. The device converts smog-triggering nitrogen oxide into harmless oxygen and nitrogen gases.

For years, the company aired memorable TV spots using terms such as “miraculous” to describe the car’s seemingly too-good-to-be-true balance of peppy acceleration, 40-mile-per-gallon gas mileage and low greenhouse gas emissions. While the FTC can't send anyone to jail, it has authority to protect consumers and impose wide-ranging penalties.

"That a separate device was included in the redesigned 2016 cars could suggest a multi-year effort by the company to influence USA emissions tests that continued even after regulators began pressing the company last year about irregularities with the emissions produced by the older cars".

VW is now working with regulators to continue the certification process needed to sell its 2016 diesel cars. Those could potentially include paying cash restitution to the affected vehicle owners and forcing VW to buy new national ads admitting the company lied to its customers. If you would like to discuss another topic, look for a relevant article.

The ads have additionally been faraway from the corporate's web sites and YouTube channel. Jeannine Minivan, the spokesperson from Volkswagen, confirmed that the 2016 models feature new software dubbed "auxiliary emissions control device" and this information was disclosed to the California and US EPA regulators last week.

VW is now coordinating with the Environmental Protection Agency on an anticipated recall of the nearly 500,000 bought within the D.R. because the suspect software program first appeared in its 2009 diesel fashions. Owners can key of their auto identification quantity stamped on the dashboard close to the driving force's windshield.

Automotive News:

http://www.autonews.com/article/20151019/RETAIL01/310199946/a-month-into-vw-scandal-no-sales-meltdown

A month into VW scandal, no sales meltdown

Dealers reporting mixed results

Ryan Beene

October 19, 2015 - 12:01 am ET

Not too bad, all things considered.

That's what Volkswagen dealers say about the brand's U.S. sales momentum as its diesel emissions scandal enters its second month.

The inability to sell diesel vehicles because of the stop-sale order is taking a toll, but dealers say they have yet to see an exodus of customers from their showrooms as heavy dealer and customer incentives provide a floor under sales.

"It's not a meltdown, but it's not business as usual either," said Mike Sullivan, president of the 11-franchise LAcarGUY network of dealerships, which has two VW stores in greater Los Angeles.

Spooky month

To post a year-on-year U.S. sales gain for October, the VW brand would need a 16% gain over September's sales without the benefit of diesel car sales.

U.S. sales Sept. U.S. sales Oct.

2009 17,358 17,037

2010	19,943	20,084
2011	27,036	28,028
2012	36,339	34,311
2013	31,920	28,129
2014	25,996	30,312
2015	26,141	

Source: Automotive News Data Center

Sullivan's VW dealership in Hawthorne, Calif., is on pace to hit its usual monthly volume of around 135 to 140 new VWs. His larger VW store in Santa Monica is off to a slower start, he says, pacing to end the month down by about 30 percent from its typical volume of 200 new VWs a month.

"It's a little off, but nobody's boycotting the stores," Sullivan said.

Sullivan: Sales are “a little off.”

VW dealers across the country are reporting mixed results for the first two weeks of October, which dealers say are typically weaker than the second half of a given month.

Eking out a year-on-year sales gain for the full month would take a minor miracle. Last October, the VW brand sold 30,312 new vehicles, a 7.8 percent gain from October 2013. To beat that total this month, dealers would need to boost sales by 16 percent from September and do so without the diesel-powered models that have accounted for about 20 percent of VW's U.S. sales this year.

Meanwhile, interest in the VW brand from online car shoppers is waning. Consideration and purchase intent for VW vehicles on edmunds.com, already on the decline this year, fell last week to their lowest levels all year, according to the car-shopping website.

Since VW's emissions violations were announced by the EPA on Sept. 18, VW brand traffic at kbb.com fell by 13 percent from the same period in 2014.

At truecar.com, overall VW traffic Oct. 4-10 was off 9 percent compared with the weekly average rate seen for the two months before the scandal, a larger than normal fluctuation, says Eric Lyman, vice president of industry insights at TrueCar. Interest in VW's diesel models, still grounded by the brand's stop-sale order, plummeted by 57 percent in the same window.

Even so, dealers are seeing enough conventional showroom traffic to reassure them that the bottom won't drop out this month. At Herzog-Meier Volkswagen in Beaverton, Ore., diesels account for about 30 percent of monthly, sales says Chris Meier, the dealer principal. But with those models off the market for now, he says, sales of gasoline-powered VWs are picking up and if the store's current momentum continues he could end up posting a small net gain over October 2014.

One big draw is a flood of incentive cash from Volkswagen of America that's intended to help shield dealers from the crisis engulfing the brand and the corporate headquarters in Germany. VW launched a $2,000 owner-loyalty incentive on Oct. 1 that could be combined with any other VW new-car lease or finance offer on gasoline or hybrid models.

The incentive gave a shot in the arm to Open Road Auto Group's two VW dealerships during the first weekend of the month, says Michael Morais, Open Road's president. Through the first two weeks, he says, sales are up at his VW store in Bridgewater, N.J., and his flagship store in downtown Manhattan compared with last October. Diesels account for a smaller share of Open Road's VW sales than the national average, Morais says.

"We remain on track, and the programs are definitely working," Morais said, noting that consumers can finance a new Passat midsize sedan for roughly the same monthly payment as leasing a Honda Civic. "We're making deals, and we're making gross."

Inventory availability and VW's limited selection of crossovers are having as much of an impact on sales as the diesel scandal, if not more, says Chris Curran, president of Curran Volkswagen in Stratford, Conn.

Curran says his midmonth sales were flat compared with last October but could be down by the end of the month. Stocks of the Jetta compact car, Tiguan compact crossover and the 2015 Passat are slim, and a re-engineered 2016 Passat with updated styling and new connectivity technology is months away, Curran says.

Those factors, plus a relatively limited set of existing VW owners nearby to attract with the $2,000 loyalty bonus, have sent sales at Hendrick Volkswagen Frisco in suburban Dallas tumbling to start the month, says Alan Brown, the dealership's general manager and chairman of VW's national dealer council. Brown says sales are on pace to be down by a third from the roughly 90 new VWs he sells in an average month at the Frisco location, "significantly off" from the pace seen in recent months at the store, which is less than a year old.

"The owner loyalty is really helping the dealer who has a customer base," Brown said. "I don't have as much action because I don't have as many people."

Last week, VW announced new dealer advertising support programs at the regional and dealership level to help boost demand. It also created a $2,000 bonus toward a gasoline-powered VW that dealers could offer to consumers who had put down deposits on diesel cars that could not be delivered because of the stop-sale order.

Dealers are also anxious to hear how and when Volkswagen will be able to fix its noncompliant diesels at the brand's national dealer meeting Thursday, Oct. 22, in Orlando and for VW executives to provide a clearer picture of what to expect in the months ahead,

So far, LAcarGUY's Sullivan said, VW has been "dragging their feet on saying anything other than lots of things they're working on. They've got to start saying something a little

more profound and specific."

Mashable:

http://mashable.com/2015/10/18/volkswagen-emissions-scandal/#NvYDrmBw2GqY

French authorities search Volkswagen office in emissions scandal

BY MARCUS GILMER AND HEIDI MOORE

10 hours ago

Authorities raided a pair of Volkswagen's offices in France on Friday, hitting the company's French headquarters in Villers-Cotterêts and another office in Paris, all in connection with the company's recent emissions scandal.

Investigators from France's environment and public health office conducted the searches Friday at Volkswagen France's offices and seized computer equipment, the Paris prosecutor's office said Sunday. A spokeswoman for Volkswagen France, Leslie Peltier, confirmed the searches and said Volkswagen is fully cooperating with the police.

According to CNN, authorities in Italy led a similar raid on the Bologna headquarter's of Lamborghini, which is owned by Volkswagen.

The company is struggling to respond to a far-reaching controversy in which Volkswagen and several of its brands — including Porsche and Audi — installed software that was designed to deliberately mislead regulators about the cars' diesel emissions. The software saved Volkswagen the trouble and expense of installing bulky mechanical hardware to reduce the power of their pollutants.

That software tweak, in turn, allowed Volkswagen to falsely claim that the cars — including the hipster-favorite Volkswagen Golf — were environmentally friendly. Many owners, looking to be eco-friendly, felt betrayed by the company's deception.

In the wake of the scandal, Martin Winterkorn stepped down as CEO and the carmaker is feeling heat from all over, including here in the United States where the EPA is investigating if the company used a second piece of software to cheat on emissions tests.

Dispatch Times:

http://www.dispatchtimes.com/new-volkswagen-disclosure-may-broaden-emissions-scandal/139392/

NEW VOLKSWAGEN DISCLOSURE MAY BROADEN EMISSIONS SCANDAL

Oct 18, 2015

The German automaker still has a lot of 'splainin to do about the revelations that it surreptitiously installed "defeat device" software created to cheat on emissions tests in vehicles with its 2.0-liter turbodiesel engines.

Volkswagen is now in the process of writing to drivers affected, with the German auto manufacturer set to recall cars in January 2016.

"We have a long list of questions for VW about this", Janet McCabe, acting assistant administrator for air quality at the Environmental Protection Agency told the AP.

Hendricks and Gabriel, who leads the SPD, both called for a binding quota for electric cars, with Hendricks also calling for a government subsidy for buying such vehicles.

In the United Kingdom, the consumer magazine 'Which?' has surveyed Volkswagen owners and found that 90 percent of them want compensation over the diesel emissions issue.

Last month, VW became embroiled in the biggest scandal in its history, when USA authorities accused it of fitting diesel cars with devices that can switch on pollution controls when they detect the vehicle is undergoing testing. BMW, Mercedes-Benz, Jeep and even Chevrolet (the Cruze) also sell diesel cars in the USA , but they use different technologies to reduce pollutants, and there's no indication that their emissions test results aren't on the up and up.

The system apparently quickly heats up the NOx trap – the device that traps harmful nitrogen oxides from diesel exhaust – which makes it perform better. Due out as early as 2017, the new electric Phaeton – originally rolled out in 2002 – would go head to head with the Tesla Model S in Europe. VW first told U.S. regulators about the new software on September 29.

He added: "But when I speak to other associations who are not in the press they say that that may not be the case". Thousands of 2016 Beetles, Golfs, Jettas and Passats will remain quarantined in US ports until a fix can be developed, approved and carried out. Herbert Diess announced major product decisions: a reorientation of the diesel strategy with the most advanced technologies, the development of a standardized electric architecture for passenger cars and light commercial vehicles, and a new approach for the next generation of the Phaeton.

"The punitive actions from the EPA are only gong to get more aggressive". The staffer spoke on the condition of anonymity because he was not authorized to talk publicly about the ongoing investigation. The company purposefully made "clean diesel" cars that deceived regulators and customers over their pollution levels, and now it's trying to make a few amends by rolling out a new electric-vehicle initiative.

Ledger Gazette:

http://www.ledgergazette.com/german-authorities-to-order-recall-of-2-4-mn-vw-vehicles/114496/

German authorities to order recall of 2.4 mn VW vehicles

BY SHAUN BARTEL ON OCTOBER 17, 2015 WORLD

Volkswagen says it will recall a total of 8.5 million diesel vehicles Europe-wide as police raided the carmaker's office in Italy and those of its sports auto unit Lamborghini over a global pollution-cheating scandal. "Recalls to fix key safety issues that go to the core of a vehicle's operation nearly always occur voluntarily, with the KBA monitoring". Millions more cars are affected worldwide. Embroiled in the worst scandal of its 78-year history, VW also said it plans for an overall shift from diesel technology to electric and plug-in hybrid cars in the near future.

"Volkswagen will be pro-active in approaching and informing customers", the carmaker said. Apart from the company's VW brand, Audi, SEAT and Skoda cars can also be checked.

"Rectifications of the vehicles will begin from January 2016 and will be free of charge for our customers", VW said. It's unclear when the remaining USA cars would be fixed.

Germany's Transport Minister Alexander Dobrindt is set to announce details of the recall later Thursday.

The solutions could involve both software and hardware measures. VW Group had previously suggested that owners bring their cars into dealerships for repairs on a voluntary basis. New parts necessary to fix a few vehicles will probably be ready by next September, he said. But generally manufacturers agree to recalls when asked by the EPA, spokeswoman Laura Allen said.

The company said Friday that it would hire Christine Hohmann-Dennhardt as an executive on the company's top management body tasked with integrity and legal affairs effective

from January 1.

Volkswagen has already been ordered to recall almost 500,000 vehicles in the USA, after regulators revealed that it had installed "defeat devices" to ensure they pumped out far less toxic emissions in official tests than on the roads.

Volkswagen on Wednesday denied a report by newsweekly Der Spiegel, which reported based on anonymous sources that at least 30 managers were involved in the decision to install software that disabled emissions controls when vehicles were driven under normal conditions but turned the controls on when the cars were being tested.

To: Mackay, Cheryl[Mackay.Cheryl@epa.gov]; Jonesi, Gary[Jonesi.Gary@epa.gov]; Makepeace, Caroline[Makepeace.Caroline@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Alexander, David[Alexander.David@epa.gov]; Zaremski, Sara[zaremski.sara@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Danica.Glaser@usdoj.gov[Danica.Glaser@usdoj.gov]; Orehowsky, Gregory[Orehowsky.Gregory@epa.gov]; Kelley, Rosemarie[Kelley.Rosemarie@epa.gov]; Wehrly, Linc[wehrly.linc@epa.gov]; Robinson, Milton[Robinson.Milton@epa.gov]; Seaton, Tom[Seaton.Tom@epa.gov]; Bennett, David[Bennett.David@epa.gov]; Parkinson, Nancy[Parkinson.Nancy@epa.gov]
From: Mackay, Cheryl
Sent: Mon 10/19/2015 3:00:36 PM
Subject: VW FOIA requests, Oct. 3-15

Hi All, I'm still recused from this until I hear more from Justina, so won't be participating in any meetings or discussions on this. But in the meantime Becky asked me to forward you the list of VW FOIA requests received from Oct. 3-15. There are 8 in total. --Cheryl

Tracking Number	Requester	Requester Organization	Detail

Ex. 6

Ex. 6

Ex. 6

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Mon 10/19/2015 3:17:03 PM
Subject: Air & Radiation Law News for October 19, 2015

Air & Radiation Law News

for October 19, 2015

Bloomberg BNA **Daily Environment Report™**

Air Pollution

Green Groups: Did VW Cripple 'Made in Germany' Stature?

As Volkswagen's rigged diesel emissions tests continue to cast doubt over Germany's automotive industry, concern in the environmental sector is growing over damage from the scandal to the Made in Germany label—which many...

Climate Change

Canada Report: Technology Can Cut Methane Emissions

Existing mitigation technologies could be used to significantly cut methane emissions from Canada's oil and gas industry, according to a report commissioned by the Environmental Defense Fund and released

in partnership with the Pembina...

Climate Change

Exxon Probe Sought After Allegations of Cover-Up

The Department of Justice should investigate Exxon Mobil following media reports that allege the oil company "confirmed fossil fuels' role in climate change decades ago" but didn't disclose that information to investors...

Climate Change

Obama, CEOs to Meet on Climate Change

President Barack Obama is bringing executives from five Fortune 500 companies to the White House on Oct. 19 in a bid to shore up business support for combating climate change....

Climate Regulation

4,000 Megawatts of Coal Could Retire in Texas

At least 4,000 megawatts of coal-fired generating capacity in Texas could retire by 2022 as a result of the Environmental Protection Agency's Clean Power Plan, according to a study released Oct. 16 by the state's electric grid...

Climate Regulation

Clean Power Plan Opponents Gear Up for New Lawsuits

West Virginia and other states opposed to the Environmental Protection Agency's Clean Power Plan intend to file new challenges to the rule the day it is published in the Federal Register, sparking a second round of litigation over the carbon...

Climate Regulation

Congress Scoffs at Obama's Clean Power Plan Wish List

Congressional Republicans have a message for President Barack Obama's administration: Don't count on the federal budget for help in implementing your Clean Power Plan. ...

Climate Regulation

EPA Inspector General Orders New Ethanol Emissions Study

The Environmental Protection Agency inspector general plans to start a federal study on whether the agency has properly assessed the life cycle greenhouse gas emissions from ethanol and advanced biofuels....

Elections

Rubio Details Energy Policy Proposals in New Plan

Sen. Marco Rubio (R-Fla.) vowed to lift the 40-year-old ban on most crude oil exports, expedite liquefied natural gas exports, and approve the Keystone pipeline, according to an energy platform released by the Republican presidential candidate...

Energy

FEC Fines Murray Energy Over Anti-Obama Signs

The Ohio-based coal company Murray Energy Corp. agreed to pay a $5,000 fine to the Federal Election Commission for failing to disclose its campaign spending on signs that it paid for and distributed in 2012, which said "STOP the WAR on COAL—FIRE...

Energy

Lawmakers Urge NRC to Ensure Pilgrim Plant Closes Safely

Massachusetts members of Congress called on the Nuclear Regulatory Commission to ensure that Entergy Corp.'s Pilgrim Nuclear Power Station continues to operate safely and securely as the plant plans to permanently close in 2019....

International Climate

Administration Accused of Blocking Climate Deal Oversight

Senate Republicans are crying foul over what they say is an attempt from President Barack Obama's administration to thwart oversight of the president's plans to reach an international climate agreement later this year in Paris....

International Climate

Bonn Climate Talks Hold Promise of Paris Preview

Negotiators meet in Bonn Oct. 19 to start five days of what could be intensive United Nations-sponsored talks, the last such chance to iron out key differences before delegates from nearly 200 countries move to Paris six weeks from now in hopes...

International Climate

Oil Companies Support Global Climate Change Accord

Ten major energy companies declared their support for a global deal to prevent climate change but stopped short of offering unanimous backing for carbon pricing....

Regulatory Policy

Senate Group Working on Regulatory Package

A bipartisan working group of eight senators has been trying to craft a package of legislative changes to the rulemaking process that could go to the Senate floor as early as November, according to two people familiar with the discussions who...

Renewable Energy

Florida Clean Energy Financing Model Survives Challenge

Florida's property assessed clean energy (PACE) financing program cleared two more legal hurdles as the state Supreme Court affirmed related bond financing without ruling on the merits of a constitutional challenge from the Florida...

Taxes

State Taxation of Oil, Gas Production Rising: Report

The average state tax rate on oil and gas production increased by about 20 percent from 2004 to 2013, according to a research paper published Oct. 9 by the United States Association for Energy Economics. Growth in oil and gas production over this...

INTERVIEW

See Current Bloomberg BNA Interview: West Virginia Attorney General Readies New Legal Attacks on Clean Power Plan as Publication Nears

Latest News

IG Scrutiny Of EPA RFS Highlights Fight Over Program's Lifecycle Benefits

EPA's Inspector General (IG) is launching an evaluation of whether EPA properly incorporated studies on the lifecycle greenhouse gases (GHG) of fuels blended into the gasoline supply as part of its renewable fuel standard (RFS), highlighting an intensifying debate over the program's lifecycle impacts on climate, land and water.

EPA Critics Claim Mandate To Use MOVES Emissions Model Justifies Suit

Kansas and other critics of EPA's latest version of its motor vehicle emission simulator (MOVES) issued in 2014 claim that an agency *Federal Register* notice announcing the air model's availability effectively mandates its use, saying that justifies their suit over the model because the notice is a final agency action subject to judicial review.

Greenwire

SUPREME COURT:

Justice's wife dumps energy stock tied to FERC case

Robin Bravender, E&E reporter

Published: Friday, October 16, 2015

When Supreme Court Justice Stephen Breyer heard arguments in a major energy case this week, his wife had a financial stake in one of the companies involved.

Breyer's wife, Joanna, owned stock in Johnson Controls Inc., whose subsidiary is a party in a pending case over a government rule aimed at incentivizing consumers to cut electricity use through a practice called "demand response." Johnson Controls owns EnergyConnect Group Inc., a company that provides

demand response technologies and is among those urging the high court to uphold the rule.

Joanna Breyer owned 750 shares of Johnson Controls when Justice Breyer heard the case Wednesday, Supreme Court Clerk Scott Harris wrote in a letter yesterday to attorneys involved in the case. A check conducted by Breyer's office failed to flag the potential conflict, and Breyer's wife sold all of those shares yesterday, the letter says.

Breyer plans to stay involved in the case.

"Justice Breyer has devoted substantial judicial time to this case," Harris wrote. "He has no reason to believe that the financial interest could be substantially affected by the outcome of the case."

Breyer's wife sold her Johnson Controls stock for about $33,000 yesterday, according to Bloomberg, which first reported news of the stock sale.

Justice Samuel Alito had already recused himself from the case, presumably because he also held stock in Johnson Controls, although justices rarely publicly disclose reasons for recusing themselves. In 2014, Alito reported stock in Johnson Controls among his assets, according to a disclosure published by the Center for Public Integrity.

"It's not necessarily uncommon for justices and their spouses to be unaware of holdings in companies, especially when they're fairly widely invested as are Justice Breyer and his wife," said Russell Wheeler, an expert on judicial ethics and visiting fellow at the Brookings Institution.

Justices are required to divest or recuse themselves in cases where they or their spouses own even a single share of stock in a company that's a party to a case before the court, Wheeler said.

Jonathan Adler, a professor at the Case Western Reserve University School of Law, said, "Judges are certainly encouraged to invest in things like mutual funds rather than individual stocks to avoid these sorts of problems."

But it can be "difficult when you have things that are owned jointly or things that are owned by a spouse," Adler said. "In a case like this, I don't think there's any reason to doubt that Justice Breyer sat on the case without any awareness of the financial interest."

In 2013, Breyer had an estimated net worth of about $11 million, according to the Center for Responsive Politics.

TRANSPORTATION:

Leaders of House panel unveil long-term funding bill

Sean Reilly, E&E reporter

Published: Friday, October 16, 2015

Leaders of the House Transportation and Infrastructure Committee released a long-term road and transit authorization bill today that would maintain existing funding levels adjusted for inflation for as long as fiscal 2021.

The approximately 540-page bipartisan bill comes with a large question mark. While the committee plans a markup for Thursday, it's going forward without a path for fully covering the $325 billion cost -- the job of

the Ways and Means Committee.

A senior T&I Committee aide said he expects the Ways and Means panel to come up with a funding package within the next few weeks that would pay for the first three years. Without that package, which has been awaited for months, the bill will not move to the House floor.

"I don't think we will take an unfunded bill to the floor," the aide said at a background briefing for reporters.

According to the briefing and a summary, the transportation measure would also:

- Create a National Surface Transportation and Innovative Finance Bureau within the Department of Transportation to provide "one-stop shopping" for states, local governments and businesses seeking to pursue projects. About a half-dozen DOT offices would be consolidated.

- Revamp federal truck and bus safety grant programs.

- Update transportation research standards to reflect technological advances.

The House is currently playing catch-up with the Senate, which passed a road, railroad and transit authorization bill in July that contains assured funding for three years.

The Senate measure would also extend the December deadline for implementation of the automated rail safety system known as positive train control until the end of 2018.

While House Transportation Chairman Bill Shuster (R-Pa.) recently introduced a stand-alone bill to grant a three-year extension under somewhat different conditions, the committee aide this morning didn't rule out incorporating a compromise into the final version of broader surface transportation legislation.

More immediately, however, lawmakers must agree on another short-term extension to replace the existing stopgap road and transit funding authorization measure that expires Oct. 29, given that there is no chance of lawmakers sending a longer-term measure to President Obama before then.

Any new stopgap would be the fourth since July of last year; no agreement has been reached on its length, the aide said.

EPA:

Senators ask agency to return millions in unused funds

Kevin Bogardus, E&E reporter

Published: Friday, October 16, 2015

Sens. Jeff Flake (R-Ariz.) and Claire McCaskill (D-Mo.) are calling on U.S. EPA to return millions of dollars unused by the agency to the Treasury.

In a letter sent yesterday to EPA Administrator Gina McCarthy, the senators note the agency inspector general in a recent report uncovered nearly $137 million in unspent funds as of February 2015. Flake and McCaskill then ask EPA to consider returning the money in light of the federal government's ever-present budgetary needs.

"Given persistent fiscal concerns, it is clear that taxpayers would benefit from unobligated or unspent funds being returned to the U.S. Treasury in an expedient fashion," the senators said in their letter to McCarthy.

Released last month, the IG report focused on $6.2 million that was destined for water projects that had not been spent. The agency watchdog recommended that the Office of Water take action and spend the funds.

The IG also praised the agency for significantly reducing its amount of unspent funds since 2010, when the agency once had more than $900 million in unspent funds, according to a 2010 annual report.

The $137 million figure, however, sparked Flake and McCaskill's interest, and they're now asking EPA to provide a full accounting for that money.

"We believe EPA must look closely at the entire $137 million in unobligated and unspent funds, which have missed EPA's own targets for awarding and closing out grants," the senators say in their letter.

Flake and McCaskill ask the EPA chief for several items, including when the agency plans to complete the IG's recommendations as well as lists of unobligated funds that EPA intends to return to the Treasury and unobligated funds the agency recommends for rescission by Congress.

Melissa Harrison, an EPA spokeswoman, said the agency will review Flake and McCaskill's letter and plans to respond.

BIOFUELS:

Calif. Democrats urge EPA to boost refiner targets

Amanda Reilly, E&E reporter

Published: Friday, October 16, 2015

Seven Democrats in California's congressional delegation called this week for stronger annual renewable fuel requirements for refiners.

The lawmakers slammed a U.S. EPA proposal setting 2014, 2015 and 2016 renewable fuel targets, as well as the biodiesel target through 2017, warning that it threatened to "halt the progress" in bringing second-generation biofuels to scale.

While the proposal EPA released in May would increase year-over-year mandates for refiners under the federal renewable fuel standard program, it calls for less renewable fuel use than Congress wrote into the 2007 statute that enacted the RFS.

"As EPA works to develop the final rule," the lawmakers wrote in a letter to Administrator Gina McCarthy, "we urge it to take action to get the RFS back on track and ensure consumers have access to the cleanest and most affordable transportation fuels."

The letter comes as several groups opposed to the renewable fuel standard launched a new ad campaign in the Washington, D.C., area calling for the elimination of federal corn ethanol requirements.

Rep. Eric Swalwell of California led the Oct. 14 effort, with fellow Democratic Reps. Julia Brownley, Susan Davis, Sam Farr, Scott Peters, Loretta Sanchez and Jackie Speier signing on to the letter.

The lawmakers credit the renewable fuel standard with supporting 60,000 jobs in California, based on data collected by pro-RFS group Fuels America. They argue that the standard has helped develop the domestic advanced biofuels industry, which is generally accepted to deliver greater greenhouse gas benefits than corn ethanol.

According to the letter, EPA's proposal threatens to remove incentives for the oil industry to invest in next-generation fuels.

They also questioned EPA's justification for proposing lower renewable fuel levels than Congress laid out in the 2007 statute. EPA has based the proposal mostly on a short-term limit to the amount of ethanol that can be distributed in existing fuel infrastructure.

"[T]he very purpose of the RFS was to create a market for renewable fuels," the lawmakers wrote. "And, the reality is distribution [waivers] are not necessary because the statute can be met with our existing infrastructure."

Rep. Jim Costa (D-Calif.), in contrast, has taken a strong position against the renewable fuel standard, co-sponsoring bipartisan legislation that would eliminate corn ethanol requirements and require EPA to set certain advanced biofuel targets at actual production levels.

Costa has raised concerns about the RFS's effects on livestock producers, food manufacturers and energy producers (*Greenwire*, Feb. 4).

Those sectors have called on EPA to set even lower renewable fuel targets in its final rule, which EPA is poised to release by Nov. 30.

Today, groups opposed to federal mandates for ethanol launched what they called a significant ad buy in the Washington, D.C., area. The television ad, which will run for several weeks in the Beltway, cites recent studies that question the greenhouse gas benefits of corn ethanol.

It also highlights former Vice President Al Gore's 2010 statement that supporting first-generation ethanol was a "mistake."

"Mounting scientific evidence has revealed the inconvenient truth: Increasing ethanol mandates can actually make things worse," a voiceover says in the ad.

The American Council for Capital Formation, National Council of Chain Restaurants and National Marine Manufacturers Association are funding the ad.

CLIMATE:

Brookings calls for 'substantive dialogue' on CCS

Manuel Quiñones, E&E reporter

Published: Friday, October 16, 2015

The federal government should do more to encourage the commercial deployment of carbon capture and sequestration technologies to address climate change, the Brookings Institution said in a report released today.

The 70-page policy brief is meant to "reignite substantive dialogue on the role of CCS," particularly ahead of next month's Paris global climate talks.

Its authors -- Tim Boersma and John Banks with Brookings' Energy Security and Climate Initiative -- want policymakers to look beyond concerns about continued reliance on fossil fuels and the lack of widespread commercial deployment of CCS.

"Despite these challenges, CCS has undisputed potential to serve as a key component of a carbon mitigation portfolio for the electricity, petrochemical and other industries," they wrote. "Moreover, there are numerous studies that have concluded that in the long-term CCS can be a cost effective measure to reduce global CO2 emissions."

The paper concludes that the U.S. government is not doing enough to promote the commercial deployment of the technology.

"Indeed, CCS seems to be caught in a classic policy dilemma," the paper says, "while some governments view CCS as a low carbon option, without a government requirement or strong incentive to significantly reduce CO2 emissions there is little or no incentive for the private sector to develop and deploy CCS technology."

The report recommends strong federal carbon controls or pricing that utilities and environmentalists say would encourage CCS but are opposed by the coal industry.

The paper also calls on the federal government to modify tax credits for CCS development, creating a CCS trust fund and making sure power producers can recoup the cost of producing power from plants with carbon capture.

Using trapped CO2 to stimulate old oil and gas wells, the paper says, would help pay for the cost of capture technology and provide an alternative to finding places for underground long-term storage.

Responding to the report, Paul Bledsoe, a former Clinton White House climate official, said, "CCS has unique bipartisan political and policy appeal because Republicans realize it can provide an avenue for more domestic coal use and enhanced oil recovery, and Democrats understand it will be needed to cut emissions very deeply, including from natural gas and industrial sources."

He added, "You might look to more thoughtful presidential candidates to propose incentives needed to get wide-scale commercial deployment, including from an international competitiveness perspective."

The coal industry had been looking for Democratic presidential front-runner Hillary Clinton to renew her support for coal-related technologies. But she has been more focused recently on a Democratic base increasingly critical of fossil fuels.

The Obama administration has set aside billions of dollars for CCS, including from the 2009 stimulus bill, but the Department of Energy returned more than $1 billion to the Treasury in recent weeks because projects did not spend the money on time.

The Niskanen Center, a libertarian think tank, penned a blog post this month about grim recent developments, including Southern Co. delays in opening its Kemper coal plant, which would curb most carbon emissions and use the gas for enhanced oil recovery.

"The failure -- for that is what it is -- of recent U.S. CCS efforts blows a hole in any comfortable assumption that CCS can be major contributor to near-term mitigation efforts," the group said. "But it remains a critically important technology that has to be got right."

Niskanen advocates agree with at least some of Brookings' recommendations, including creating a federal carbon policy and a regulatory system encouraging CCS.

"More government money may also be needed, but without those two prerequisites, CCS will not succeed no matter how many billions we throw at it," David Bailey and David Bookbinder wrote in the post.

Bailey and Bookbinder also encouraged the coal industry to be involved in the CCS effort. But so far, many utilities have focused more on moving away from coal and miners and on attacking administration rules, including one requiring carbon capture for all new coal plants (*Greenwire*, Aug. 4).

Despite DOE pulling funding for the FutureGen 2.0 carbon capture project in Illinois because of stimulus bill spending deadlines, companies appear to be keeping the FutureGen Alliance alive to promote efforts to burn coal cleaner.

In Congress, Democratic Sens. Joe Manchin of West Virginia and Heidi Heitkamp of North Dakota have floated bills to boost aid to CCS and encourage commercial deployment (*E&E Daily*, May 15).

Broad energy bills in both the House and Senate include some of their ideas, but nothing close to what analysts at Brookings and elsewhere recommend (*Greenwire*, Sept. 29).

Still, enemies of aiding CCS include conservatives who would rather not see the government involved in energy development. And environmental groups like the Sierra Club would rather see spending on renewables rather than technology that may end up keeping fossil fuel plants running.

CAMPAIGN 2016:

NextGen ads urge pledge for goal of 50% renewables by 2030

Jennifer Yachnin, E&E reporter

Published: Friday, October 16, 2015

Environmental activists at NextGen Climate yesterday unveiled the group's latest step in its bid to push presidential primary contenders to embrace renewable energy policies, launching a new million-dollar ad campaign in New Hampshire and Iowa.

The political action committee, backed by California billionaire environmentalist Tom Steyer, is pushing candidates from both major parties to adopt platforms that would shift the country's energy production to 50 percent renewable resources by 2030.

"Climate change is an urgent threat -- but it is also America's opportunity to build a clean energy economy that strengthens our country and builds the jobs of the future," Steyer said in a statement announcing the new ad campaign. "It's simply not enough to recognize the threat of climate change anymore -- Americans are looking to our leaders for concrete solutions."

But the new television spots, which NextGen said are part of a "seven-figure" television ad buy along with a "six-figure" digital campaign, do not target any would-be presidential candidates by name.

Instead, the 30-second television spot frames climate change as an economic issue.

"If you think storm damage is the only cost of climate change, think again," a female narrator states over footage of flooded roadways and a bridge. "From the rising price of food to higher insurance rates for homes and businesses, the economic damage will only get worse. But with American-made clean energy, we can save money on electricity and spur innovation to create new businesses and jobs. It all starts with 50 percent clean energy by 2030. So what are we waiting for?"

The 30-second digital ad, which will target viewers in Florida, Iowa, New Hampshire and Ohio, asserts the next president should adopt the energy proposal and urges viewers to use the social media hashtag #50BY30.

"America is on the brink of something huge," a male narrator states in the spot, which features text and simple graphics on an orange background. "The clean energy economy is taking off, generating millions of American jobs. A clean energy economy is possible and within reach. We need our next president to join the movement with a concrete plan to achieve at least 50 percent clean energy by 2030. Fifty by 30. Join us."

To date, only former Maryland Gov. Martin O'Malley (D) has proposed a similar plan, calling for a total shift to renewable energy sources by 2050, while former Secretary of State Hillary Clinton said a third of the nation's energy generation should be powered by renewable sources by 2020.

CAMPAIGN 2016:

Climate 'is a real issue' -- Sen. Ayotte

Published: Friday, October 16, 2015

Sen. Kelly Ayotte (R-N.H.) broke with much of her party yesterday by saying that humans should work to reduce their contribution to climate change.

"I believe that it is a real issue, that obviously man-made activity is contributing to carbon dioxide emissions and that we should be of course working on solutions that I hope are common-sense solutions," Ayotte said in an interview after a roundtable discussion with conservationists at Dartmouth College focusing on her support of the Land and Water Conservation Fund.

Ayotte expressed support for "energy efficiency and other measures to help reduce the impact that carbon has on our environment."

Ayotte is expected to face a tough challenge for re-election next year against New Hampshire Gov. Maggie Hassan (D), a vocal supporter of fighting climate change.

The senator's move is likely an attempt to win over environmentally conscious independents, said Dean Spiliotes, a civic scholar at Southern New Hampshire University.

"There are people out there who are almost single-issue voters on climate change -- those folks are unlikely to vote for her in any event," since their votes usually go to Democrats, he said (Rob Wolfe, Lebanon [N.H.] *Valley News*, Oct. 16). **-- BTP**

RENEWABLE ENERGY:

Group asks Supreme Court to review Colo. standard

Robin Bravender, E&E reporter

Published: Friday, October 16, 2015

A conservative legal group is asking the Supreme Court to weigh the constitutionality of Colorado's renewable energy standard after a lower court upheld the state's program.

The anti-regulatory nonprofit Energy & Environment Legal Institute has filed a petition asking the high court to examine the decision made by the Denver-based 10th U.S. Circuit Court of Appeals earlier this year, the group announced this week.

A three-judge panel on that court unanimously upheld Colorado's requirement that 20 percent of all electricity sold in the state come from renewable sources (*E&ENews PM*, July 13).

Lawyers for Energy & Environment Legal Institute have argued that Colorado's standard illegally regulated economic activity outside the state's borders because the state is part of an electric grid that serves 11 states and parts of Mexico and Colorado. Consequently, the group argued that the law discriminated against coal and other fossil fuel generators located outside Colorado.

The Colorado RES "is a classic example of an extraterritorial regulation that independently violates the system as a whole," the group wrote in its petition to the high court.

"Colorado is not alone in its efforts to tell other states how to regulate," Energy & Environment Legal Institute said in a statement. "California has the hubris to tell egg producers in Iowa what size chicken pens have to be. They have also told Canada how to make goose liver. Indeed, there is a growing effort for states to try to export their regulations onto other states."

David Schnare, the group's general counsel, said "a state may not project its legislation into other states and may not control conduct beyond the boundaries of the state."

Judge Neil Gorsuch, a Republican appointee, wrote in the 10th Circuit opinion that the challengers had failed to establish that Colorado's renewable portfolio standard, or RPS, would actually harm out-of-state producers compared to in-state generators.

"[A]s far as we know, all fossil fuel producers in the area served by the grid will be hurt equally and all renewable energy producers in the area will be helped equally," he wrote. "If there's any disproportionate adverse effect felt by out-of-state producers or any disproportionate advantage enjoyed by in-state producers, it hasn't been explained to this court. And it's far from clear how the mandate might hurt out-of-state consumers either."

The Colorado case was closely watched by environmental and industry groups as more states have adopted renewable requirements. The 9th U.S. Circuit Court of Appeals in San Francisco in 2013 rejected a similar challenge to California's low-carbon fuel standard, a central part of the state's efforts to tackle climate change (*E&ENews PM*, Sept. 18, 2013).

NATURAL GAS:

Pipeline explodes in South Texas

Published: Friday, October 16, 2015

A natural gas pipeline exploded early this morning in southern Texas, causing a large fire that closed local

schools and drove some residents from their homes.

The Lewis Energy Group pipeline outside Encinal, Texas, exploded around 4 a.m. local time today, according to City Manager Velma Davila. No injuries were reported and no evacuations have been ordered, but local schools were closed and some residents came to City Hall to escape the intense heat caused by the still-burning pipeline.

"We are currently investigating the cause of the incident," Tony Trevino, general counsel for Lewis Energy, said in a statement.

The Texas Railroad Commission, which supervises pipelines and not trains in the state, also said it was looking into the incident (Ben Spicer, KSAT, Oct. 16). **-- BTP**

BIOFUELS:

EPA's internal watchdog starts RFS study

Amanda Reilly, E&E reporter

Published: Friday, October 16, 2015

With the Obama administration under growing political pressure over its contentious renewable fuel standard, U.S. EPA's inspector general announced plans yesterday to study the agency's implementation of the program.

The Office of Inspector General said in a memo to top EPA air and science officials that the study would determine whether the agency complied with RFS reporting requirements.

Investigators are also seeking information on whether EPA has updated its life-cycle analysis of biofuels' greenhouse gas impacts as it receives new data from studies required by law.

"The anticipated benefits of this project," OIG said, "are to ensure public health and the environment are protected by verifying the EPA is complying with reporting requirements, and is considering statutorily mandated studies when promulgating the RFS."

Congress passed legislation setting up the current version of the RFS in 2007, calling for refiners to use increasing amounts of ethanol and advanced biofuels in petroleum gasoline and diesel through 2022.

The OIG study comes as many industry sectors and academics are questioning the benefits of the policy. Earlier this week, University of Tennessee researchers found the RFS has not delivered on its promised greenhouse gas reductions and other environmental benefits (*Greenwire*, Oct. 15).

Under the RFS program, EPA is required to determine through a life-cycle analysis whether different biofuels achieve greenhouse gas reductions. Renewable fuels must achieve certain thresholds of reductions before refiners can use them to meet their annual biofuel requirements.

OIG said it planned to look specifically at whether EPA incorporated the results of a 2011 study by the National Academy of Sciences on biofuels into its life-cycle analyses. That study questioned whether the RFS was an effective policy for achieving greenhouse gas reductions largely because of land-use changes associated with ethanol production.

The office said it will also look at how EPA used the results from its first report to Congress in 2011 on the

renewable fuel standard. That report concluded that there could be negative effects associated with increased biofuels production but said the extent of the effects depended on the choice of biofuel feedstock, whether conservation practices were used to grow biofuel crops and the efficiency of future biofuel technology.

OIG asked EPA officials to furnish certain information, including documentation of the agency's response to the 2011 National Academy of Sciences study and reports to Congress.

Supporters of biofuels have credited the RFS for achieving greenhouse gas reductions and point to research from Argonne National Laboratory that has found corn ethanol production decreases emissions by more than 30 percent compared to a gasoline baseline.

Biofuel producers have given EPA heat recently for a proposal to lower the annual RFS mandates for refiners compared to the levels Congress wrote into the 2007 statute.

TRANSPORTATION:

Cash woes, competing agendas stymie high-tech traffic systems

Sean Reilly, E&E reporter

Published: Friday, October 16, 2015

Widespread use of high-tech traffic management systems is likely decades away in the United States, hampered by a lack of money, the need to develop technical standards and a potential squeeze on wireless spectrum space, according to a new report by the Government Accountability Office.

"Vehicle-to-infrastructure" (V2I) technologies could help further reduce car-related crash and injury rates that are already down substantially over the last 20 years, thanks to greater use of automobile air bags and other developments, the report said.

Such technologies, for example, could warn drivers of dangerous weather conditions, such as roadway ice and fog, and set traffic signals to give priority to firefighters and other emergency responders. During the next five years, the Department of Transportation plans to spend up to $100 million trying them out in real-world settings.

But it will be up to states and local governments to put such systems into everyday use. Many states are already facing lean budgets; they are also affected by the Highway Trust Fund's eroding financial condition and the complications posed by the federal government's current fiscal outlook, GAO reviewers said.

Accordingly, many states and localities "may lack resources for funding both V2I equipment and the personnel to install, operate and maintain the technologies," they wrote. In Japan, by contrast, the national government covered the bulk of the cost for installing such systems.

Also essential to routine use are technical standards to ensure that V2I systems work on all types of vehicles and devices. Developing such standards could be difficult because of the differing political, economic and industry-related agendas that a large array of players bring to the table, one expert told the GAO. And while a specific piece of the wireless radio frequency spectrum has already been set aside for vehicle-to-infrastructure systems and other forms of "intelligent transportation," some lawmakers are pressing to open it up to other users. That could interfere with the immediate data transfers needed to make V2I technology effective.

The report, which draws on input from 21 experts, was requested by Reps. Barbara Comstock (R-Va.) and Daniel Lipinski (D-Ill.), the chairwoman and ranking member, respectively, of the Science, Space and Technology Subcommittee on Research and Technology, as well as by Rep. Larry Bucshon (R-Ind.), a member of the Energy and Commerce Committee.

AIR POLLUTION:

Fix could soon be ready for some Volkswagen diesels

Published: Friday, October 16, 2015

U.S. regulators anticipate receiving a proposed fix this week for some of the diesel Volkswagen vehicles involved in the company's emissions-testing scandal.

A software patch could soon be available for 2012-14 Passat TDI models, U.S. EPA spokeswoman Laura Allen said yesterday. Regulators would have to approve the patch before it is sent to Volkswagen dealers.

The Passat sedans have Volkswagen's Second Generation emissions-control technology; Generation 1 and Generation 3 vehicles will likely take longer to fix (Michael Biesecker, AP/*Columbus Dispatch*, Oct. 16). **-- BTP**

ELECTRIC VEHICLES:

Businesses, government bulk up EV fleet in Calif.

Published: Friday, October 16, 2015

Corporations and government bodies will be adding hundreds more electric vehicles and charging stations to their fleets in California.

Marine Corps and Navy bases will use 450 more electric vehicles, leaders announced yesterday in Los Angeles, while several major utilities and large businesses including Coca-Cola Co. made similar pledges (AP/*Billings Gazette*, Oct. 16). **-- BTP**

NORWAY:

Nation's push toward electric vehicles serves as global model

Published: Friday, October 16, 2015

Norway is on the leading edge of encouraging its citizens to adopt electric vehicles, and policymakers worldwide are taking notice.

More than one-fifth of new car sales in Norway are electric, and the country has a higher percentage of electric vehicles than any other in the world at 2 percent. In many ways, the growth reflects the country's overall interest in renewable energy; it is one of the biggest producers of hydropower on Earth.

"If there's anyone in the world who should be using electric vehicles, it's Norway," said Julian Marshall, a professor of environmental engineering at the University of Minnesota. "That's a place with clean energy."

To encourage use of electric cars, Norway decided it would essentially exempt them from the otherwise expensive life of owning a car in the country. Thus electric vehicle owners do not have to pay the 25 percent sales tax for cars or the roughly $12,000 registration fee, and parking, tolls and ferry fees are waived for them. Since gasoline in Oslo averages $6 per gallon, owners are also avoiding a costly fill-up with every charge.

Some in Norway have expressed worry over the expense of these tax breaks, but many hope to see the rapid growth continue.

"If we can continue like this until 2020, we will change the car industry," said Christina Bu, head of the Norwegian Electric Vehicle Association (David Jolly, *New York Times*, Oct. 16). **-- BTP**

FERC:

Greenwire's Northey talks next steps for demand response rule following SCOTUS review

Published: Friday, October 16, 2015

Following the Supreme Court's hearing of oral arguments on the Federal Energy Regulatory Commission's demand response rule this week, what's next for the regulation? On today's The Cutting Edge, *Greenwire* reporter Hannah Northey discusses the impact of yesterday's hearing on the commission and future rulemakings.

Click here to watch E&ETV's The Cutting Edge.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Mon., October 19, 2015

READ FULL EDITION

1.POLITICS:

Canada may be on the verge of a policy reversal on climate change

Canadians head to the polls today to determine their next prime minister in an election that could spur a dramatic U-turn on energy policies critical to the United States, from the Keystone XL pipeline to regional carbon trading.

2.NATIONS:

Activists say solar can power India, but politics and economics of coal win out

DHARNAI, India -- One year ago, environmentalists hailed this tiny village as the future of clean energy in rural India. Today, it is powered by coal.

TODAY'S STORIES

3.NEGOTIATIONS:

Both rich and poor nations object to trimmed climate pact text

4.ADVOCACY:

Veteran climate change skeptic was paid by failing coal company

5.BUSINESS:

Secretary Kerry to host 2-day summit on climate change adaptation finance tomorrow

6.SPECIES:

Sea turtles face a 'hot chicks, cool dudes' problem

7.POLICY:

Interior pauses offshore Arctic leasing program

8.STATES:

Kan. Clean Power Plan opponents steamed over coal unit retirements

9.MEDIA:

Weatherman taken off air in France after questioning climate science

10.EXTREME WEATHER:

Italy hit with deadly flooding and storms

11.NATIONS:

Experts warn of water crisis in Bangladesh from climate change

12.EFFICIENCY:

Australian city gets $30M boost on clean energy

E&ETV'S ONPOINT

13.SOLAR:

Brattle Group's Fox-Penner says utility scale significantly more cost-effective than residential

E&E INTERACTIVE

14.POWER PLAN HUB:

It's conference season for EPA carbon rule

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Mon., October 19, 2015

READ FULL EDITION

1.ARCTIC DRILLING:

Jewell appears to keep door open to future lease sales

The Obama administration's decision last week to impose new barriers on oil and gas exploration in the American Arctic is intensifying the heated dispute over federal management of Alaska's energy-rich lands and waters.

TOP STORIES

2.GRID:

Ill. project looks to boost role of demand response under new PJM rules

3.OIL:

Calif. shuts down 33 injection wells on EPA order

4.REGULATION:

Computers, coal-fired electric plants and the 25-year battle over pollution in Dallas

ELECTRICITY

5.CLEAN POWER PLAN:

Texas grid operator still concerned about rule even as numbers shift

6.SECURITY:

DOE not amused by 'LulzSec' hackers -- docs

7.BUSINESS:

Oil tycoon fighting in Canada over wind

OIL AND GAS

8.OIL:

More jobs, rigs shed ahead of third-quarter reports

9.NATURAL GAS:

Russia aims to build LNG pipeline in Pakistan

10.OIL:

Schlumberger profits nearly halve

11.GAS EXPORTS:

Papua New Guinea could be haven for cheap natural gas

E&ETV'S ONPOINT

12.SOLAR:

Brattle Group's Fox-Penner says utility scale significantly more cost-effective than residential

E&E INTERACTIVE

13.POWER PLAN HUB:

It's conference season for EPA carbon rule

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Cook, Leila[cook.leila@epa.gov]
From: Grundler, Christopher
Sent: Mon 10/19/2015 4:33:15 PM
Subject: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission
ENG 20150921-letter DUH to CEO english Audi AG.pdf
ATT00001.htm

lemme know what this is about and who this org is

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington)
734.214.4207 (Ann Arbor)
www.epa.gov/otaq

Begin forwarded message:

From: Simon Annen <annen@duh.de>
Date: October 19, 2015 at 8:26:18 AM EDT
To: "'grundler.christopher@epa.gov'" <grundler.christopher@epa.gov>
Cc: Dorothee Saar <saar@duh.de>
Subject: Letter to CEO German Car Manufacturers on NOx emission

Dear Mr. Grundler,

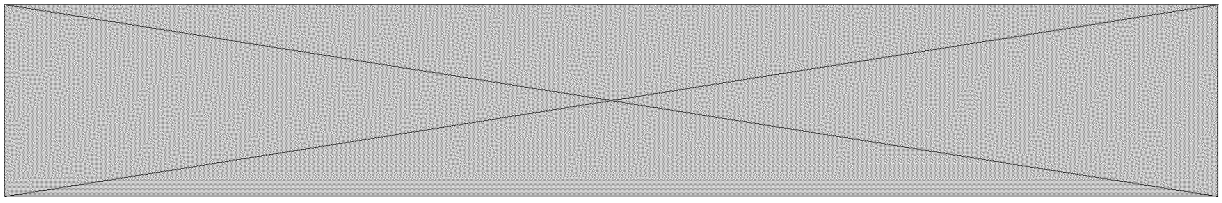
sorry for our mistake. Now I have attached our letter to Chief Executive Officers of German car manufacturing companies (here Audi AG) in English version.

Kind regards,

Simon Annen

Simon Annen | Projektassistenz Verkehr und Luftreinhaltung

Deutsche Umwelthilfe e.V. | Bundesgeschäftsstelle Berlin | Hackescher Markt 4 | 10178 Berlin
Telefon: +49 30 2400867 737 | Telefax: +49 30 2400867 19
E-Mail: annen@duh.de | www.duh.de |



DUH e.V. | BGF: J. Resch, S. Müller-Kraenner | Vorstand: Prof. Dr. H. Kächele, B. Jäkel, C.-W. Bodenstein-Dresler | AG Hannover VR 202112
Bank: VoBa Konstanz-Radolfzell | Kto. 210677216 | BLZ 692 910 00 | IBAN DE89692910000210677216 | BIC GENODE61RAD

Deutsche Umwelthilfe

Deutsche Umwelthilfe e.V. · Hackescher Markt 4 · 10178 Berlin

Fax: 0841-8938 295
Rupert Stadler
Vorstandsvorsitzender
Audi AG
Über die Rechtsabteilung
Herrn Hermann Kremer
85045 Ingolstadt

BUNDESGESCHÄFTSSTELLE BERLIN
Hackescher Markt 4/
Neue Promenade 3 (Eingang)
10178 Berlin
Jürgen Resch
Bundesgeschäftsführer
Telefon 030 2400867-0
Telefax 030 2400867-19
E-Mail resch@duh.de
Internet www.duh.de

Berlin, 21 September 2015

Your company's statement regarding the use of defeat devices in new Euro 5 and Euro 6 diesel or gasoline direct injection vehicles of all of your company's brands

Deadline for comments: Friday, 25 September 2015 – to be re ceived by us by 3 p.m.

Dear Mr Stadler,

Since 13 October 2004, the Deutsche Umwelthilfe e.V., (German Environmental Aid Association, DUH), Fritz-Reichle-Ring 4, 78315 Radolfzell, has been registered in the list of qualified entities under § 4 of the Act on Applications for an Injunction, effective as of 11 October 2004.

The DUH is, therefore, able to prevent violations of the law against unfair competition and other consumer protection laws by taking appropriate measures of collective redress. For years, it has concerned itself with – as you know – the reduction of toxic emissions from combustion and, in this case in particular, diesel engines.

Within the framework of our education campaign "Diesel exhaust fumes kill" initiated in Frankfurt last Thursday – at the same time as the o pening of the IAA by Dr Merkel – we have referred to our own measurements as well as to investigations of the ICCT and our European umbrella association T&E. According to the investigations that you are also familiar with, in real operation Euro 6 diesel cars demonstrate similarly extremely elevated NOx/NO2 values as those involved in the current investigations of the CalEPA and the EPA in Washington concerning VW and Audi models (cf. indictment sent to VW and Audi on 18 September 2015).

Deutsche Umwelthilfe e.V.
Bundesgeschäftsführer: Jürgen Resch, Sascha Müller-Kraenner
Vorstand: Prof. Dr. Harald Kächele,
Burkhard Jäkel, Carl-Wilhelm Bodenstein-Dresler
Vereinsregister: Hannover Nr. 202112

Bank details
Geschäftskonto: Volksbank Konstanz-Radolfzell
IBAN: DE89 6929 1000 0210 6772 16 | BIC: GENODE61RAD
Spendenkonto: Bank für Sozialwirtschaft Köln
IBAN: DE45 3702 0500 0008 1900 02 | BIC: BFSWDE33XXX

Die Deutsche Umwelthilfe e.V. ist als gemeinnützig anerkannt. Die Jahresabschlüsse unterliegen der freiwilligen Kontrolle durch ein unabhängiges Wirtschaftsprüfungsunternehmen.

Article 5 of Regulation (EC) No. 715/2007 states:

Requirements and tests

(1) The manufacturer shall equip vehicles so that the components likely to affect emissions are designed, constructed and assembled so as to enable the vehicle, in normal use, to comply with this Regulation and its implementing measures.
(2) The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited.

The DUH is in possession of indications that the vehicles of your company obviously also exhibit NO_2 values that are many times higher than expected and which cannot be explained by normal variations between the test roll and on-road operation and which point to the presence of "test cycle recognition" and/or defeat devices or, under certain operating conditions, do not function correctly.

I urge you to answer the following questions Friday, 25 September 2015, submitting them to us no later than by 3 p.m. They relate to all the brands you are responsible for and all their models of Euro 5 and Euro 6 stages of all fuels (esp. diesel engines and gasoline direct injection engines):

1. Which models recognise test situations via the f actory-provided operating software and then change the impact of the emission reduction device and switch to another map with increased emission values? Please explain in brief the nature and intensity.
2. What are the parameters that cause these vehicle s to recognise the test situation? (E.g. ambient temperature > 30 degrees, accelerometer, steering wheel position, velocity pattern of the test cycles on file etc.)
3. Is the supply of keratin in vehicles with SCR sy stems above or below a certain ambient temperature – except during a cold start – ge nerally or in combination with other parameters inhibited or throttled?
4. Which diesel models that have SCR that are appro ved for the European market switch off urea injection at speeds above 120 km/h (or higher/lower) (please quote the velocity as of which the respective model throttles or stops the injection of urea)
5. In the event that, with diesel models equipped w ith SCR, the urea tank drops below a minimum level:
   - do the OBD always automatically point out to the driver in good time that he needs to fill the tank up or is no notification given?
   - does this lead (with an empty or nearly empty tank) to the statutory emergency operation or does the operating software just regulate the urea injection in the SCR system without any error message in the OBD?

VW FOIA, EPA 06/20/2017 2017-FFP_034435

Deutsche Umwelthilfe

6. Please inform us of the results of the RDE value s for Euro 6 diesel cars models that you currently have at hand.
7. With respect to the measurement of fuel consumpt ion and CO2 emissions, which car models have the operating software that recognises the test mode?

We wish to remind you that the DUH intends to undertake selective measurements on the production vehicles already on the market in order to verify your details. We will take legal action in response to any wrong answers or non-responses (which we regard as on a par with wrong answers) and also inform the public and the supervisory authorities.

In this respect, we call on you to provide a full statement by the due date and time. The dramatic damage to the credibility of Volkswagen AG as a result the continuous misinformation of American government agencies by Volkswagen and Audi that went on for over a year is a cautionary example.

Yours sincerely,

Jürgen Resch

Federal Chairman

The following people will receive copies of this letter:

- Alexander Dobrindt - BMVI (Federal Ministry of Tr ansport and Digital Infrastructure)
- Barbara Hendricks - BMUB (Federal Ministry for th e Environment)
- Sigmar Gabriel - BMWi (Federal Ministry for Econo mic Affairs and Energy)
- EU COMM Karmenu Vella/Violeta Bulc/Elzbieta Bienk owska
- Stephan Weil – State of Lower Saxony
- Meetu Kaul, U.S. EPA, Air Enforcement Division
- Annette Hebert – CalEPA/ARB

Deutsche Umwelthilfe

Deutsche Umwelthilfe e.V. · Hackescher Markt 4 · 10178 Berlin

Fax: 0841-8938 295
Rupert Stadler
Vorstandsvorsitzender
Audi AG
Über die Rechtsabteilung
Herrn Hermann Kremer
85045 Ingolstadt

BUNDESGESCHÄFTSSTELLE BERLIN
Hackescher Markt 4/
Neue Promenade 3 (Eingang)
10178 Berlin
Jürgen Resch
Bundesgeschäftsführer
Telefon 030 2400867-0
Telefax 030 2400867-19
E-Mail resch@duh.de
Internet www.duh.de

Berlin, 21 September 2015

Your company's statement regarding the use of defeat devices in new Euro 5 and Euro 6 diesel or gasoline direct injection vehicles of all of your company's brands

Deadline for comments: Friday, 25 September 2015 – to be re ceived by us by 3 p.m.

Dear Mr Stadler,

Since 13 October 2004, the Deutsche Umwelthilfe e.V., (German Environmental Aid Association, DUH), Fritz-Reichle-Ring 4, 78315 Radolfzell, has been registered in the list of qualified entities under § 4 of the Act on Applications for an Injunction, effective as of 11 October 2004.

The DUH is, therefore, able to prevent violations of the law against unfair competition and other consumer protection laws by taking appropriate measures of collective redress. For years, it has concerned itself with – as you know – the reduction of toxic emissions from combustion and, in this case in particular, diesel engines.

Within the framework of our education campaign "Diesel exhaust fumes kill" initiated in Frankfurt last Thursday – at the same time as the o pening of the IAA by Dr Merkel – we have referred to our own measurements as well as to investigations of the ICCT and our European umbrella association T&E. According to the investigations that you are also familiar with, in real operation Euro 6 diesel cars demonstrate similarly extremely elevated NOx/NO2 values as those involved in the current investigations of the CalEPA and the EPA in Washington concerning VW and Audi models (cf. indictment sent to VW and Audi on 18 September 2015).

Deutsche Umwelthilfe e.V.
Bundesgeschäftsführer: Jürgen Resch, Sascha Müller-Kraenner
Vorstand: Prof. Dr. Harald Kächele,
Burkhard Jäkel, Carl-Wilhelm Bodenstein-Dresler
Vereinsregister: Hannover Nr. 202112

Bank details
Geschäftskonto: Volksbank Konstanz-Radolfzell
IBAN: DE89 6929 1000 0210 6772 16 | BIC: GENODE61RAD
Spendenkonto: Bank für Sozialwirtschaft Köln
IBAN: DE45 3702 0500 0008 1900 02 | BIC: BFSWDE33XXX

Die Deutsche Umwelthilfe e.V. ist als gemeinnützig anerkannt. Die Jahresabschlüsse unterliegen der freiwilligen Kontrolle durch ein unabhängiges Wirtschaftsprüfungsunternehmen.

Article 5 of Regulation (EC) No. 715/2007 states:

Requirements and tests

(1) The manufacturer shall equip vehicles so that the components likely to affect emissions are designed, constructed and assembled so as to enable the vehicle, in normal use, to comply with this Regulation and its implementing measures.
(2) The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited.

The DUH is in possession of indications that the vehicles of your company obviously also exhibit NO_2 values that are many times higher than expected and which cannot be explained by normal variations between the test roll and on-road operation and which point to the presence of "test cycle recognition" and/or defeat devices or, under certain operating conditions, do not function correctly.

I urge you to answer the following questions Friday, 25 September 2015, submitting them to us no later than by 3 p.m. They relate to all the brands you are responsible for and all their models of Euro 5 and Euro 6 stages of all fuels (esp. diesel engines and gasoline direct injection engines):

1. Which models recognise test situations via the f actory-provided operating software and then change the impact of the emission reduction device and switch to another map with increased emission values? Please explain in brief the nature and intensity.
2. What are the parameters that cause these vehicle s to recognise the test situation? (E.g. ambient temperature > 30 degrees, accelerometer, steering wheel position, velocity pattern of the test cycles on file etc.)
3. Is the supply of keratin in vehicles with SCR sy stems above or below a certain ambient temperature – except during a cold start – ge nerally or in combination with other parameters inhibited or throttled?
4. Which diesel models that have SCR that are appro ved for the European market switch off urea injection at speeds above 120 km/h (or higher/lower) (please quote the velocity as of which the respective model throttles or stops the injection of urea)
5. In the event that, with diesel models equipped w ith SCR, the urea tank drops below a minimum level:
   - do the OBD always automatically point out to the driver in good time that he needs to fill the tank up or is no notification given?
   - does this lead (with an empty or nearly empty tank) to the statutory emergency operation or does the operating software just regulate the urea injection in the SCR system without any error message in the OBD?

VW FOIA, EPA 06/20/2017 2017-FFP_034438

Deutsche Umwelthilfe

6. Please inform us of the results of the RDE value s for Euro 6 diesel cars models that you currently have at hand.
7. With respect to the measurement of fuel consumpt ion and CO2 emissions, which car models have the operating software that recognises the test mode?

We wish to remind you that the DUH intends to undertake selective measurements on the production vehicles already on the market in order to verify your details. We will take legal action in response to any wrong answers or non-responses (which we regard as on a par with wrong answers) and also inform the public and the supervisory authorities.

In this respect, we call on you to provide a full statement by the due date and time. The dramatic damage to the credibility of Volkswagen AG as a result the continuous misinformation of American government agencies by Volkswagen and Audi that went on for over a year is a cautionary example.

Yours sincerely,

Jürgen Resch

Federal Chairman

The following people will receive copies of this letter:

- Alexander Dobrindt - BMVI (Federal Ministry of Tr ansport and Digital Infrastructure)
- Barbara Hendricks - BMUB (Federal Ministry for th e Environment)
- Sigmar Gabriel - BMWi (Federal Ministry for Econo mic Affairs and Energy)
- EU COMM Karmenu Vella/Violeta Bulc/Elzbieta Bienk owska
- Stephan Weil – State of Lower Saxony
- Meetu Kaul, U.S. EPA, Air Enforcement Division
- Annette Hebert – CalEPA/ARB

To: Phillips, Anna[Phillips.Anna@epa.gov]
Cc: Simon, Karl[Simon.Karl@epa.gov]
From: Bunker, Byron
Sent: Mon 10/19/2015 5:05:32 PM
Subject: FW: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission
ENG 20150921-letter DUH to CEO english Audi AG.pdf
ATT00001.htm

Hi Anna,

Karl thought you might be the best person to help us understand who Mr. Resch is and how his organization fits into the Volkswagen investigation. Can you please look at the attached letter and provide us any information that you have?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Grundler, Christopher
Sent: Monday, October 19, 2015 12:33 PM
To: Bunker, Byron
Cc: Cook, Leila
Subject: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission

lemme know what this is about and who this org is

Christopher Grundler, Director

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202.564.1682 (Washington)

734.214.4207 (Ann Arbor)

www.epa.gov/otaq

Begin forwarded message:

From: Simon Annen <annen@duh.de>
Date: October 19, 2015 at 8:26:18 AM EDT
To: "'grundler.christopher@epa.gov'" <grundler.christopher@epa.gov>
Cc: Dorothee Saar <saar@duh.de>
Subject: Letter to CEO German Car Manufacturers on NOx emission

Dear Mr. Grundler,

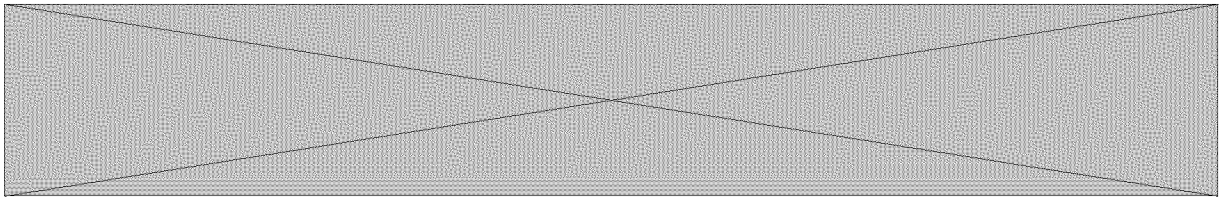
sorry for our mistake. Now I have attached our letter to Chief Executive Officers of German car manufacturing companies (here Audi AG) in English version.

Kind regards,

Simon Annen

Simon Annen | Projektassistenz Verkehr und Luftreinhaltung

Deutsche Umwelthilfe e.V. | Bundesgeschäftsstelle Berlin | Hackescher Markt 4 | 10178 Berlin
Telefon: +49 30 2400867 737 | Telefax: +49 30 2400867 19
E-Mail: annen@duh.de | www.duh.de |



DUH e.V. | BGF: J. Resch, S. Müller-Kraenner | Vorstand: Prof. Dr. H. Kächele, B. Jäkel, C.-W. Bodenstein-Dresler | AG Hannover VR 202112
Bank: VoBa Konstanz-Radolfzell | Kto. 210677216 | BLZ 692 910 00 | IBAN DE89692910000210677216 | BIC GENODE61RAD

Deutsche Umwelthilfe

Deutsche Umwelthilfe e.V. · Hackescher Markt 4 · 10178 Berlin

Fax: 0841-8938 295
Rupert Stadler
Vorstandsvorsitzender
Audi AG
Über die Rechtsabteilung
Herrn Hermann Kremer
85045 Ingolstadt

BUNDESGESCHÄFTSSTELLE BERLIN
Hackescher Markt 4/
Neue Promenade 3 (Eingang)
10178 Berlin
Jürgen Resch
Bundesgeschäftsführer
Telefon 030 2400867-0
Telefax 030 2400867-19
E-Mail resch@duh.de
Internet www.duh.de

Berlin, 21 September 2015

Your company's statement regarding the use of defeat devices in new Euro 5 and Euro 6 diesel or gasoline direct injection vehicles of all of your company's brands

Deadline for comments: Friday, 25 September 2015 – to be re ceived by us by 3 p.m.

Dear Mr Stadler,

Since 13 October 2004, the Deutsche Umwelthilfe e.V., (German Environmental Aid Association, DUH), Fritz-Reichle-Ring 4, 78315 Radolfzell, has been registered in the list of qualified entities under § 4 of the Act on Applications for an Injunction, effective as of 11 October 2004.

The DUH is, therefore, able to prevent violations of the law against unfair competition and other consumer protection laws by taking appropriate measures of collective redress. For years, it has concerned itself with – as you know – the reduction of toxic emissions from combustion and, in this case in particular, diesel engines.

Within the framework of our education campaign "Diesel exhaust fumes kill" initiated in Frankfurt last Thursday – at the same time as the o pening of the IAA by Dr Merkel – we have referred to our own measurements as well as to investigations of the ICCT and our European umbrella association T&E. According to the investigations that you are also familiar with, in real operation Euro 6 diesel cars demonstrate similarly extremely elevated NOx/NO2 values as those involved in the current investigations of the CalEPA and the EPA in Washington concerning VW and Audi models (cf. indictment sent to VW and Audi on 18 September 2015).

Deutsche Umwelthilfe e.V.
Bundesgeschäftsführer: Jürgen Resch, Sascha Müller-Kraenner
Vorstand: Prof. Dr. Harald Kächele,
Burkhard Jäkel, Carl-Wilhelm Bodenstein-Dresler
Vereinsregister: Hannover Nr. 202112

Bank details
Geschäftskonto: Volksbank Konstanz-Radolfzell
IBAN: DE89 6929 1000 0210 6772 16 | BIC: GENODE61RAD
Spendenkonto: Bank für Sozialwirtschaft Köln
IBAN: DE45 3702 0500 0008 1900 02 | BIC: BFSWDE33XXX

Die Deutsche Umwelthilfe e.V. ist als gemeinnützig anerkannt. Die Jahresabschlüsse unterliegen der freiwilligen Kontrolle durch ein unabhängiges Wirtschaftsprüfungsunternehmen.

Article 5 of Regulation (EC) No. 715/2007 states:

Requirements and tests

(1) The manufacturer shall equip vehicles so that the components likely to affect emissions are designed, constructed and assembled so as to enable the vehicle, in normal use, to comply with this Regulation and its implementing measures.
(2) The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited.

The DUH is in possession of indications that the vehicles of your company obviously also exhibit NO_2 values that are many times higher than expected and which cannot be explained by normal variations between the test roll and on-road operation and which point to the presence of "test cycle recognition" and/or defeat devices or, under certain operating conditions, do not function correctly.

I urge you to answer the following questions Friday, 25 September 2015, submitting them to us no later than by 3 p.m. They relate to all the brands you are responsible for and all their models of Euro 5 and Euro 6 stages of all fuels (esp. diesel engines and gasoline direct injection engines):

1. Which models recognise test situations via the f actory-provided operating software and then change the impact of the emission reduction device and switch to another map with increased emission values? Please explain in brief the nature and intensity.
2. What are the parameters that cause these vehicle s to recognise the test situation? (E.g. ambient temperature > 30 degrees, accelerometer, steering wheel position, velocity pattern of the test cycles on file etc.)
3. Is the supply of keratin in vehicles with SCR sy stems above or below a certain ambient temperature – except during a cold start – ge nerally or in combination with other parameters inhibited or throttled?
4. Which diesel models that have SCR that are appro ved for the European market switch off urea injection at speeds above 120 km/h (or higher/lower) (please quote the velocity as of which the respective model throttles or stops the injection of urea)
5. In the event that, with diesel models equipped w ith SCR, the urea tank drops below a minimum level:
   - do the OBD always automatically point out to the driver in good time that he needs to fill the tank up or is no notification given?
   - does this lead (with an empty or nearly empty tank) to the statutory emergency operation or does the operating software just regulate the urea injection in the SCR system without any error message in the OBD?

VW FOIA, EPA 06/20/2017 2017-FFP_034444

Deutsche Umwelthilfe

6. Please inform us of the results of the RDE value s for Euro 6 diesel cars models that you currently have at hand.
7. With respect to the measurement of fuel consumpt ion and CO2 emissions, which car models have the operating software that recognises the test mode?

We wish to remind you that the DUH intends to undertake selective measurements on the production vehicles already on the market in order to verify your details. We will take legal action in response to any wrong answers or non-responses (which we regard as on a par with wrong answers) and also inform the public and the supervisory authorities.

In this respect, we call on you to provide a full statement by the due date and time. The dramatic damage to the credibility of Volkswagen AG as a result the continuous misinformation of American government agencies by Volkswagen and Audi that went on for over a year is a cautionary example.

Yours sincerely,

Jürgen Resch

Federal Chairman

The following people will receive copies of this letter:

- Alexander Dobrindt - BMVI (Federal Ministry of Tr ansport and Digital Infrastructure)
- Barbara Hendricks - BMUB (Federal Ministry for th e Environment)
- Sigmar Gabriel - BMWi (Federal Ministry for Econo mic Affairs and Energy)
- EU COMM Karmenu Vella/Violeta Bulc/Elzbieta Bienk owska
- Stephan Weil – State of Lower Saxony
- Meetu Kaul, U.S. EPA, Air Enforcement Division
- Annette Hebert – CalEPA/ARB

Deutsche Umwelthilfe

Deutsche Umwelthilfe e.V. · Hackescher Markt 4 · 10178 Berlin

Fax: 0841-8938 295
Rupert Stadler
Vorstandsvorsitzender
Audi AG
Über die Rechtsabteilung
Herrn Hermann Kremer
85045 Ingolstadt

BUNDESGESCHÄFTSSTELLE BERLIN
Hackescher Markt 4/
Neue Promenade 3 (Eingang)
10178 Berlin
Jürgen Resch
Bundesgeschäftsführer
Telefon 030 2400867-0
Telefax 030 2400867-19
E-Mail resch@duh.de
Internet www.duh.de

Berlin, 21 September 2015

Your company's statement regarding the use of defeat devices in new Euro 5 and Euro 6 diesel or gasoline direct injection vehicles of all of your company's brands

Deadline for comments: Friday, 25 September 2015 – to be re ceived by us by 3 p.m.

Dear Mr Stadler,

Since 13 October 2004, the Deutsche Umwelthilfe e.V., (German Environmental Aid Association, DUH), Fritz-Reichle-Ring 4, 78315 Radolfzell, has been registered in the list of qualified entities under § 4 of the Act on Applications for an Injunction, effective as of 11 October 2004.

The DUH is, therefore, able to prevent violations of the law against unfair competition and other consumer protection laws by taking appropriate measures of collective redress. For years, it has concerned itself with – as you know – the reduction of toxic emissions from combustion and, in this case in particular, diesel engines.

Within the framework of our education campaign "Diesel exhaust fumes kill" initiated in Frankfurt last Thursday – at the same time as the o pening of the IAA by Dr Merkel – we have referred to our own measurements as well as to investigations of the ICCT and our European umbrella association T&E. According to the investigations that you are also familiar with, in real operation Euro 6 diesel cars demonstrate similarly extremely elevated NOx/NO2 values as those involved in the current investigations of the CalEPA and the EPA in Washington concerning VW and Audi models (cf. indictment sent to VW and Audi on 18 September 2015).

Deutsche Umwelthilfe e.V.
Bundesgeschäftsführer: Jürgen Resch, Sascha Müller-Kraenner
Vorstand: Prof. Dr. Harald Kächele,
Burkhard Jäkel, Carl-Wilhelm Bodenstein-Dresler
Vereinsregister: Hannover Nr. 202112

Bank details
Geschäftskonto: Volksbank Konstanz-Radolfzell
IBAN: DE89 6929 1000 0210 6772 16 | BIC: GENODE61RAD
Spendenkonto: Bank für Sozialwirtschaft Köln
IBAN: DE45 3702 0500 0008 1900 02 | BIC: BFSWDE33XXX

Die Deutsche Umwelthilfe e.V. ist als gemeinnützig anerkannt. Die Jahresabschlüsse unterliegen der freiwilligen Kontrolle durch ein unabhängiges Wirtschaftsprüfungsunternehmen.

Article 5 of Regulation (EC) No. 715/2007 states:

Requirements and tests

(1) The manufacturer shall equip vehicles so that the components likely to affect emissions are designed, constructed and assembled so as to enable the vehicle, in normal use, to comply with this Regulation and its implementing measures.
(2) The use of defeat devices that reduce the effectiveness of emission control systems shall be prohibited.

The DUH is in possession of indications that the vehicles of your company obviously also exhibit NO_2 values that are many times higher than expected and which cannot be explained by normal variations between the test roll and on-road operation and which point to the presence of "test cycle recognition" and/or defeat devices or, under certain operating conditions, do not function correctly.

I urge you to answer the following questions Friday, 25 September 2015, submitting them to us no later than by 3 p.m. They relate to all the brands you are responsible for and all their models of Euro 5 and Euro 6 stages of all fuels (esp. diesel engines and gasoline direct injection engines):

1. Which models recognise test situations via the f actory-provided operating software and then change the impact of the emission reduction device and switch to another map with increased emission values? Please explain in brief the nature and intensity.
2. What are the parameters that cause these vehicle s to recognise the test situation? (E.g. ambient temperature > 30 degrees, accelerometer, steering wheel position, velocity pattern of the test cycles on file etc.)
3. Is the supply of keratin in vehicles with SCR sy stems above or below a certain ambient temperature – except during a cold start – ge nerally or in combination with other parameters inhibited or throttled?
4. Which diesel models that have SCR that are appro ved for the European market switch off urea injection at speeds above 120 km/h (or higher/lower) (please quote the velocity as of which the respective model throttles or stops the injection of urea)
5. In the event that, with diesel models equipped w ith SCR, the urea tank drops below a minimum level:
   - do the OBD always automatically point out to the driver in good time that he needs to fill the tank up or is no notification given?
   - does this lead (with an empty or nearly empty tank) to the statutory emergency operation or does the operating software just regulate the urea injection in the SCR system without any error message in the OBD?

VW FOIA, EPA 06/20/2017 2017-FFP_034447

Deutsche Umwelthilfe

6. Please inform us of the results of the RDE value s for Euro 6 diesel cars models that you currently have at hand.
7. With respect to the measurement of fuel consumpt ion and CO2 emissions, which car models have the operating software that recognises the test mode?

We wish to remind you that the DUH intends to undertake selective measurements on the production vehicles already on the market in order to verify your details. We will take legal action in response to any wrong answers or non-responses (which we regard as on a par with wrong answers) and also inform the public and the supervisory authorities.

In this respect, we call on you to provide a full statement by the due date and time. The dramatic damage to the credibility of Volkswagen AG as a result the continuous misinformation of American government agencies by Volkswagen and Audi that went on for over a year is a cautionary example.

Yours sincerely,

Jürgen Resch

Federal Chairman

The following people will receive copies of this letter:

- Alexander Dobrindt - BMVI (Federal Ministry of Tr ansport and Digital Infrastructure)
- Barbara Hendricks - BMUB (Federal Ministry for th e Environment)
- Sigmar Gabriel - BMWi (Federal Ministry for Econo mic Affairs and Energy)
- EU COMM Karmenu Vella/Violeta Bulc/Elzbieta Bienk owska
- Stephan Weil – State of Lower Saxony
- Meetu Kaul, U.S. EPA, Air Enforcement Division
- Annette Hebert – CalEPA/ARB

To: Phillips, Anna[Phillips.Anna@epa.gov]
Cc: Simon, Karl[Simon.Karl@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]; Kasman, Mark[Kasman.Mark@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Cook, Leila[cook.leila@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]
From: Bunker, Byron
Sent: Mon 10/19/2015 5:20:09 PM
Subject: RE: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission

Thanks Anna.

From: Phillips, Anna
Sent: Monday, October 19, 2015 1:17 PM
To: Bunker, Byron
Cc: Simon, Karl; Blubaugh, Jim; Belser, Evan; Kaul, Meetu; Kasman, Mark
Subject: RE: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission

Hi, Byron – FYI, OECA has received a similar request from this organization so I am pasting the information that I just sent to them below. I'm also copying OECA here to facilitate future coordination on these requests.

Ex. 5

Best,

Anna

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460
~~~~~~

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

-----Original Message-----
From: Phillips, Anna
Sent: Monday, October 19, 2015 11:09 AM
To: Belser, Evan <Belser.Evan@epa.gov>; Blubaugh, Jim <Blubaugh.Jim@epa.gov>
Cc: Kaul, Meetu <Kaul.Meetu@epa.gov>; Orehowsky, Gregory <Orehowsky.Gregory@epa.gov>
Subject: RE: Volkswagen investigation - date of the first information about high NOx Emissions to the german authorities

Thanks for the heads-up, Evan. FYI, it appears that DUH (aside from having an unfortunate acronym in English) is an "environmental and suit legitimate consumer association" and not a German government agency. The text below was taken from the following link using Google Translate, and the requester is mentioned in the final paragraph.

I would appreciate your keeping me looped in on any OECA response and future correspondence so that I can keep track.

Thanks again...

Anna

~~~~~~

http://www.duh.de/3873.html

German Environmental Aid: strong for nature and the environment

The German Environmental Aid Association provides a forum for environmental organizations, policy and decision makers from the business world. Our goal is environmental and sustainable decisions. In dialogue with business and environmental politicians, we develop opportunities for sustainable farming practices and environmentally friendly products. At the same time we inform the public. We make environmental policy and law transparent. Critical citizens, environmental and health-conscious consumers and the media are important partners. Together we are committed to a careful use of natural resources, biodiversity and landscape.

In 1975, the German Environmental Aid Association was founded. We are an environmental and suit legitimate consumer association. Our work is financed by private donations and public grants for nature conservation and environmental protection.

National Chairman of the DUH is Prof. Dr. Harald Kächele. Approximately 80 full-time employees work in the office in Radolfzell, in our Berlin office, in the office and in the North Elbe Project office in Köthen for nature and environmental protection. Federal managers are Jürgen Resch and Sascha Müller-Kraenner

~~~~~~

Anna Phillips

Program Manager for Europe

U.S. Environmental Protection Agency (EPA) Office of International & Tribal Affairs
Washington, D.C. 20460
~~~~~~

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427

E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

-----Original Message-----

From: Belser, Evan

Sent: Monday, October 19, 2015 8:54 AM

To: Blubaugh, Jim <Blubaugh.Jim@epa.gov>; Phillips, Anna <Phillips.Anna@epa.gov>

Cc: Kaul, Meetu <Kaul.Meetu@epa.gov>; Orehowsky, Gregory <Orehowsky.Gregory@epa.gov>

Subject: Re: Volkswagen investigation - date of the first information about high NOx Emissions to the german authorities

Forwarding as this appears to be outreach from governmental entity.

Evan Belser

Chief, Mobile Source Enforcement Branch

US EPA
~~~~~~

> On Oct 19, 2015, at 8:20 AM, Kaul, Meetu <Kaul.Meetu@epa.gov> wrote:

>

>

>

> _____

> Ms.Meetu Kaul, Attorney-Advisor

> Air Enforcement Division

> United States Environmental Protection Agency

> Direct: 202-564-5472

> Email: kaul.meetu@epa.gov

>

> -----Original Message-----

> From: Jürgen Resch [mailto:resch@duh.de]

> Sent: Saturday, October 17, 2015 10:22 AM

> To: Kaul, Meetu

> Subject: Volkswagen investigation - date of the first information

> about high NOx Emissions to the german authorities

>

>

>> Dear Meetu Kaul,

>>

>> It would be very helpful for us to know, when (and whom exactly) EPA and/or ARB

informed the german authorities first time about the high NOx emissions of the investigated VW Passat and Jetta by EPA and ARB. We heard it was earlier than Sept. 2015.

>>

>> Background: Since 2005 "Deutsche Umwelthilfe" is the german 'driver' of national investigations about high NOx, PM and CO2 emissions caused by defeat devices). This spring we organised in Berlin and Brussels Parliamentarian hearings about defeat devices (wrong fuel consumption data and the ICCT study about real world NOx Emissions of diesel cars) and on Nov. 2nd I will join a parliamentarian hearing in german Bundestag as an expert.

>>

>> Thanks a lot for your help in advance - Juergen

>>

>> Jürgen Resch

>> Email: resch@duh.de

>> Tel.: 0171-3649170

From: Bunker, Byron
Sent: Monday, October 19, 2015 1:06 PM
To: Phillips, Anna <Phillips.Anna@epa.gov>
Cc: Simon, Karl <Simon.Karl@epa.gov>
Subject: FW: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission

Hi Anna,

Karl thought you might be the best person to help us understand who Mr. Resch is and how his organization fits into the Volkswagen investigation. Can you please look at the attached letter and provide us any information that you have?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Grundler, Christopher
Sent: Monday, October 19, 2015 12:33 PM
To: Bunker, Byron
Cc: Cook, Leila
Subject: ENGLISH VERSION Fwd: Letter to CEO German Car Manufacturers on NOx emission

lemme know what this is about and who this org is

Christopher Grundler, Director

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202.564.1682 (Washington)

734.214.4207 (Ann Arbor)

www.epa.gov/otaq

Begin forwarded message:

From: Simon Annen <annen@duh.de>
Date: October 19, 2015 at 8:26:18 AM EDT
To: "'grundler.christopher@epa.gov'" <grundler.christopher@epa.gov>
Cc: Dorothee Saar <saar@duh.de>
Subject: Letter to CEO German Car Manufacturers on NOx emission

Dear Mr. Grundler,

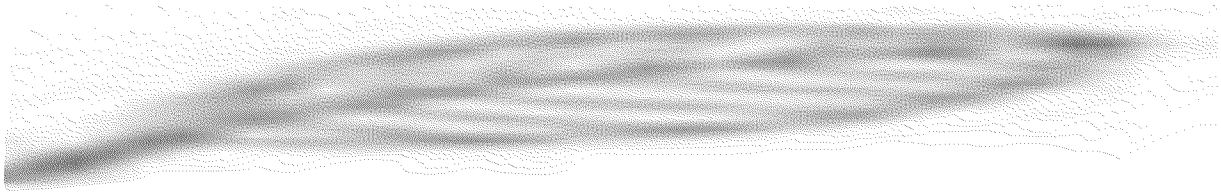
sorry for our mistake. Now I have attached our letter to Chief Executive Officers of German car manufacturing companies (here Audi AG) in English version.

Kind regards,

Simon Annen

Simon Annen | Projektassistenz Verkehr und Luftreinhaltung

Deutsche Umwelthilfe e.V. | Bundesgeschäftsstelle Berlin | Hackescher Markt 4 | 10178 Berlin
Telefon: +49 30 2400867 737 | Telefax: +49 30 2400867 19
E-Mail: annen@duh.de | www.duh.de |



DUH e.V. | BGF: J. Resch, S. Müller-Kraenner | Vorstand: Prof. Dr. H. Kächele, B. Jäkel, C.-W. Bodenstein-Dresler | AG Hannover VR 202112
Bank: VoBa Konstanz-Radolfzell | Kto. 210677216 | BLZ 692 910 00 | IBAN DE89692910000210677216 | BIC GENODE61RAD

To: Bunker, Byron[bunker.byron@epa.gov]
From: Daniel Carder
Sent: Mon 10/19/2015 5:52:31 PM
Subject: EPA Proposal Submissions
EPA_proposal_airquality_V9.docx
EPA-G2014-STAR-K1_Final.docx

Byron,

The following summarizes our EPA proposal submissions since 2011. The highlighted entries were for mobile vehicle air quality/emissions platforms. These submissions were all made to National Center for Environmental Research (NCER).

- Feb 22nd, 2011 => Developing the Next Generation Air Quality Measurement Technology / EPA-G2011-STAR-B1

- May 3rd, 2012 => Anthropogenic Influences on Organic Aerosol Formation and Regional Climate Implications / EPA-G2012-STAR-D1

- March 14th, 2014 => Modeling and Assessment of Air Quality Impacts Particulate Matter Emissions Linked to Shale Gas Extraction and Utilization / EPA-G2014-STAR-G2

- Oct 7th, 2014 => Development of a Mobile Air Quality Sensor Network System - AirCom, Pollution Monitoring for Communities / EPA-G2014-STAR-K1

Please note that we were simply replying to a question as to why we hadn't conducted a larger number of experiments with these mobile platforms. We understand the nature of funding, and the associated review processes. I am not certain that these are, however, understood by most media. Again, I cannot express our appreciation of the EPA and ARB public recognition of our work.

Thanks,
Dan

Dan Carder
Director, Center for Alternative Fuels, Engines and Emissions
Department of Mechanical and Aerospace Engineering
Benjamin M. Statler College of Engineering and Mineral Resources
West Virginia University
Ph: 304-288-7917 (mobile)/ 304-293-0650 (office)
Daniel.Carder@mail.wvu.edu

1 RESEARCH PLAN..... 3

1.1 Objectives..... 3

2 Approach/Activities..... 7

2.1 Expected Results and Outcomes..... 9

2.2 General Project Information..... 9

2.3 Project Schedule..... 12

3 References..... 13

4 Quality Assurance Statement..... 14

4.1 Responsible Party for Program QA/QC..... 14

4.2 Project Objectives as Related to QA/QC..... 14

4.2.1 Collection of new/primary data:..... 16

4.3 Method Development..... 17

4.4 Development or Refinement of Models..... 17

4.5 Development or Operation of Environmental Technology..... 18

4.6 Conducting Surveys:..... 18

5 Budget and Budget Justification..... 19

5.1 Personnel..... 19

5.2 Fringe Benefits..... 19

5.3 Travel..... 19

5.4 Equipment..... 20

5.5 Supplies..... 20

5.6 Contractual..... 20

5.7 Other Direct Costs..... 20

5.8 Indirect Costs..... 20

6 Resumes..... 21

7 Current and Pending Support..... 33

8 Guidelines, Limitations, and Additional Requirements..... 34

8.1 Letters of Intent/Letters of Support..... 34

8.2 Funding Opportunity Number..... 34

8.3 Confidentiality..... 34

ABSTRACT

Funding Opportunity Title/Number: Developing the Next Generation Air Quality Measurement Technology / EPA-G2011-STAR-B1
Center: Center for Alternative Fuels, Engines and Emissions (CAFEE)
Center Director: Daniel Carder
Title: Mobile Platform Air Quality Measurement and Monitoring System
Investigators: Daniel Carder (PI), John Nuszkowski (Co-PI), and Mridul Gautam (Co-PI)
Institution: West Virginia University, Morgantown, WV 26506
Project Period: 3 years : 08/22/11 – 08/22-14
Project Location: Morgantown, WV – Los Angeles, CA
Project Cost (Direct/Indirect): Year 1: $280,243/$27,363 Year 2: $77,842/$20,339
Year 3: $74,358/$19,333

Objective
The objectives of the study are 1) to improve air pollution measurement technologies 2) to address emerging air pollution issues and improve the spatial and temporal coverage of air pollution measurement data.

Approach
The proposed study will validate and demonstrate a novel mobile air pollution measurement system that will integrate ambient air pollution sensors with an existing mobile weather communication network, resulting in remote, real-time transmission of air pollutant concentration data. This collaboration will leverage existing NOAA-funded research and will address the challenges of identifying geographical and temporal variations in ambient pollutant concentrations by providing mobile measurements in a variety of non-traditional locations. The central hypothesis is that by enhancing the capabilities of the available Mobile Platform Environmental Data (MoPED), currently used by the National Weather Service (NWS), and the associated advanced communication network, ambient pollutant concentration data will be provided from sensors mounted on public transportation and commercial vehicles that will enhance the spatial and temporal resolution of collected air quality data. This intricate network of mobile monitors will report real-time data, simultaneously covering larger geographical areas, and will provide corroboration and enhancement of existing EPA/State NAMS, SLAMS and SPMS.

Expected Results or Outcomes
The study will demonstrate the integration of cost-effective measurement and subsequent transfer of real-time air quality data through an existing network of ground vehicles, whose quantity is rapidly growing and expanding in geographic coverage. Additionally, the study proposes to identify miniature sensor technology, suitable for such mobile implementation, and establish methods to validate and verify the accuracy of future sensor deployment towards detection of criteria pollutants at lower concentrations.

Supplemental Keywords
Sensor network, mobile platform, communication, miniature air quality sensors, mesoscale observation network

1 RESEARCH PLAN

Measurement of criteria air pollutants and hazardous air pollutants over a larger spatial variation is vital for designing and implementing ambient air quality improvement programs. Mobile platform real-time air quality measurement and monitoring stations can be used to address certain approximations of data generated from stationary ambient air monitoring stations. **Mo**bile **P**latform **A**ir **Q**uality **M**easurement & **M**onitoring **S**ystem (MoPAQ MMS) is a proposed validation and demonstration project that uses a network of vehicles with emission-measuring sensors installed onboard that collect air quality data as they move along their destined operating routes.

The central hypothesis being tested in this proposed study is to demonstrate that MoPAQ MMS can effectively acquire and deliver air pollution data in near real time at a spatial and temporal resolution that improves the availability of air pollution measurement data and extends the air quality monitoring network to be capable of meeting emerging air pollution issues.

1.1 Objectives

a) The primary objective of MoPAQ MMS is to utilize the available mobile weather platform, with its integrated communication network as a platform to establish a network of sensors dedicated to monitoring and measuring ambient air quality. The installation of air pollutant sensing devices on a network of public transportation vehicles would provide a sensor network system capable of reporting real-time air quality information at greater spatial resolution.

EPA has formed three main monitoring station types namely National Air Monitoring Station (NAMS), State and Local Air Monitoring Station (SLAMS) and the Special Purpose Monitoring Station (SPMS). Current monitoring stations report data that is representative of a certain spatial region and hence could be biased towards the location of the monitoring station. Although most monitoring stations are aimed at spatially representing air quality information pertaining to a high population density urban area, pollutant concentrations over a higher spatial resolution is required to better address multi sources of pollutants within the confines of a single air monitoring station.

A monitoring network capable of reporting real-time criteria pollutant concentration at short spatial intervals would better support the current NAMS networks. Mobile air monitoring networks have been identified as an option to support stationary sites. However, lack of infrastructure and high costs involved in developing a large mobile network has deterred monitoring agencies from deploying them extensively. The MoPAQ MMS proposed in this study would demonstrate a mobile platform, utilizing existing resources of communication and a network of transportation vehicles. Miniature low-cost sensors integrated on mobile platform would serve as mobile air monitoring stations. MoPAQ MMS is affordable as it leverages the existing Mobile Platform Environmental Data (MoPED) communication system funded by the National Atmospheric and Oceanic Administration (NOAA) and National Weather Service (NWS) that is used for extending our nation's weather observation network. MoPAQ will use MoPED's existing mobile platform assets and system that would provide a proven real-time data

acquisition and delivery methodology. Emissions-measuring sensors will be added to the existing MoPED environmental data sensor configuration (sensor platform) creating a multi-purpose observation network of weather and air quality. By utilizing an existing weather network system, WVU proposes the MoPAQ MMS to be a cost effective technology to address spatial and temporal variations in air pollutant concentrations. The data from MoPAQ MMS would supplement current stationary monitoring stations, with better spatial resolution and help identify hot-spots of criteria pollutants within the confines of the representative area of a stationary air quality monitoring station. Initially the use of miniature low-cost sensors could pose quality assurance limitations, however future advancements in sensing technologies combined with the outcome of this network demonstration study would lay the foundation for a robust air quality monitoring network that would address complex spatial and temporal variations in pollutant concentration over a large regions of the country.

The versatility of MoPAQ MMS offers the EPA with an observation network that can evolve to address specific geographies, new standards, different instruments, and air pollutants of interest. Also, the network could bridge the spatial data void between the SLAMS (that monitor regions of interest to the state and local agencies) and the NAMS (that monitor urban regions with high population density). Not only does MoPAQ MMS provide the EPA with an observation network, but also a surveillance network that can alert authorities that certain pollutants or compounds were detected at a specific location. Figure 1 shows the data path and system layout of the proposed MoPAQ MMS.

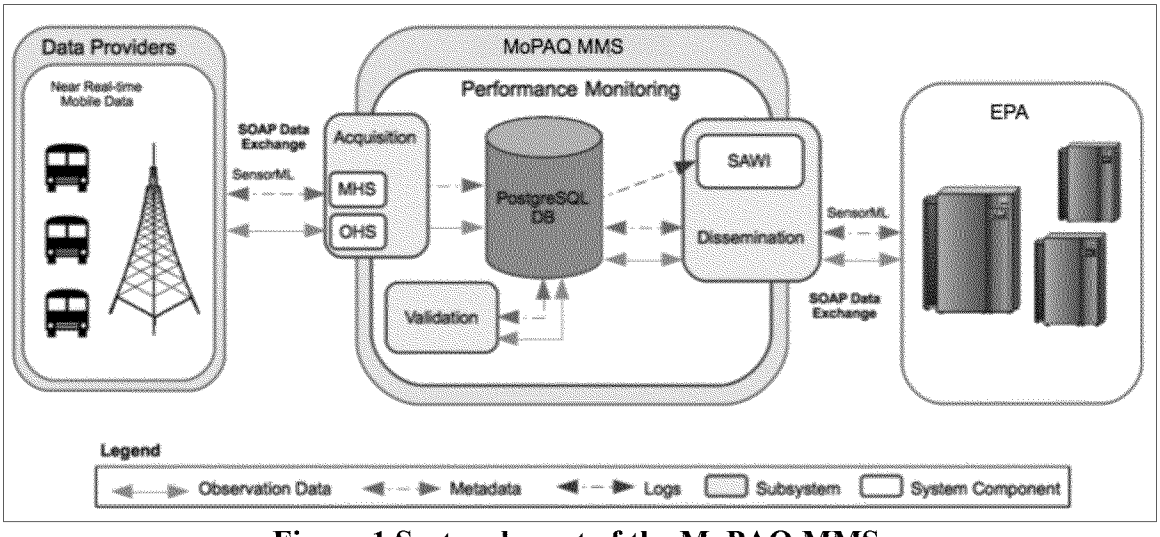


Figure 1 System layout of the MoPAQ MMS.

One of the growing concerns for regulatory agencies has been the exposure of a vast majority of the population to pollutant concentrations related to roadway sources. Roadway pollution monitoring has been particularly difficult due to the considerations of appropriate placement of monitoring stations to accurately capture the pollutant concentration levels at near roadways distance. Also, many of the health effects studies, related to near roadway pollution sources have focused on highway traffic. However, there is considerable lack of information related to roadways emissions in an urban scenario characterized by large traffic volumes and frequent stop-and-go operations. Space requirements of stationary monitoring stations pose a challenge in placement of adequate near-roadways pollution measurement sites to address the contribution of

roadways emissions to urban air quality. The MoPAQ MMS could serve as tool in effectively reporting roadways pollutant concentration, especially in an urban scenario. The network of ground vehicles moving through the traffic would report real-time pollutant concentrations at regular spatial and temporal intervals. Meteorological data combined with air quality information along the measurement routes could enhance the scope for efficient air quality modeling and better understanding of health effects.

b) The secondary objective of the study is to identify compact, high-sensitivity sensor technologies capable of forming the basis of future ambient air quality measurement network. The identification of sensors would be followed by a detailed investigation of possible factors influencing air quality measurements through a mobile platform.

The implementation of the Clean Air Act required EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants (CO, NO_2, O_3, SO_2, Lead, PM_{10} and $PM_{2.5}$). These were further divided into a primary and a secondary standard, where the first is intended to protect the public health, including the health of "sensitive" populations (children, elderly, asthmatics, etc.) and the latter to protect the public welfare (damage to environment, animals, crops, buildings, etc.) [1]. Title 40, subpart 50 of the Code of Federal Regulations (CFR) describes maximum pollutant levels, measurement as well as calibration methods [2]. Conventional air quality monitoring, under these regulations, is performed using Ultraviolet Fluorescence or Pararosaniline methods for SO_2, NDIR methods for CO, Chemiluminescence methods for NO_2 and high-volume sampling methods for PM, all of them being labor and cost intensive to operate and requiring considerable amount of space; hence, are limited to stationary measurement stations [2, 3]. However, long term needs for air quality monitoring, especially for mobile applications, include compact, real time, high sensitivity sensors with low power consumption and wireless communication capabilities.

State-of-the- art micro-sensors are dominated by a variety of solid state semiconductor oxides, detecting gases based on a change in electrical resistance of a porous sensing body, and miniaturize electrochemical cells [4] that produce an electrical signal proportional to the gas concentration based on chemical reactions between the gas of interest and an electrode. Although, these types of micro-sensors can be produced on a mass basis at low costs, their application to air quality monitoring is currently limited due to lack of accuracy, sensibility as well as reliability [5]. Depending on the production method, the baseline resistance of SnO_2 based metal oxide sensors is reported to vary by up to a factor of 5 with a typical sensitivity spread between a factor of 2 to 8, depending on the target gases [6]; hence, individual calibration of each sensor would be necessary. Furthermore, current metal oxide type sensors are affected by changes in temperature, humidity and the presence of interfering gases [6] and therefore need integrated compensation algorithms. Electrochemical type sensors on the other hand are minimally affected by pressure changes, however, are quite sensitive to temperature variations [4]. Recent research has focused on Tungsten-Trioxide (WO_3) materials [5, 7], among others, since they showed particularly large resistance-increase signals in response to low concentrations of oxidizing gases such as O_3 and NO_2 and didn't exhibit SO_2 poisoning and surface hydration-dehydration effects frequently experienced with SnO_2 materials [7]. A month long comparison between reference instruments and WO_3 based semiconductor sensors reported stable measurements results for NO_2 and O_3 at atmospheric levels without recalibration [7]. There is

however, only a very limited amount of actual in-field studies reporting correlations between newly developed micro gas-sensors and EPA certified reference methods in terms of sensitivity and long-term accuracy. Moreover, the majority of sensor technologies discussed, capable of measuring pollutants at atmospheric levels (ppb) as required by the NAAQS, are still in development state and not yet commercially available [5].

While the aforementioned technologies represent a major step forward, current materials advances represent a potential leap forward in sensing capabilities. Graphene (i.e., films comprised of one to several atomic carbon layers) is among those materials showing great promise in the area. Because of its high carrier mobility, low carrier densities, and low noise levels graphene provides the basis for high speed and high sensitivity gas and liquid species sensors. As an example of both the sensitivity and low noise level of graphene based sensors, Schedin et al. [8] have demonstrated the detection of individual gas molecules adsorbed on graphene. Despite the huge opportunity provided by graphene based sensors, there are significant materials and technology barriers which must be overcome. First and foremost, large area graphene films (wafer scale) are required for the production of the sensor platform. Second, methods controlling sensor selectivity / specificity must be established. Third, in addition to the usual inorganic gas species (e.g., SO_2, NO_2, CO, CO_2, NH_3, and O_3), it is highly desirable to have sensors which can identify the hydrocarbon species which either coat or comprise environmental particulate matter. Research at West Virginia University (WVU) is presently focused on these three key areas has already demonstrated the feasibility of producing large area graphene films on 6H-SiC using halogen based plasma etching methods [9, 10]. Two methods of achieving target specificity with graphene films are being explored. In the first approach, arrays of electrically readable graphene areas on the sensor platform will each be coated with metal nano-dots (or a porous nano thin metal film). When a gas adsorbs on the metal, the carrier density (i.e., the doping level) of the graphene will be altered, and this change can be detected electrically. Because gases adsorb differently on different metals, arrays coated with different metals will provide a response indicative of the specific gas. The second approach to achieving target specificity involves functionalization of the graphene with target specific receptor molecules. When a target molecule binds to its receptor, changes in electron charge distribution of the complex will alter the doping level of the graphene. As before, this change can be detected electrically and represents the sensor response. This approach is particularly useful for organic molecules which either coat or comprise environmental particulate matter.

Additional to gaseous pollutants, the NAAQS also limits the PM_{10} and $PM_{2.5}$ mass based concentrations, averaged over a 24-hr and annual period. Current EPA reference methods include high-volume sampling with subsequent gravimetric analysis, Beta Attenuation Monitor (BAM), Tapered Element Oscillating Microbalance (TEOM™) and Nephelometer. These methods however are, similar to the gaseous reference methods, labor and cost intensive, require bulky instruments and need in case of gravimetric and BAM methods frequent change of sampling filters or tape, respectively. The TEOM method requires a stable instrument setup which, in case of mobile application, would involve an elaborate construction to dampen any vibrations caused by the moving sampling platform. Moreover, recent health studies showed evidence that PM exposure on time scales of less than a few hours can lead to adverse health effects, especially for "sensitive" groups of the population [11]. However, current ambient PM sampling methods operate on multiple hour averages; hence, are not able to account for short-

term PM variations. The most promising instruments to date for real-time PM mass concentration measurements at atmospheric levels are based on light scattering technology, which continuously measures the amount of scattered light due to particles flowing through a sensing zone. These measurements can further be related to particle concentration using the well-established light scattering theory derived by Kerker et al. (1969) [11]. The primary limiting factor for optical PM mass instruments arises from the fact that they are typically not capable of measuring particles less than approximately 0.2μm in diameter and are therefore not able to account for a significant amount of particles related to primary engine combustion emissions (≤ 0.1μm). Additionally, instrument specific sample preparation methods (dilution, heating) may volatilize organic PM prior to measurement; hence underestimating the amount of volatile and semi-volatile compounds that may account for a considerable amount of combustion derived PM [12]. Currently, there exist several commercially available instruments, sensitive to particles between 0.1 and 10μm and often possible to be equipped with different cut-size cyclones to distinguish between TPM, PM_{10} and $PM_{2.5}$. Furthermore, a new in-line, real-time PM sensor, based on the escaping current principle, is being tested at WVU and can be calibrated for mass or particle number concentration measurements. The sensor, designed for after-treatment control or On-Board-Diagnostics (OBD) application, showed good correlation with other proven lab grade aerosol measurement instruments as well as high sensitivity even downstream of a Diesel particulate filter (DPF) [13]; hence, demonstrates promising capabilities of measuring PM mass at ambient levels.

2 Approach/Activities

WVU proposes to instrument a fleet of transportation vehicles participating in the existing MoPED weather monitoring system with air pollution measurement sensors. The MoPED data acquisition system and can be extended from its current configuration to include other inputs in the form of emissions measurement sensors. For the purpose of demonstration of the technology WVU proposes to choose a sensor that has proven to be reliable, cost-effective and accurate in measuring pollutant concentrations at ambient levels and fit a network of transportation vehicles with these devices. The measurement platform would transmit data at configured intervals, through GSM cellular communication, back to the data processing center. In the event of a loss of cellular reception, data would be cached by the system and dispatched once communication has been re-established.

The primary tasks of the study can be laid out as follows:

Task 1: Sensor Identification.
Sensor identification for incorporation into the mobile platform would constitute to be the primary task. From preliminary research into miniature sensor technologies, it has been found that with the exception of carbon-monoxide and carbon-dioxide sensors, measurement of other criteria pollutants through micro sensors pose significant challenges with respect to detection limits, accuracy and variability. Hence, WVU would identify a sensor, which is capable of clearly demonstrating the goals of the study.

Task 1.1: Sensor Calibration and Validation.
This subtask will comprise of extensive testing of the identified sensor, at WVU's Engines and

Emissions Research Laboratory (EERL) against well calibrated laboratory grade analyzers, as described by EPA's reference methods, to assess measurement accuracy, zero and span drift and long time stability at low pollutant concentrations. Furthermore, standardized calibration procedures for the selected sensors will be developed.

Task 2: Wind-Tunnel Testing for Validating Sensor Positioning.
The effect of sensor location on the measurement values needs to be studied to frame guidelines for mobile air quality measurements. The fact that the mobile platform is going to be subject the effects of the measurement sensor moving through the exhaust plume of other vehicles should be considered while placement of sensors. WVU is currently developing a wind tunnel for the purpose of studying the dynamic mixing of exhaust gas plume of a heavy-duty truck. This wind tunnel would be capable of simulating wind speeds of about 55 MPH. WVU proposes to use this setup to study the dynamics of air flow around the vehicle to decide the placement and the number of sensors to be installed on the mobile platform, that would result in the most accurate method of measuring ambient pollutant concentration, without the effect of immediate sources.

Task 3: Identification of Region of Interest for Mobile Platform Vehicle Network.
WVU proposes to choose two regions with a network of existing mobile weather platforms, to demonstrate this project. The metropolitan statistical areas (MSA) of Los Angeles-Long Beach-Santa Ana and Riverside-San Bernardino-Ontario, with an estimated total population of 15.5 millions (based on 2000 U.S. Census), were identified as viable areas. Both MSA's fall under the jurisdictional boundary of the South Coast Air Quality Management District (AQMD) who operates up to 41 air monitoring stations (as of July 2010) as well as a Mobile Monitoring Station (MMS) [14], making it best suitable for this project since the number of monitoring stations well exceeds the minimum requirement as mandated by EPA. The vehicle routes would encompass urban and highway regions to demonstrate the spatial and temporal variation in pollution concentration.

Task 4: Installation of Sensors on Mobile Platform.
Sensor installation will involve the placement of the sensor on a network of transportation vehicles and integrate with the communication system of the existing mobile weather monitoring system.

Task 5: Demonstration of MoPAQ MMS Air Quality Measurement Technology.
Task of demonstration of the MoPAQ system, will include data acquisition from the network of mobile platforms, to the central database. This task would involve the comparison of MoPAQ observation data with AQMD operated ambient monitoring stations for data validation purposes. The AQMD operated measurement stations will serve as reference observation data to the MoPAQ MMS data.

Task 5.1: Validation of MoPAQ Observation through AQMD Stationary and Mobile Measurement Stations.
Air quality data collected by AQMD within the boundaries of the MoPAQ sensor network will serve as a data quality indicator of the MoPAQ observation data. Due, to the conceptual nature of this study and the proposed use of miniature sensors of ambient air quality monitoring, anomalies in the data need to be verified with standard reference practices. AQMD operated

SLAMS, SPMS and the Mobile Measurement Station (MMS), will serve as tools to compare and validate the mobile platform data. The advantages of mobile measurement trailer operated by AQMD for air quality monitoring in remote locations will be used for validating mobile platform data in specific regions of interest.

Task 5.2: Performing QA/QC Procedures on Data Received from MoPAQ.
QA/QC procedures outlined in subsequent sections would be carried out to monitor sensor performance and quality of the observation data.

Task 5.3: Expansion of MoPAQ Network to other Regions of Interest.
With increasing availability of vehicle networks, MoPAQ MMS could be expanded to other regions of interest and possibly connect the spatial data void between various stationary ambient air quality monitoring stations.

2.1 Expected Results and Outcomes

This should discuss how the research results will lead to solutions to environmental problems and improve the public's ability to protect the environment and human health. A clear, concise description will help NCER and peer reviewers understand the merits of the research.

Successful implementation of this pilot project would lay the foundation for a new measurement platform to the regulatory agencies. One of the main outcomes of this study would be laying of an infrastructure for future mobile air quality measurement networks. The existing measurement and communication network could be scaled to a larger region with the potential success of this study and could result in a nationwide monitoring network, which could supplement and support stationary monitoring stations. Another, important outcome of this project would be the efficient monitoring of roadway pollution especially in urban regions, which are not adequately spatially covered by stationary monitoring stations. The real-time meteorological information together with air quality data from this project could be used for accurate air quality planning, tracking of pollutants and modeling purposes.
The current communication method could also broadcast vehicle electronic control unit parameters, to provide regulatory agencies a tool to evaluate vehicle operation depending upon the geography. Future of this study could extend towards a possible integration with automobile engine manufacturers, to incorporate control algorithms to regulate emissions while operating within the confines of pollutant hot-spot. For instance hybrid vehicles in the future could employ its electrical power to reduce emissions while operating within a region of increased pollutant concentrations.

2.2 General Project Information

Discuss other information relevant to the potential success of the project. This should include facilities, personnel expertise/experience, project schedules with associated milestones and target dates, proposed management, interactions with other institutions, etc. Applications for multi-investigator projects must identify project management and the functions of each investigator in each team and describe plans to communicate and share data.

(project schedules with associated milestoneis yet to be formed)

Facilities

West Virginia University's Center for Alternative Fuels and Engines and Emissions (CAFEE) is an internationally recognized research program in the area of vehicles, engines, emissions, and alternative fuels. CAFEE is a large research center involving over 50 faculty, staff, and graduate students, which have been conducting research specifically focused on fuels, engines, and exhaust emissions since 1990. Since its inception, this Center has conducted hundreds of research projects with total funding of over $80 million. The projects were or are currently sponsored by fuel suppliers (BP, ARCO, Chevron, Biodiesel Board, and others), engine manufacturers (Cummins, Caterpillar, Detroit Diesel, and others), vehicle manufacturers (Ford, GM, and others), Federal Government Agencies (DOE, DOT, EPA, DARPA, and others) and State Agencies (Calif. ARB, Arizona DEQ, NY DEQ, TCEQ, and others). These projects have addressed issues associated with the full spectrum of fuel, engine, and vehicle performance. Emissions are measured in accordance with the Code of Federal Regulations (CFR 40) requirements for engine certification, which is used primarily for fuels testing, certification, and verification procedures for the states of California and Texas. CAFEE houses a heavy-duty engine dynamometer and a one of a kind transportable heavy-duty chassis dynamometer facility. Emissions measurement is a complicated affair and WVU has met various challenges along the way to adapt and develop testing facilities in both laboratory and field measurement applications. The Center has developed its own analytical measurement, control, and analysis systems in order to comply with various Federal test procedures and specific test requirements. Laboratories have been designed as fully self-contained units that can be transported to remote field test sites. The Center is involved in various alternative energy sources and has been at the forefront of evaluation of various mobile hybrid systems. Throughout its history, it has been involved in targeted engineering applications in unique areas of field research

The subcontractor for this project Global Science and Technology is highly specialized company with a workforce that includes experts in domains of engineering, science, communications, and information technology. GST has a strong reputation for its meteorological expertise and is the prime contractor of the mobile platform weather monitoring system funded by National Weather Service. GST works with a leading innovator Weather Telematics to successfully establish the communication technology for the mobile weather platform.

Personnel

A flowchart of the Project Management Plan is included in **Error! Reference source not found.**. It depicts the relationships between contractual and technical chains that will be proposed under this submittal. Throughout all phases of the study, the primary contractual and technical contact will be the Project Manager, Mr. Daniel Carder. Full program oversight will also be the responsibility of the Co-Principal Investigator, thus providing necessary redundancy for management contact.

The co-investigators will provide technical consultation and management experience. Arvind Thiruvengadam and Marc Besch will serve as the daily technical contacts for the program, and

will interface directly with Dr. Gautam and Mr. Carder. They will provide on-site support as well as remote management of all mobile platform installation and operational functions.

Dr. Gregory Thompson will serve as the QC/QA officer for the program. He will hold primary responsibility for project QC/QA, and reports directly to the program manager (Dr. Gautam). As Figure 2 indicates, the QC/QA officer is independent of the functional groups that generate measurement data.

Mr. Richard Atkinson and Mr. Zac Luzader will be available for project technical support throughout the project. Both provide necessary IT support for the WVU Transportable Laboratory, from data acquisition and reduction, through system control and analytical systems instrumentation maintenance.

Mr. Thomas Spencer will provide the necessary laboratory program management, including personnel scheduling and budget oversight. Mr. Spencer will manage the activities of the WVU MAE Department Accounting Staff in order to track expenditures and apprise the principal investigators of project status. Mr. Spencer, Program Coordinator, supports the entire Center's research efforts, and is ultimately the direct manager of all clerical and technical staff.

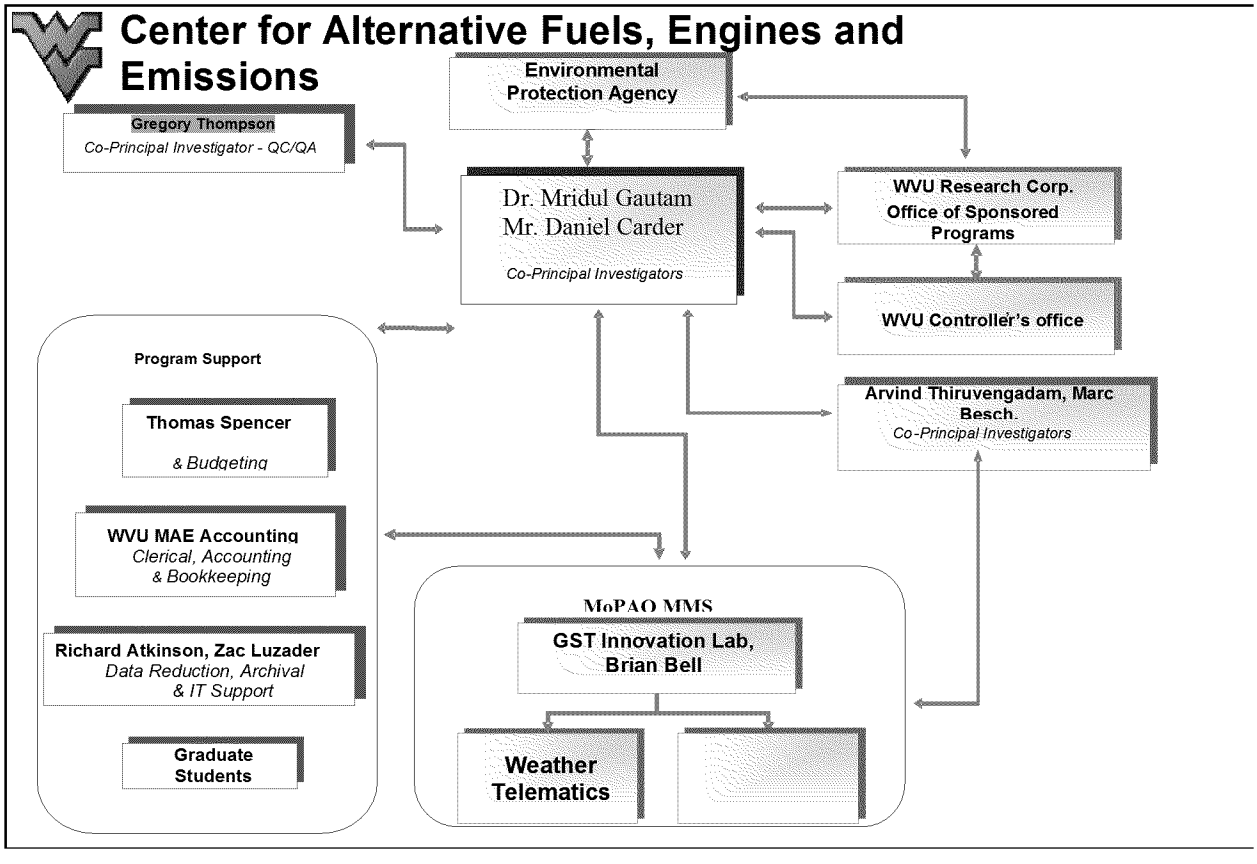


Figure 2 Project Management Flow Chart

2.3 Project Schedule

Task Name	Duration
Task 1: Sensor Identification	4w
Task 1.1 Sensor Calibration and Validation	8w
Task 2: Wind tunnel testing for sensor placement	7w
Milestone 1: Completion of sensor identification and Validation. Phase 1 Progress report	0w
Task 3 Identification of region of interest with existing mobile weather paltform.	4w
Task 4 Installation of sensor on Mobile platform	8w
Milestone 2: Completion of sensor implementation on mobile platform. Phase 2 Progress report.	0w
Task 5: Demonstration of MoPAQ air quality measurement technology.	20w

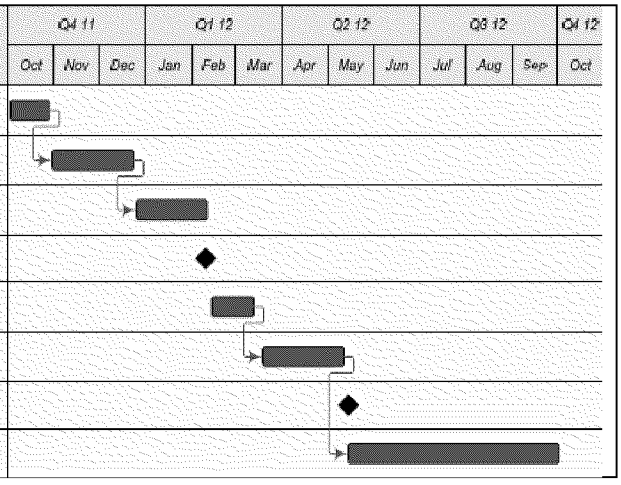


Figure 3 Project schedule for first year

Task Name	Duration
Task 5 Demonstration of MoPAQ air quality measurement technology	60w
Task 5.1 Validation of MoPAQ observation through AQMD stationary and Mobile measurement stations.	2w
Task 5.1 Validation of MoPAQ observation through AQMD stationary and Mobile measurement stations.	2w
Task 5.1 Validation of MoPAQ observation through AQMD stationary and Mobile measurement stations.	2w
Task 5.2 Performing QA/QC procedures on the observation data received from MoPAQ data	60w
Milestone 3: Completion of MoPAQ demonstration, validation and QA/QC procedures.Phase 3 Progress Report	.2w
Task 5.3 Expansion of MoPAQ network to other regions of interest	8w
Task 6: Final Report	8w
Milestone 4: Meeting project deliverables and completion of final report.	0w

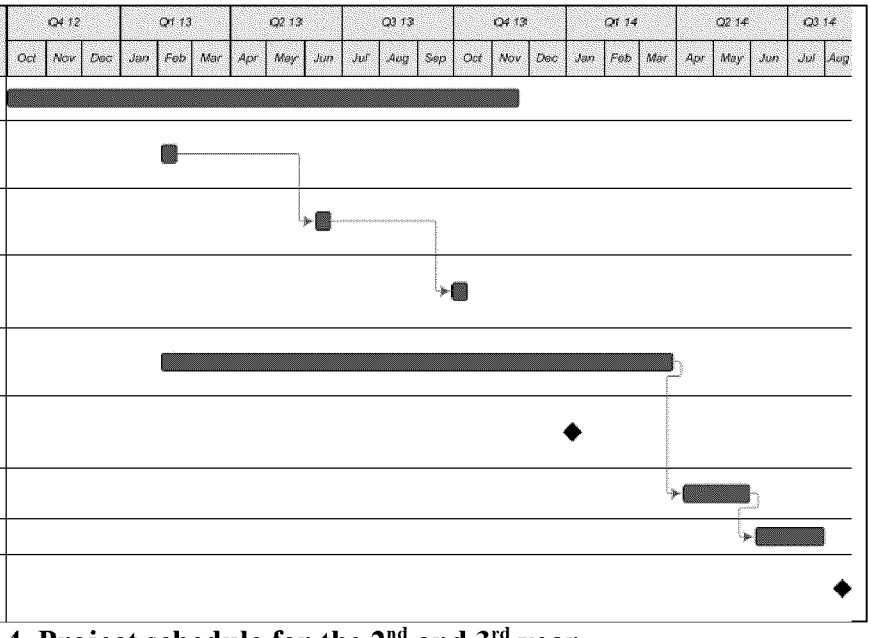


Figure 4 Project schedule for the 2nd and 3rd year

3 References

1. National Ambient Air Quality Standards (NAAQS), U.S. EPA, (Updated 06/03/2010), http://www.epa.gov/air/criteria.html.
2. CFR, Title 40, Subpart 50, Electronic CFR, (Updated 01/28/2011).
3. S., Choi, N., Kim, H., Cha and R., Ha, Micro Sensor Node for Air Pollutant Monitoring: Hardware and Software Issues, Sensors, Vol. 9, pp 7970-7987, (2009).
4. J., Chou, "Hazardous Gas Monitors - A Practical Guide to Selection, Operation and Applications," McGraw-Hill, Published October 1999.
5. M., Gerboles, Sensors for Monitoring Regulated Compounds, Royal Society of Chemistry and AirMonTech, London, 14th to 15th December, 2010.
6. MiCS Gas Sensors, e2V Technology, Application Manual (Updated 08/2007)
7. D.E., Williams, J., Salmond, Y.F., Yung, J., Akaji, B., Wright and J., Wilson, Development of Low-Cost Ozone and Nitrogen Dioxide Measurement Instruments Suitable for Use in Air Quality Monitoring Network, IEEE SENSORS 2009 Conference, (2009).
8. F., Schedin, A.K., Geim, S.V., Morozov, E.W., Hill, P., Blake, M.I., Katsnelson and K.S., Novoselov, Detection of individual gas molecules adsorbed on grapheme, Nature Materials, Vol. 6, pp 652-655, (2007).
9. S., Raghavan, Comparative Studies of 6H-SiC Surface Preparation, MS Thesis, West Virginia University, (2008).
10. S., Raghaven, et al., Mater. Res. Soc. Symp. Proc. 1259, S17-02, (2010).
11. B., Chakrabarti, P.M., Fine, R., Delfino, C., Sioutas, Performance evaluation of the active-flow personal DataRAM PM2.5 mass monitor designed for continuous personal exposure measurements, Atmospheric Environment, Vol. 38, pp 3329-3340, (2004).
12. R., Baldauf, N., Watkins, D., Heist, C., Bailey, P., Rowley and R., Shores, Near-road air quality monitoring - Factors affecting network design and interpretation of data, Air Qual. Atmos. Health, Vol. 2, pp. 1-9, (2009)
13. M.C., Besch, A., Thiruvengadam, B.C., Shade, J., Tikkanen, M., Gautam, In-line, Real-time Exhaust PM Emissions Sensor for use in Emission Control and OBD Application, 14th ETH Conference on Combustion Generated Nanoparticles, Zurich, Switzerland, August 1st-4th, 2010.
14. R.M., Bermudez, P.M., Fine, South Coast Air Quality Management District Annual Air Quality Monitoring Network Plan, SCAQMD, Diamond Bar, CA, July 2010.

4 Quality Assurance Statement

1. Identify the individual who will be responsible for the quality assurance (QA) and quality control (QC) aspects of the research along with a brief description of this person's functions, experience, and authority within the research organization. Describe the organization's general approach for conducting quality research. (QA is a system of management activities to ensure that a process or item is of the type and quality needed for the project. QC is a system of activities that measures the attributes and performance of a process or item against the standards defined in the project documentation to verify that they meet those stated requirements.)

4.1 Responsible Party for Program QA/QC

The National Center for Alternative Fuels, Engines and Emissions at West Virginia University is committed to implement a Quality Control/Quality Assurance (QC/QA) program to assure generation of measurement of data of the highest quality. This quality of the data will meet all the requirements of the objective. The responsibility of the QC/QA rests on one of the senior investigators (the principal investigator or the co-principal investigators) who are often designated as senior engineers on several projects. The QC/QA engineer reports directly to the Project Director/Principal Investigator who then shares the data with the Co-Principal Investigators. The prime responsibility for management and execution of the project for conducting a work assignment and the deliverables rests with the PI. The Co-PI bring in their expertise and form and integral part of the management and execution plan.

The QC/QA engineer and QC/QA officer will work with the project engineers to ensure that the daily activities are logged, calibration gases meet the stated requirements (discussed in detail), all instruments, sensors, sampling systems, and data acquisition systems are maintained and operated in accordance with the stated plan. Miniature sensors will be calibrated and calibration curves archived for future references. Before deployment of the mobile air quality platform, the sensors would be tested in controlled conditions and data verified.

The objectives of the study are 1) to improve air pollution measurement technologies 2) to address emerging air pollution issues and improve the spatial and temporal coverage of air pollution measurement data.

4.2 Project Objectives as Related to QA/QC

1. The primary objective of the project is to demonstrate the real-time data collection of ambient air pollutant concentration through sensors placed on a network of transportation vehicles. Due to the complexities and uncertainties involved in this method of ambient air sampling, a strict QA/QC procedure would be adopted to validate and provide quality data to accomplish this primary task.

4.3 Project Elements

4.3.1 Collection of New/Primary data:

Data quality objectives and acceptance criteria, characterized in terms of accuracy, precision, detection limits, completeness, and representative, will be set based upon intended uses. Since, the project involves the use of miniature and prototype sensors for sensing ambient pollutant concentrations, the QA/QC will strive to meet the QA standards prescribed for ambient air quality monitoring and methods for calibration and sampling will be based according to the procedures prescribed in 40 CFR Part 50 for the chosen criteria pollutant in this study. Daily operational readiness of individual instrumentation will be confirmed using calibration techniques, per manufacturers' recommendations, and verification of data acquisition. A minimum performance goal of 85% successful data capture will be implemented. Achievement of this goal will require vigilance on the part of field operations personnel to detect and address variations in instrumental performance in a timely manner. When issues are found during audits or when data problems are identified, the PI will be notified rapidly so that corrective action can be taken.

Stationary monitoring stations compliant with ambient air quality measurement standards would be used to provide an indication of the minimum and maximum bounds of the ambient pollutant concentrations over a spatial region. Data would be QA/QC flagged in the event of a large deviation in sensor observations from within these bounds. Subsequently, an offline analysis of the sensor data, involving the history of data received before and after the flagged time period would be analyzed to verify drift or sensor malfunction. Also, additional observations from other sensors traversing the same location would be used to determine validity of a sensor data. Based on outcomes of the Task 1 of the research activities, a timeline for sensor re-calibration and validation would be devised and implemented on all mobile platforms to maintain the accuracy of the observation data.

2. Data Management Activities

The information from the mobile platform is divided into two services, the Observation Handling Service (OHS) and the Metadata Handling Service (MHS). The MHS data is repetitive data containing the measurement platform information. Hence, the MoPAQ MMS system employs this dual data-handling service that allows metadata to be updated on demand which will vastly reduce bandwidth and Computer Processing Unit (CPU) requirements.

When an observation is transmitted by the mobile platform, the data provider receives it and initiates the processing of the data to the OHS controller. After validation of the XML schema of the data by the OHS, the data is subsequently stored in the database as an observation, linked to a mobile platform. The MHS controller works independently in a similar procedure to populate the fields of part of the meta data XML scheme.

The MoPAQ MMS database employs client-server architecture to access data. MoPAQ MMS' MySQL database is the repository for its data. The observations are stored in the database upon acceptance into the system. Once the data are stored, the database can be queried by the Dissemination subsystem.

4.4 Collection of new/primary data:

4.5 Use of Existing/Secondary Data

4.6 Method Development

The integration of additional air quality sensors into the MoPED infrastructure will require refinement in system maintenance and calibration standards. The primary focus for method development within this effort will be the determination of sensor drift and identification of measurement inaccuracies/sensor deterioration. The research team will begin with manufacturer specifications, but will conduct extensive drift studies, both within and outside of a laboratory environment. WVU CAFEE has a rich history of emissions measurement experience and the associated requirements of field calibration and maintenance. During the demonstration phase, it is anticipated that data provided from multiple sensors will be compared to one another in order to identify sensor drift or deterioration. The research team will implement a two-tier approach in order to identify/characterize/quantify outliers. First, if data are invalid due to deviation from the specified test procedure and cannot be corrected using a redundant measurement, then it will be marked as invalid and the data will be removed from the dataset. The dataset will be annotated for the known physical reason(s) for excluding the data. Secondly, if there are no known physical reasons why the data should be excluded from the dataset, the statistical significance of the disputed data will be examined. The methodology described in Schiff and D' Agostino (1996) will be employed for the dataset with a 1% significance level. It is noted that the second approach is the same methodology employed in ASTM E178-02 (2002), Section 6. Identification of a statistically significant outlier will result in the MoPAQ unit being recalled in order to perform inspection and maintenance procedures.

4.7 Development or Refinement of Models

The proposing team does not intend to employ or develop any modeling techniques under this submission. The data provided by the mobile air quality measurement platform will be used to enhance the existing air quality database, and will be integrated in a straightforward fashion. Specific modification of air inventory models in order to accommodate these mobile data has not been deemed to be within the scope of this proposed effort.

4.8 Development or Operation of Environmental Technology

4.8.1 Overall Purpose and Anticipated Impact of the Technology

The objectives of the study are two-fold: (1) to improve air pollution measurement technologies and (2) to address emerging air pollution issues and improve the spatial and temporal coverage of air pollution measurement data. The proposing team hypothesizes that enhancing the existing MoPED infrastructure with air quality sensors will result in temporal and spatial resolution improvement to the present air quality data base. This mobile network will provide data from a variety of locations without the need for multiple fixed monitoring stations. These data can be integrated with the current air quality measurements from fixed stations in order to enhance spatial and temporal resolution of air inventory models.

4.8.2 Technical and Quality Specifications

The current specifications for the MoPED system components are included below in Table 1.

Table 1 MoPED Weather Sensor Accuracy and Resolution

Parameter Monitored	Range	Accuracy	Resolution
Air Temperature	-40 to + 80 °C	± 0.2 °C over the range -15 °C to + 85 °C; ± 1.0 °C over the range -40 °C to -15 °C	0.0625 °C
Cabin Temperature	-40 to + 80 °C	± 0.2 °C over the range -15 °C to + 85 °C; ± 1.0 °C over the range -40 °C to -15 °C	0.0625 °C
Road Temperature	-40 to + 80 °C	± 0.5 °C over the range -15 °C to + 85 °C; ± 1.0 °C over the range -40 °C to -15 °C	0.02 °C
Barometric Temperature	300 to 1100 hPa (mBar)	± 0.5 hPa (mBar)	0.01 hPa (mBar)
Humidity	0 to 100% Rh	± 2% over the range 20 to 80%; ± 3% over the ranges 0 to 20% and 80 to 100%	0.04% Rh
Light Level	0 to 128000 Lux (human eye response matched)	± 10 Lux	10 Lux
Ozone Level	0 to 250 ppb	± 10%	1ppb
Rainfall		0 to 250	1

Although a significant portion of the proposed activities is the determination and implementation of optimal air quality sensors, a sample of survey sensors and associated accuracies and resolutions are included below.

Table 2 Sensor Information for Preliminary System Identification

Parameter Monitored	Range	Accuracy	Resolution	Response Time
CO2 NDIR	0 to 2000 ppm	± 10 ppm at 20ºC Operating Temp. Range -20ºC to +50ºC Humidity Range 0 to 95% RH (non-condensing)	2.5 ppm	< 40s (T_{90}) at 20ºC
CO (Electrochemical)	0 to 500 ppm	± 3.1 ppm at 20ºC Operating Temp. Range -20ºC to +50ºC Humidity Range 15 to 90% RH (non-condensing)	1 ppm	< 30 sec (T_{90})
CO (WO3 Semiconductor)	0 to 25 ppm	± 0.2 ppm at 20ºC	0.01 ppm	< 180 sec

4.8.3 Procedures for Documenting and Controlling Design Changes

4.8.4 Procedures for Documenting the Acceptability of Processes and Components

4.8.5 Proposed System Documentation Requirements

4.9 Conducting Surveys:

The activities proposed by this research team are intended to demonstrate that air quality measurement improvements can be afforded through the enhancement of an existing mobile weather data telematic system. Considering that these proposed activities are aimed at providing "proof-of-concept" for the manner in which these data may augment current air quality measurement infrastructure, a thorough investigation of survey size and scope has not been provided. Statistical techniques for determining the weighting of the proposed mobile data within the overall air inventory qualification has not been deemed to be within the scope of this proposed effort.

5 Budget and Budget Justification

5.1 Personnel

A detailed breakdown of proposed labor and fringe costs for the program is included in Table 1 on a yearly basis. Included are the position titles, annual salary, percent effort, and fringe costs associated for each effort year, as well as a summation for total program.

Table 3 Overview of Labor and Fringe Costs

EMPLOYEE	Yearly Salary	Year 1 % Effort	Year 1 Base Salary	Year 1 Fringe Benefits	Year 2 % Effort	Year 2 Base Salary	Year 2 Fringe Benefits	Year 2 % Effort	Year 3 Base Salary	Year 3 Fringe Benefits	Program Total Fringe Benefits	Program Total and Fringe Total
FACULTY												
Professor	$188,605.86	0.96%	1,814	453	0.96%	1,814	453	0.96%	1,814	453	1,360	6,800.69
Research Assistant Professor	$72,623.52	9.62%	6,983	1,746	9.62%	6,983	1,746	9.62%	6,983	1,746	5,237	26,186.37
STAFF												
Director	$82,367.40	10.30%	8,487	2,122	10.30%	8,487	2,122	10.30%	8,487	2,122	6,365	31,826.29
Program Coordinator	$95,513.71	10.30%	9,842	2,460	10.30%	9,842	2,460	10.30%	9,842	2,460	7,381	36,905.95
STUDENT												
Graduate Research Assistant	$19,500.00	66.77%	13,020	859	66.77%	13,020	859	66.77%	13,020	859	2,578	41,637.96
Graduate Research Assistant	$19,500.00	66.77%	13,020	859	66.77%	13,020	859	66.77%	13,020	859	2,578	41,637.96
TOTAL			53,165	8,500		53,165	8,500		53,165	8,500	25,500	$ 184,995.21

5.2 Fringe Benefits

The following schedule of standardized fringe benefits rates for West Virginia University will be adhered to under the proposed program:

- Full time (Faculty and Staff) – 25%
- Part time – 7.4%
- Undergraduate Student – 1.1%
- Graduate Student (Graduate Research Assistants) – 6.6%

5.3 Travel

Travel cost estimates are included in Table 2, below, and are provided based upon previous project travel costing experience, as well as estimates obtained during the time of proposal development.

Table 4 Summary of Program Travel Estimates

			PER DIEM	AIRFARE			LODGING		
Total Days	Number of Travelers	Destination:	Total Per Diem:	Number of Travelers	Estimated Airfare	Total Airfare:	Number of Rooms:	Estimated Room	Total Lodging:
2	3	District of Columbia	$ 384.00				3	150.00	$ 900.00
3	3	California	$ 513.00	3	$450.00	$1,350.00	2	130.00	$ 780.00
3	2	California	$ 342.00	2	$450.00	$900.00	2	130.00	$ 780.00
3	2	California	$ 342.00	2	$450.00	$900.00	2	130.00	$ 780.00
2	3	District of Columbia	$ 384.00				3	150.00	$ 900.00
3	2	California	$ 342.00	2	$450.00	$900.00	2	130.00	$ 780.00
3	2	California	$ 342.00	2	$450.00	$900.00	2	130.00	$ 780.00
3	2	California	$ 342.00	2	$450.00	$900.00	2	130.00	$ 780.00
3	2	California	$ 342.00	2	$450.00	$900.00	2	130.00	$ 780.00
2	3	District of Columbia	$ 384.00				3	150.00	$ 900.00
TOTALS			$3,717.00			$6,750.00			$8,160.00

5.4 Equipment

No equipment purchases (Property > $5,000) are being proposed for this program.

5.5 Supplies

Supplies purchase estimates included herein are resultant of personal contact with vendors and prior purchase experience. These purchases are for laboratory and office supplies that are required to efficiently and successfully meet proposed goals.

5.6 Contractual

Global Science and Technology will be contracted to implement MoPED system enhancements.

5.7 Other Direct Costs

No additional direct costs are being proposed for this program.

5.8 Indirect Costs

The U.S. Department of Health and Human Services is West Virginia University and West Virginia University Research Corporation's "cognizant agency" for negotiating facilities and administration (F&A) and Fringe Benefits rates to be charged on all sponsored agreements. The F&A rate agreement approved by DHHS is appended at the end of this document. The activities proposed herein are predominantly off-campus in nature, thus these research endeavors have an applied F&A rate of 26%. It is noted that F&A Rates are only applied to the first $25,000 of any subcontract award.

Table 5 Summary of WVU Facilities & Administration Rates

Type of Sponsored Activity	Research Location	F&A Rates
Research	On-Campus	47%
	Off-Campus	26%
Instruction	On-Campus	55%
	Off-Campus	26%
Other Sponsored Activity (OSA)	On-Campus	32.50%
	Off-Campus	26%

Table 6 Summary of Program Direct and Indirect Costs

	Year 1	Year 2	Year 3	Program Totals
Total Direct Charges	$280,305.44	$77,904.44	$ 74,420.44	$ 432,630.33
Total Indirect Charges	$ 27,379.42	$20,255.16	$ 19,349.32	$ 66,983.89
Yearly Totals	$ 307,684.86	$ 98,159.60	$ 93,769.76	
		PROGRAM TOTAL		$ 499,614.22

6 Resumes

Daniel K. Carder

Interim Director
Center for Alternative Fuels, Engines and Emissions
Mechanical and Aerospace Engineering
West Virginia University

AREAS OF INTEREST

Alternative Fuels and Energy Sources, Internal Combustion Engines and Emissions, Engine Control.

I. EDUCATION

1999 M.S. Mechanical Engineering. West Virginia University, Morgantown, WV.
1992 B.S. Mechanical Engineering. West Virginia University, Morgantown, WV.

II. EMPLOYMENT HISTORY

Present	Interim Director, Center for Alternative Fuels, Engines and Emissions, West Virginia University, Morgantown, WV 26506.
1999-2010	Program Coordinator, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.
1998-1999	Engineering Scientist, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.
1992-1993	Supplemental Employee, Ford Motor Company Scientific Research Laboratory

III. SELECTED PUBLICATIONS

"Atmospheric Emissions from a Passenger Ferry with Selective Catalytic Reduction," Nuszkowski, J., Clark, N., Spencer, T., Carder, D., Gautam, M., Balon, T., and Maynihan, P., Journal of Air & Waste Management Association. Vol. 59, pp. 18-30, January 2009.

"A Work-Based Window Method for Calculating In-Use Brake-Specific NOx Emissions of Heavy-Duty Diesel Engines," Benjamin C. Shade, Daniel K. Carder, Gregory J. Thompson, and Mridul Gautam, Journal of Engines, Vol. 117, 778-793, 2008.

"Summary of In-use NOx Emissions from Heavy-Duty Diesel Engines," Gregory J. Thompson, Daniel K. Carder, Nigel N. Clark, and Mridul Gautam, *Journal of Commercial Vehicles*, Vol. 117, To Be Published Apr. 2008.

"Cost of Lower NOx Emissions: Increased CO_2 Emissions from Heavy-Duty Diesel Engines," Mohan Krishnamurthy, Daniel K. Carder, Gregory J. Thompson, and Mridul Gautam, *Journal of Atmospheric Environment*, Vol. 41 (3), 666-675, 2007.

"Evaluation of Methods for the Determination of Diesel-generated Fine Particulate Matter: Physical Characterization Results," John S. Kinsey, William A. Mitchell, William C. Squier, Kara Linna, Foy G. King, Russell Logan, Yuanji Dong, Gregory J.

Thompson, and Nigel N. Clark, *Journal of Aerosol Science*, Vol. 37, 63-87, 2006.

"Design of a Portable Micro-Dilution Tunnel Particulate Matter Emissions Measurement System," Emily D. Pertl, Mridul Gautam, Franz A. Pertl, Daniel K. Carder, James E. Smith, 2005 SAE Transactions, Journal of Fuels and Lubricants, V.114 (4), pp. 1498-1505, SAE International, Warrendale, Pennsylvania.

"Determination of In-Use Brake-Specific Emissions from Off-Road Equipment Powered by Mechanically Controlled Diesel Engines," Daniel K. Carder, Mridul Gautam, Gregory J. Thompson, Ryan A. Barnett, SAE Technical Paper No. 2002-01-1756, 2002.

"Inference of Torque and Power from Heavy-Duty Diesel Engines for On-road Emissions Monitoring," Thompson, G. J., Clark, N. N., Gautam, M., Carder, D. K., and Lyons, D. W., SAE Technical Paper No. 2002-01-0614, 2002.

"Measurement of Brake-specific NOx Emissions using Zirconia Sensors for In-use, On-board Heavy-duty Vehicle Applications," Gautam, M., Riddle, W. C., Thompson, G. J., Carder, D. K., Clark, N. N., Lyons, D. L., SAE Technical Paper No. 2002-SFL-169.

"Measurement of In-Use, On-Board Emissions From Heavy-Duty Diesel Vehicles: Mobile Emissions Measurement System," Gautam, M., Thompson, G. J., Carder, D. K., Clark, N. N., Shade, B. C., Riddle, W. C., Lyons, D. W., SAE Technical Paper No. 2001-01-3643, 2001.

RESEARCH EXPERIENCE

For over 15 years, Mr. Carder has specialized in the measurement of emissions from heavy-duty diesel engines and alternative fuels research at West Virginia University. He has served in the capacity of Design Engineer, Project Manager, Co-Principal Investigator, and Principal Investigator on funded research projects totaling over $70 million dollars; most of it through the Center for Alternative Fuels, Engines and Emissions (CAFEE). Project sponsors include: US Army, US DOE, United Stated Postal Service, South Coast AQMD, multiple engine manufacturers with oversight from the US EPA, Miami Dade Transit, Oak Ridge National Laboratory, ARDEC (through Imperial Machine Tool), US DOT, DHHS, CDC, NIOSH (NIH - RO1), CARB, Coordinating Research Council, State of West Virginia, and other State and Federal agencies, as well as various industrial entities. His project responsibilities have been very diverse in nature, ranging from project proposal formulation to design and proof-of concept. Mr. Carder is currently serving as Interim Director of West Virginia University's Center for Alternative Fuels Engines and Emissions.

John P. Nuszkowski, Ph.D. Research Assistant Professor
Mechanical and Aerospace Engineering
West Virginia University

AREAS OF INTEREST

Vehicle and Internal Combustion Engine Performance and Emissions, Diesel Fuel Additives, Renewable Fuels, and Emissions Formation.

I. EDUCATION

2008 Ph.D. Mechanical Engineering, West Virginia University, Morgantown, WV.
2005 M.S. Mechanical Engineering, West Virginia University, Morgantown, WV.
2003 B.S. Mechanical Engineering, Rochester Institute of Technology, Rochester, NY.

II. EMPLOYMENT HISTORY

2008-Present Research Assistant Professor, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.
2003-2008 Graduate Research Assistant, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.
2002 Controls Engineer Internship, General Electric - Power Systems, Schenectady, NY, 12345.
2002 Mechanical Engineer Internship, General Electric - Power Systems, Schenectady, NY, 12345.
2001 Mechanical Design Engineer Internship, Laerdal Medical Corporation, Wappingers Falls, NY, 12590.
2001 CAD Applications Engineer Internship, Gleason Works, Rochester, NY, 14607.
2000 Mechanical Engineer Internship, General Electric - CRD, Niskayuna, NY 12309.

III. SELECTED PUBLICATIONS

Liew, C., Li, H., Nuszkowski, J., Liu, S., Gatts, T., Atkinson, R., and Clark, N., "An Experimental Investigation of the Combustion Process of a Heavy-Duty Diesel Engine Enriched with H2," International Journal of Hydrogen Energy, Vol. 35, No. 20, pp. 357-365, 2010.

Thompson, G. and Nuszkowski, J., "Neat Fuel Influence on Biodiesel Blend Emissions," International Journal of Engine Research, Vol. 11, No. 1, pp. 61-77, 2010.

Nuszkowski, J., Tincher, R., and Thompson, G., "Evaluation of the NOx Emissions from Heavy Duty Diesel Engines with the Addition of Cetane Improvers," Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, Vol. 223, No. 8, pp. 1049-1060, 2009.

Nuszkowski, J., Thompson, G., and Ursic, M., "The Influence of Accelerator Pedal Position Control during Transient Laboratory Testing on Heavy Duty Diesel Engines," SAE International Journal of Engines, Vol. 2, No. 1, pp. 398-404, 2009.

Nuszkowski, J., Clark, N., Spencer, T., Carder, D., Gautam, M., Balon, T., and

Moynihan, P., "Atmospheric Emissions from a Passenger Ferry with Selective Catalytic Reduction," Journal of the Air & Waste Management Association, Vol. 59, No. 1, pp. 18-30, 2009.

Nuszkowski, J., Spencer, T., Clark, N., and Balon, T., "On-board Emissions Measurement and Characterisation of Marine Diesel Engines," Journal of Marine Design and Operations Proceedings of IMarEST - Part B, No. 11, pp. 15-26, 2007.

Clark, N., McKain, D., Sindler, P., Jarrett, R., Nuszkowski, J., Gautam, M., Wayne, S., Thompson, G., and Sonny, R., "Comparative Emissions from Diesel and Biodiesel Fueled Buses from 2002 to 2008 Model Years," Warrendale, PA, SAE Technical Paper No. 2010-01-1967, 2010.

Olatunji, I., Clark, N., Sindler, P., McKain, D., Thompson, G., Gautam, M., Wayne, S., and Nuszkowski, J., "Biodiesel Blend Emissions of a 2007 Medium Heavy Duty Diesel Truck," Warrendale, PA, SAE Technical Paper No. 2010-01-1968, 2010.

Nuszkowski, J. and Thompson, G., "Application and Repeatability of Transient Heat Release Analysis for Heavy Duty Diesel Engines," Warrendale, PA, SAE Technical Paper No. 2009-01-1125, 2009.

Nuszkowski, J., Thompson, G., Tincher, R., and Clark, N., "Heat Release and Emission Characteristics of B20 Biodiesel Fuels During Steady State and Transient Operation," Warrendale, PA, SAE Technical Paper No. 2008-01-1377, 2008.

Nuszkowski, J., Bolyard, J., Thompson, G., and Carder, D., "In-Use Heavy-Duty Diesel Emissions Measurement Using An Air-to-Fuel Ratio Derived Exhaust Flow Rate," Proceedings of ICEF2007 ASME Internal Combustion Engine Division 2007 Fall Technical Conference, ASME Paper No. ICEF2007-1780, Charleston, SC, 2007.

Nuszkowski, J., Thompson, G., and Clark, N., "Experimental and Error Analysis Investigation into Dilution Factor Equations," Warrendale, PA, SAE Technical Paper No. 2007-01-0310, 2007.

Nuszkowski, J., Thompson, G., Chiaramonte, M., Hu, J., and Moles, N., "Pressure Drop and Cleaning of In-Use Ash Loaded Diesel Particulate Filters," Warrendale, PA, SAE Technical Paper No. 2006-01-3256, 2006. (Included in the book, Johnson, T.V., "Diesel Particulate Filter Technology", SAE, Toronto, CA, 2007).

IV. RELEVANT RESEARCH ACTIVITIES

- Development and evaluation of a new raw emissions laboratory for testing locomotives and marine vessels.
- Evaluation of a new chassis emissions laboratory for testing vehicles year 2007 or newer.
- Performed fundamental combustion studies of fuels and fuel additives effects on heavy-duty, on-road diesel engine emissions effects.
- Development of combustion models based on the measurement of in-cylinder pressure for diesel engines under steady state and transient operation.
- Measurement of gaseous and particulate emissions from heavy-duty on-road and off-road vehicles and equipment for atmospheric pollutant inventory modeling and prediction.

- Development and evaluation of advanced exhaust aftertreatment systems such as catalyzed particulate filters, selective catalytic reduction (SCR), and oxidation catalyst systems for diesel fueled engines.

MRIDUL GAUTAM
Associate Vice President for Research and Economic Development
and Robert C. Byrd Professor of Mechanical and Aerospace Engineering
West Virginia University
886 Chestnut Ridge Road, Morgantown, WV
304-293-5913 (Phone); (304) 293-7498 (Fax); mgautam@mail.wvu.edu

Professional Preparation:

Ph.D. Mechanical Engineering, West Virginia University, Morgantown, WV (1989)
M. Tech. Mechanical Engineering, Indian Institute of Technology, New Delhi, India (1984)
B. Tech. Mechanical Engineering, G. B. Pant Univ. of Ag. and Tech., Pantnagar, India (1982)

Appointments:

2007 - Present Interim Associate Vice-President for Research and Eco Dev, West Virginia University
1999 – Present Professor, Department of Mechanical and Aerospace Engineering, West Virginia University
2007 – Present Adjunct Professor, Department of Pediatrics, West Virginia University
1994 – 1999 Associate Professor, Department of Mechanical and Aerospace Engineering, West Virginia University
1988 – 1994 Assistant Professor, Department of Mechanical and Aerospace Engineering, West Virginia University

Administrative Responsibilities:

Work with the Vice President for Research and Economic Development. Work collaboratively with faculty, department chairs, associate deans for research and deans, focus on developing research programs with an emphasis on the broadly defined areas of science and engineering. Also, provide leadership for articulating and implementing a shared vision for research, including interdisciplinary research, and serve as a leader in addressing state and national issues of compelling interest to the research community.

Publications: Published over 400 technical reports including refereed journal articles (85), symposia/published proceedings and published abstracts of papers presented at professional meetings (over 285), invited presentations (31), and bound symposium volumes/books/book and magazine articles (11).

Grant/Contract Record: Served as PI and/or Co-PI on extramural grants or contracts from external funding agencies, including DOE, NIOSH, DoD, DOT, California ARB, Southcoast AQMD, TCEQ, engine manufacturers (Ford, Cummins, Detroit Diesel, Caterpillar, Volvo, Mack, Navistar), State of WV, and other agencies totaling more than $70M.

Five Relevant Publications:

1. Mulone, V., Cozzolini, A., Abeyratne, P., Littera, D., thiagarajan, M., Besch, M.C., Gautam, M., (2010), "Soot Modeling for Advanced Control of Diesel Engine Aftertreatment", ASME Journal of Engineering for Gas Trubine Engine and Power, *Accepted for publication.*
2. Thompson, Gregory J., Carder*, Daniel K., Clark, Nigel N., and Gautam, M. (2009), "Summary of In-use NOx Emissions from Heavy-Duty Diesel Engines", SAE Transactions Journal of Commercial Vehicles, Vol. 1, pp 162-184, April 2009.
3. Campa, G., Thiagarajan*, M., Krishnamurthy**, M., Napolitano, M. R., Gautam, M., (2008) "A Neural Network Based Sensor Validation Scheme for Heavy-Duty Diesel Engines", ASME Journal of Dynamic Systems, Measurement and Control, Vol. 130, pp. 021008-1 to 021008-10, Vol. 130.

4. Kim, Dong-Hee, Gautam, M., and Gera, D., (2002), "Parametric Studies on the Formation of Diesel Particulate Matter", Journal of Aerosol Science, Vol 33, pp. 1609-1621.
5. Kim, Dong-Hee, Gautam, M., and Gera, D., (2001) "On the Prediction of Concentration Variations in a Dispersing Heavy-duty Truck Exhaust Plume Using k-ε Turbulent Closure", Atmospheric Environment, Vol. 35, pp. 5267 – 5275.

Five Additional Publications in the area Computational Fluids and Thermal Sciences:

1. Salem, M.I., Mucino, V.H., Saunders, E., Lozano-Guzman, A., and Gautam, M., (2009), "Lateral Sloshing in Partially Filled Elliptical Tanker Truck Using a Trammel Pendulum", International Journal of Vehicle Systems, Vol. 16, No. 1/2, pp. 207-224.
2. Gera, D., Gautam, M., Gangarao, H.V.S., (1997), "Wave Growth Patterns in a Non-Linear Dispersive System with Instability and Dissipation", Int'l J. Mathematics and Mathematical Sciences, Vol. 20, No. 3, pp. 599-604.
3. Gera, D. and Gautam, M., (1995), "A Short Note on the Measurement of Gas Throughflow Velocity", Transactions of Institution of Chemical Engineers, Vol. 74, Part A, pp. 137-138 (with commentary by Prof. J.F. Davidson).
4. Kar, K., and Gautam, M., (1995), "Orientation Bias of the Isolated 10-mm Nylon Cyclone at Low Stream Velocity", American Industrial Hygiene Association Journal, Vol. 56, pp. 1090-1098 (Best Aerosol Paper – Internationally awarded)
5. Gera, D., and Gautam, M., (1995), "Bubble Rise Velocity in Two-Dimensional Fluidized Beds", Powder Technology, Vol. 84, No. 3, pp. 283-285.

Synergistic Activities:

1. Member of the Statewide Cyberinfrastructure (CI) Planning Group to help define long-term goals for the expanded use of CI in academic research, and develop a CI Strategic Plan for the state. The CI Plan will serve as an extension to *Vision 2015*, the Statewide Science and Technology Strategic Plan.
2. One of the principal authors of *Advanced Energy Initiative,* the Strategic Plan for Energy Research, Education and Development at West Virginia University in 2008.
3. Principal founding member and Co-Director of the Center for Alternative Fuels, Engines and Emissions (CAFEE) at WVU, and play a leadership role in the initiation, development, and execution of CAFEE's research programs
4. Principal founding member, and Co-Director or the Center for Advanced Research in Autonomous Technologies at WVU. Current effort involves development of novel propulsion systems, and CFD-based design and analysis of micro-aerial vehicles.
5. Awards: Licensing Agreement with SKC, Inc.-"GS Cyclone", the Gautam-Sreenath Multi-inlet respirable dust personal cyclone sampler; Outstanding Aerosol Paper Award-AIHA and ACGIH; Ralph R. Teetor Educational Award-SAE; Robert C. Byrd Professor of Mechanical and Aerospace Engineering, WVU; The Researcher of the Year, College of Engineering and Mineral Resources, WVU, 2006, 2002, 1999, 1995; Outstanding Researcher of the Year, College of Engineering and Mineral Resources, WVU, 2006, 2005, 2003, 2002, 2000, 1999, 1997, 1996, 1995, 1994, 1993, 1991; Outstanding Teacher, College of Engineering and Mineral Resources, WVU, 1998. Outstanding Young Researcher of the Year, College of Engineering, WVU, 1990.

Current Collaborators:

Alberto Ayala, Curt Peterson, Wade Huebsch, Nigel Clark, Benjamin Shade, Victor Mucino, Leon Manole

Dissertation and Theses Advisees:

Supervised 21 and graduated 17 doctoral students; Supervised 55 and graduated 51 Masters students

Thomas K. Spencer, MS ***Program Coordinator***
Center for Alternative Fuels, Engines & Emissions (CAFEE)
Mechanical and Aerospace Engineering
West Virginia University

AREAS OF INTEREST

Program Management, Systems Engineering, Instrumentation, Electric and Hybrid Electric Vehicles.

I. EDUCATION

1995 M.S. Electrical Engineering. West Virginia University, Morgantown, WV.
1993 B.S. Electrical Engineering. West Virginia University, Morgantown, WV.

II. EMPLOYMENT HISTORY

2000-Present Program Coordinator, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.

1996-2000 Engineering Scientist, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.

1994-1996 Research Associate, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.

1993-1994 Teaching Assistant, Department of Electrical and Computer Engineering, West Virginia University, Morgantown, WV 26506.

III. RELEVANT RESEARCH & PROGRAM MANAGEMENT ACTIVITIES

- Management of all CAFEE facilities, laboratories, support staff and accountants
- Serve as CAFEE's internal financial lead
- Coordinate the hiring of laboratory staff, temporary workers and student hourlys
- Assist in the writing of grant proposals and publications
- Serve as technical lead in the development of laboratory SOP documentation
- Develop and review laboratory quality control and assurance documentation
- Serve as laboratory safety lead and primary emergency contact
- Management of EERL personnel to meet project deliverables and timelines
- Gas Chromatography system and method development/testing
  -NMHC and Hydrocarbon Speciation related to California (CARB) and Texas (TCEQ) fuel certification
- Serve as technical consultant for CAFEE's 40CFR1065 laboratory development
- Design and implementation of CAFEE's 2007 Emissions mass weighing room
- Data acquisition & engine control system development and testing
- Engine dynamometer test cell operation, development and implementation of test procedures, quality assurance processes, and data quality improvement plans.

- Assisted in the development and evaluation of a new raw emissions laboratory for testing locomotives and marine vessels.
- Served as a technical consultant for the development of CAFEE's new chassis emissions laboratory for testing vehicles year 2007 or newer.
- Lead a team of students and faculty to establish WVU's initial hybrid electric vehicle program.

ARVIND THIRUVENGADAM

Department of Mechanical Aerospace Engineering
Email : arvind.thiruvengadam@mail.wvu.edu

EDUCATION:

- Currently into the PhD program in Mechanical Engineering, West Virginia University
  (Aug 2007- Present)
- Masters in Mechanical Engineering, West Virginia University
  (Aug 2004- May 2007)
- Bachelor of Engineering in Mechanical Engineering, University of Madras
  (June 2000-June2004)

RESEARCH EXPERIENCE:

Graduate Research Assistant- Center for Alternative Fuels, Engines and Emissions (CAFEE)
Dept. of Mechanical and Aerospace Engineering, WVU

Title: "Study the effect of an economical catalyst formulation on regulated, unregulated and particulate matter emissions from a CNG transit bus."
Summary: CNG fueled bus from Riverside Transit Authority; California was tested on the WVU chassis dynamometer. The study involved complete chemical speciation of exhaust with and without the catalyst to observe the effectiveness of the catalyst in reducing toxic air contaminates and regulated pollutions. Particle sizing measurements were performed using Scanning Mobility Particle Scanner (TSI SMPS- 3936) during the warm-up period of the catalyst, to observe the effect of catalyst temperature on PM number and size distribution.

Title: "Characterization of Toxicity as a Function of Volatility of Ultrafine PM Emissions from Compressed Natural Gas Vehicles"
Summary: The project involved the characterization and determination of toxicity with respect to volatility of particulate matter emissions from CNG vehicles. The project involved the chassis dynamometer testing of two 2010 compliant three-way catalyst equipped CNG transit buses. The study involved the sampling of all unregulated species and the sampling of PM as thermally denuded and non-denuded stream to further asses the toxicity impact the non-volatile portion and the complete PM emissions from these vehicles.

Title: "Study the effect of engine load and exhaust gas dilution ratio on diesel particulate morphology"
Summary: 2005 Model Daihatsu diesel engine and Isuzu C240 diesel engines, were tested on an eddy current dynamometer. Diesel particulate matter samples were obtained using Nanometer Aerosol Sampler (TSI NAS-3089). The samples were analyzed using Scanning Electron Microscope (SEM) and Atomic Force Microscopy (AFM) to establish the change in morphology and composition of the diesel particulate matter with different test conditions.

Title: "Regulated and unregulated exhaust emissions from twelve solid resource collection vehicles from the City of Los Angeles"
Summary: Project funded by the South Coast Air Quality Management District (SCAQMD, involved detailed chemical speciation of exhaust from 12 multi-fueled solid resource collection vehicles to compare the emissions from diesel, CNG and dual-fuel heavy-duty trucks. 12 trucks were tested on the chassis dynamometer part of West Virginia University heavy-duty transportable laboratory.

Title: "Particulate Matter size distribution from a DPF-SCR equipped 2010 compliant heavy-duty diesel engine operating at in-use engine load conditions"
Summary: The project involved the study particle size and number count measurements from a heavy-duty diesel engine equipped with DPF and urea based SCR system. Custom engine dynamometer test cycles with in-use engine load data were created to study the exhaust gas temperature effect on PM number emissions from advanced after-treatment systems that meet USEPA 2010 PM and NOx emissions standards.

Title: "Study the volatility of Diesel Particulate matter through Scanning Electron Microscopy and Atomic Force Microscopy analysis"

Summary: As an extension to the morphology study, work is in progress to establish a metric for volatility of diesel particulate matter through SEM analysis. The work involves the use of image processing tools to determine the change in size of volatile diesel particulate matter during SEM analysis and correlate this size change to the volatility of the diesel particles.

Assisted Projects:

"Advanced Diesel Emissions Control Systems (ADECS)"
Involved in engine dynamometer testing of ECU calibrations strategies that would help meet USEPA 2010 heavy-duty emissions limits and optimizing after-treatment strategies to meet the ECU calibrations. Project funded by SCAQMD required the conversion of 2007 MY heavy-duty diesel engine to 2010 emissions limits compliance through ECU strategies and optimized after-treatment systems. Project involved extensive gaseous emissions measurement and a detailed PM number count measurements along with morphology study.

"Effect of Dilution Methods on Diesel Particulate Matter Concentrations and Size Distributions"
Assisted with testing and data collection for a research work intended to study the effect of various dilution methods on diesel particulate matter concentrations and size distributions. The study looked into the effects of single and two stage dilutions, with hot and cold dilution air on particle size distribution.

"Certification of a 2005 Model Daihatsu Engine and Evaluation of Performance of a New Oxidation Catalyst"
Conducted the certification of a 2005 Daihatsu diesel engine for MSHA. ISO 8178 tests were conducted to study the influence of the oxidation catalyst on regulated emissions and PM size distributions and concentrations.

"Diesel Engine PM Collection on Surfactant to study the Toxic Effect of PM"
Supervised a joint project by WVU, NIOSH-Morgantown and University of Southern California (USC) aimed at collecting diesel engine PM on a surfactant solution using a particle concentrator, for toxicology studies.

CONFERENCE PUBLICATIONS AND PRESENTATIONS:

- Ardanese, R., Ardanese, M., Besch, M. C., Adams, T. R., Thiruvengadam, A., Shade, B. C., et al. (2009). PM Concentration and Size Distributions from a Heavy-duty Diesel Engine Programmed with Different Engine-out Calibrations to meet the 2010 Emission Limits. *SAE* , 2009-01-1183.
- Besch, M. (Speaker), Thiruvengadam, A., & Gautam, M. (2009). Investigation of Morphology and Volatility of Ultrafine Diesel Particulate Matter Using Atomic Force Microscopy. *13th ETH Conference on Combustion Generated Nanoparticles.* Zurich.
- Thiruvengadam, A. (Speaker),, Carder, D., Krishnamurthy, M., & Gautam, M. (2010). Comparison Of Regulated And Unregulated Exhaust Emissions From Twelve Multi-Fuel Solid Resource Collection Vehicles From The City Of Los Angeles. *20th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.
- Thiruvengadam, A. (Speaker),, Gautam, M., Besch, M., Ardanese, M., Ardanese, R., Thiagarajan, M., et al. (2009). PM Size Distributions from a DPF-SCR Equipped 2010 Compliant Heavy-Duty Diesel Engine during NTE zone operation. *18th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.
- Thiruvengadam, A. (Speaker),, Krishnamurthy, M., & Gautam, M. (2008). Reduction Of Regulated And Unregulated Emissions From Natural Gas Fueled Heavy Duty Transit Bus Equipped With An "Alternative" Oxidation Catalyst . *18th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.

Marc Cyrill Besch

Research Assistant Professor
Mechanical and Aerospace Engineering
West Virginia University

AREAS OF INTEREST

Advanced Exhaust Aftertreatment Systems for Diesel Engines, Aftertreatment Modeling, Diesel Combustion Nanoparticles Formation and Morphology, Vehicle and Internal Combustion Engine Performance and Emissions.

I. EDUCATION

2007 - Present Graduate studies (Direct Ph.D. track), Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV.

2007 B.S. Automotive Engineering, School of Engineering and Information Technology Biel, Berne University of Applied Sciences, Switzerland.

II. EMPLOYMENT HISTORY

2007 - Present Graduate Research Assistant, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.

III. SELECTED PUBLICATIONS

Ardanese, M., Ardanese, R., Besch, M.C., Adams, T.R., Sathi, V., Shade, B.C., Gautam, M., Miyasato, M., and Oshinuga, A., (2009). Emissions of NO_x, NH_3 and Fuel Consumption using High and Low Engine-Out NO_x Calibrations to Meet 2010 Heavy-Duty Diesel Engine Emission Standards. SAE Technical Paper No. 2009-01-0909.

Ardanese, R., Ardanese, M., Besch, M.C., Adams, T.R., Thiruvengadam, A., Shade, B.C., Gautam, M., Miyasato, M., and Oshinuga, A., (2009). PM Concentration and Size Distributions from Heavy-Duty Diesel Engine Programmed with Different Engine-Out Calibrations to Meet the 2010 Emission Limits. SAE Technical Paper No. 2009-01-1183.

Kappanna, H., Besch, M.C., Carder, D.K., and Gautam, M., (2010). Development of an Advanced Retrofit Aftertreatment System Targeting Toxic Air Contaminants and Particulate Matter Emissions from HD-CNG Engines. ASME Technical Paper No. ICEF2010-35131. Proceedings of the ASME Internal Combustion Engine Division 2010 Fall Technical Conference, San Antonio, Texas, September 12th -15th, 2010.

Mulone, V., Cozzolini, A., Abeyratne, P., Littera, D., Thiagarajan, M., Besch, M.C., and Gautam, M., (2010). Soot Modeling for Advanced Control of Diesel Engine Aftertreatment. ASME Technical Paper No. ICEF2010-35160. Proceedings of the ASME Internal Combustion Engine Division 2010 Fall Technical Conference, San Antonio, Texas, September 12th -15th, 2010.

Liew, C., Li, H., Liu, S., Besch, M.C., Ralston, B., and Clark N., (2010). Exhaust Emissions of a H_2-Enriched Heavy-Duty Diesel Engine Equipped with Cooled EGR and Variable Geometry Turbocharger. ASME Technical Paper No. ICEF2010-35179. Proceedings of the ASME Internal Combustion Engine Division 2010 Fall Technical Conference, San Antonio, Texas, September 12th -15th, 2010.

Ardanese, R., Ardanese, M., Besch, M.C., Adams, T., Thiruvengadam, A., Shade, B.C., Gautam, M., Miyasato, M., and Oshinuga, A., (2009). Development of an Open Loop Fuzzy Logic Urea Dosage Controller for use with an SCR equipped HDD Engine. ASME Technical Paper No. ICEF2009-14105. Proceedings of the ASME Internal Combustion Engine Division 2009 Fall Technical Conference, Lucerne, Switzerland, September 20th -24th, 2009.

Conference Presentations:

Besch, M.C., Kappanna, H., Shade, B.C., Tikkanen, J., and Gautam, M., (2010). In-Line, Real-Time Exhaust PM Emissions Sensor for Use in Emission Control and OBD Application. 14th ETH Conference on Combustion Generated Nanoparticles, Zurich, Switzerland, August 1st -4th, 2010.

Gautam, M., Besch, M.C., Carder, D.K., Thiruvengadam, A., Shade, B.C., and Tikkanen, J., (2010). In-Line, Real-Time Exhaust PM Emissions Sensor - OBD and DPF Control System Applications. 20th CRC On-Road Vehicle Emissions Workshop, San Diego, CA, March 22nd -24th, 2010.

Besch, M.C., Adams, T., Ardanese, R., Ardanese, M., Thiruvengadam, A., Shade, B.C., Gautam, M., Miyasato, M., and Oshinuga, A., (2010). Urea Dosage Strategies for SCR-Equipped On-Highway and Non-Road HDD Engines. 20th CRC On-Road Vehicle Emissions Workshop, San Diego, CA, March 22nd - 24th, 2010.

Besch, M.C., Thiruvengadam, A., Gautam, M., and Ayala, A., (2009). Investigation of Morphology and Volatility of Ultrafine Diesel Particulate Matter using Atomic Force Microscopy. 13th ETH Conference on Combustion Generated Nanoparticles, Zurich, Switzerland, June 22nd -24th, 2009.

Gautam, M., Thiruvengadam, A., Ardanese, R., Ardanese, M., Besch, M.C., Miyasato, M., and Oshinuga, A., (2009). PM Size Distributions from a DPF-SCR Equipped 2010-Compliant Heavy-Duty Diesel Engine During NTE Zone Operation. 19th CRC On-Road Vehicle Emissions Workshop, San Diego, CA, March 23rd -25th, 2009.

Besch, M.C., Ardanese, M., Ardanese, R., Thiruvengadam, A., Shade, B.C., Gautam, M., Miyasato, M., and Oshinuga, A., (2009). Optimization of a DPF-SCR System for In-Use Low Exhaust Temperature and NTE Zone Operation of a Heavy-Duty Diesel Engine. 19th CRC On-Road Vehicle Emissions Workshop, San Diego, CA, March 23rd -25th, 2009.

Gautam, M., Besch, M.C., Ardanese, M., Ardanese, R., Adams, T.R., Thiruvengadam, A., (2008). Effect of Engine-Out NO_x Control Strategies on PM Size Distribution in 2010-Compliant HDDE. 12th ETH Conference on Combustion Generated Nanoparticles, Zurich, Switzerland, June 23rd -25th, 2008.

IV. SELECTED PROJECTS

"In-Use Emissions Testing and Demonstration of Retrofit Technology for Control of On-Road Heavy-Duty Engines," South Coast AQMD, Spring 2011 (dates not set), Diamond Bar, CA.

"Performance of an SCRT System on a Class-8 Tractor," South Coast AQMD, Sep. 1, 2010 - Oct. 30, 2010, Diamond Bar, CA.

"Characterization of Toxicity as a function of Volatility of Ultrafine PM Emissions from Compressed Natural Gas Vehicles," California ARB, Jan. 1, 2010 - May 1, 2010, Sacramento, CA.

"Nanoscale Catalysts for Ground Vehicle Fuel Economy Enhancement," ManTech International Corporation, Nov. 1, 2008 - Nov. 1, 2009.

"Demonstration of Advanced Diesel Emission Control System (ADECS) in Low-Sulfur Diesel-Fueled Heavy-Duty Engines," South Coast AQMD, Sep. 1, 2006 - Aug. 1, 2008, Diamond Bar, CA.

V. RELEVANT RESEARCH ACTIVITIES

Participation in emission measurement, performance and research work at the Engine & Emissions Research Laboratory (EERL) including, but not limited to following studies:

- Development and evaluation of an advanced diesel emissions control system (ADECS) for ultra low-sulfur diesel fueled heavy duty engines including design of experiment (DOE) techniques and statistical methods to optimize engine calibration as well as aftertreatment component integration targeting US 2010 HDD emission standards.
- Performance measurement of catalyzed as well as non-catalyzed diesel particulate filters.

- Performance and emissions characterization from HDD engines fueled with fuel-born catalyst additives.
- Characterization of regulated and unregulated emissions form 2010 compliant HD-CNG equipped transit busses mounted on a chassis dynamometer.
- Performance and emissions characterization from a H_2-Enriched Heavy-Duty Diesel Engine
- Effects of different gas (CNG with varying H_2 content) fuels on the engine operation with increased compression ratio on a two-cylinder gasoline research engine.

7 Current and Pending Support

8 Guidelines, Limitations, and Additional Requirements

8.1 Letters of Intent/Letters of Support

The South Coast Air Quality Management District (SCAQMD) has provided a letter of intent, and this is included on the following page. SCAQMD has agreed to provide data sharing from their mobile air quality measurement systems (MMS), as well as the State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitoring Stations (SPMS) that they operated for air quality measurements within their region.

8.2 Funding Opportunity Number

The proposing team is applying for the regular award Funding Opportunity Number (FON), **EPA-G2011-STAR-B1.**

8.3 Confidentiality

By submitting an application in response to this solicitation, the proposing team has agreed to grant the EPA permission to make limited disclosures of the application to technical reviewers both within and outside the Agency for the express purpose of assisting the Agency with evaluating the application. No claim of confidentiality for any portion of this proposal package has been made.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

February 18, 2011

Mr. Daniel Carder, Director
Center for Alternative Fuels, Engines and Emissions
Department of Mechanical and Aerospace Engineering
West Virginia University
Morgantown, WV 26506

Dear Mr. Carder:

The South Coast Air Quality Management District (AQMD), as part of its mission to monitor and control air pollution and to protect the health of the residents for all of the South Coast Basin, is pleased to support West Virginia University (WVU) in their application for the EPA Funding Opportunity "Developing the Next Generation Air Quality Measurement Technology." The main thrust of this project, entitled "Mobile Platform Air Quality Measurement and Monitoring System (MoPAQ)," is the evaluation of a newly developed mobile air quality measurement system, based upon an existing miniaturized sensor network (MoPED) built for the collection of highly resolved meteorological data. These sensors will be mounted in cars and busses operating in Southern California for the purpose of creating a large network of real time data that can be used to enhance ambient air quality spatial and temporal resolution.

Since the MoPAQ's in-field performance has not been fully tested, one of the main objectives of the proposed study is to assure that the data collected by these portable devices is reliable and accurate. Therefore, AQMD would like to support this proposal by offering WVU access to AQMD monitoring network sites such that the MoPAQ can be operated at locations where the same air quality variables are measured using well established monitoring techniques. This type of comparison is important for a complete evaluation of overall MoPAQ performance.

This proposal provides a valuable opportunity for the development and demonstration of novel measurement technology that will improve the spatial and temporal coverage of air quality data that could be useful for air quality analysis by regulatory agencies.

Sincerely,

Philip Fine, Ph.D.
Atmospheric Measurements Manger
Science and Technology Advancement

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

February 18, 2011

Mr. Daniel Carder, Director
Center for Alternative Fuels, Engines and Emissions
Department of Mechanical and Aerospace Engineering
West Virginia University
Morgantown, WV 26506

Dear Mr. Carder:

The South Coast Air Quality Management District (AQMD), as part of its mission to monitor and control air pollution and to protect the health of the residents for all of the South Coast Basin, is pleased to support West Virginia University (WVU) in their application for the EPA Funding Opportunity "Developing the Next Generation Air Quality Measurement Technology." The main thrust of this project, entitled "Mobile Platform Air Quality Measurement and Monitoring System (MoPAQ)," is the evaluation of a newly developed mobile air quality measurement system, based upon an existing miniaturized sensor network (MoPED) built for the collection of highly resolved meteorological data. These sensors will be mounted in cars and busses operating in Southern California for the purpose of creating a large network of real time data that can be used to enhance ambient air quality spatial and temporal resolution.

Since the MoPAQ's in-field performance has not been fully tested, one of the main objectives of the proposed study is to assure that the data collected by these portable devices is reliable and accurate. Therefore, AQMD would like to support this proposal by offering WVU access to AQMD monitoring network sites such that the MoPAQ can be operated at locations where the same air quality variables are measured using well established monitoring techniques. This type of comparison is important for a complete evaluation of overall MoPAQ performance.

This proposal provides a valuable opportunity for the development and demonstration of novel measurement technology that will improve the spatial and temporal coverage of air quality data that could be useful for air quality analysis by regulatory agencies.

Sincerely,

Philip Fine, Ph.D.
Atmospheric Measurements Manger
Science and Technology Advancement

1 RESEARCH PLAN 4

1.1 Objectives 4

2 Approach/Activities 9

2.1 Sustainability 15

2.2 Expected Results and Outcomes 15

2.3 General Project Information 16

2.3.1 Facilities 16

2.3.2 Personnel 16

2.4 Project Schedule 18

3 Quality Assurance Statement 19

3.1 Responsible Party for Program QA/QC 19

3.2 Project Objectives as Related to QA/QC 19

3.3 Project Elements 19

3.3.1 Collection of New/Primary data: 19

3.3.2 Use of Existing/Secondary Data 20

3.3.3 Method Development 20

3.3.4 Development or Refinement of Models 20

3.3.5 Development or Operation of Environmental Technology 20

3.3.5.1 Overall Purpose and Anticipated Impact of the Technology 20

3.3.5.2 Technical and Quality Specifications 21

3.3.5.3 Procedures for Documenting and Controlling Design Changes 21

3.3.5.4 Procedures for Documenting the Acceptability of Processes and Components 21

3.3.5.5 Proposed System Documentation Requirements 21

3.3.6 Conducting Surveys: 21

4 Data Management Plan 22

4.1 Expected Data and Availability 22

4.2 Data Formats and Dissemination 22

4.3 Data Archival 23

5 Community Engagement and Communications Plan 24

5.1 Heavy-duty Fleet Engagement 24

5.2 Workshop 25

5.3 Interactive Dissemination of Data 25

5.4 Data Sharing 27

6 References 28

7 Budget and Budget Justification 30

7.1 Personnel 30

7.2 Fringe Benefits 30

7.3 Travel 30

7.4 Equipment 31

7.5 Supplies 31

7.6 Repairs and Alterations 31

7.7 Contractual 31

7.8 Other Direct Costs *31*
7.9 Indirect Costs *32*
7.10 Sub award Budget Justification *32*
8 Resumes **34**
9 Current and Pending Support **42**
9.1 Dr. Arvind Thiruvengadam *42*
9.2 John Mejia *44*
9.3 Daniel K. Carder *45*
9.4 Marc C. Besch *47*
10 Guidelines, Limitations, and Additional Requirements **48**
10.1 Letters of Intent/Letters of Support *48*
10.2 Funding Opportunity Number *48*
10.3 Confidentiality *48*

ABSTRACT

Funding Opportunity: Air Pollution Monitoring for Communities/EPA-G2014-STAR-K1
Title: Development of a Mobile Air Quality Sensor Network System - *AirCom*
Investigators: Arvind Thiruvengadam (PI), Daniel Carder (Co-PI), Marc C. Besch (Co-PI), and John Mejia (Co-PI)
Institution: West Virginia University, Morgantown, WV / Desert Research Institute, Reno, NV
Project Period: 3 years: 04/01/15– 03/31/18
Project Location: Morgantown, WV
Project Cost (Direct/Indirect): Year 1: $255,270/$40,093 Year 2: $121,893/$27,158
Year 3: $79,662/$9,678

Objective
The objectives of the study are 1) to improve the spatial and temporal coverage of air pollution measurement through a ***network of mobile low-cost sensors***, 2) to better understand the ***limitations, and factors affecting the quality*** of measurements provided by miniature air quality sensors, and 3) to develop an efficient strategy to communicate the ***importance of community partnership in measuring air pollution*** at high spatial and temporal resolution.
Approach
This study proposes to utilize heavy-duty vehicles as ***mobile platforms to house low-cost ambient air quality sensors*** designed at measuring criteria pollutants at high spatial and temporal resolution. The study actively seeks to engage heavy-duty trucking fleets and transit bus agencies to participate as mobile platform operators. The importance of this study lies in actively involving and transferring awareness of air quality challenges, measurement principles and technologies to community partners, thereby ensuring high quality data collection from the mobile sensor platforms. The proposed study will identify suitable sensor technologies capable of measuring criteria pollutants at ambient concentration levels. Controlled experiments will aid in sensor response model development to account for interference and influence of external factors, as well as sensor sensitivity and linearity validation. The study further proposes to use the available network of fixed monitoring stations in conjunction with pollutant dispersion modeling for in-situ sensor quality validation. One of the salient goals of this study is to ***create awareness of air quality within communities using interactive web based data dissemination tools*** providing quasi real-time air quality data measured through the mobile platforms.
Expected Results or Outcomes
The study will demonstrate the integration of cost-effective measurement and subsequent transfer of real-time air quality data through an existing network of ground vehicles. The criteria pollutants measured at high spatiotemporal resolution can potentially identify emissions hot spots, while information obtained from the mobile sensors will effectively bridge the spatial gap between fixed air monitoring stations. The study will identify real-world factors that include durability and meteorological conditions, which impair sensitivity and repeatability of miniature sensors. The sharing of air quality data through an interactive website is expected to improve the public's awareness of air quality challenges in non-attainment regions and the importance of community participation in such measurement activities. Moreover, the successful demonstration of this study can potentially lead to a larger acceptance of mobile sensor platforms for air monitoring, leading to greater geographical coverage for pollution monitoring.
Supplemental Keywords
Sensor network, mobile platform, communication, miniature air quality sensors.

1 RESEARCH PLAN

Measurement of criteria air pollutants and hazardous air pollutants over a larger spatial variation is vital for designing and implementing ambient air quality improvement programs and raise public awareness of how air quality affects communities. Traditionally, ambient air quality is being monitored through fixed measurement stations that are coarsely dispersed over an area of interest with data being used for defining regulatory road maps for pollution mitigation or dissemination to the public through web-interfaces such as EPA's AirNow (www.airnow.gov). However, air pollution modeling by Hystad et al. [1] using data from fixed monitoring stations revealed the scarcity of measurement locations near major roadways and intersections. Indeed, monitoring locations have been typically chosen in areas with reduced air pollution in order to reduce the impact of a single large point source onto the '*true*' average pollutant levels over a given region. This approach however is especially limited to understand and assess actual exposure of individuals to atmospheric pollutants on street and neighborhood levels [2].

Therefore, mobile platform based real-time air quality measurement and monitoring stations could be used to address certain shortcomings and approximations of data generated from stationary ambient air monitoring stations and provide pollutant concentrations at higher spatial and temporal resolution. *AirCom* is a proposed validation and demonstration project that uses a network of vehicles with an array of low-cost pollutant sensors installed onboard to collect air quality and meteorological data as they move along their destined operating routes.

The central hypothesis being tested in this proposed study is to demonstrate that *AirCom* can effectively acquire and deliver air pollution data in near real-time at a spatial and temporal resolution that improves the availability of air pollution measurement data and extends the air quality monitoring network to be capable of meeting emerging air pollution issues. Moreover, *AirCom* will allow communities to monitor criteria air pollutants at the neighborhood and street level enabling them to identify unhealthy areas and take necessary action. It further allows the public and especially sensitive groups to avoid these areas and modify their commuting behavior.

1.1 Objectives

a) The primary objective of *AirCom* is to improve the spatial and temporal coverage of ambient air pollution measurement through a network of mobile low-cost sensors. The installation of air pollutant sensing devices on a network of heavy-duty transportation vehicle fleets would provide a sensor network system capable of reporting real-time air quality information at greater spatial resolution.

EPA has formed three main monitoring station types namely National Air Monitoring Station (NAMS), State and Local Air Monitoring Station (SLAMS) and the Special Purpose Monitoring Station (SPMS). Current monitoring stations report data that is representative of a certain spatial region and hence could be biased towards the location of the monitoring station. Although most monitoring stations are aimed at spatially representing air quality information pertaining to a high population density urban area, pollutant concentrations over a higher spatial resolution is required to better address multi sources of pollutants within the confines of a single air monitoring station. The substantial inhomogeneities existent in urban air quality make it additionally daunting to interpret data measured by a coarse grid of fixed monitoring sites [3].

A monitoring network capable of reporting real-time criteria pollutant concentration at short

spatial intervals would better support the current NAMS networks. Mobile air monitoring networks have been identified as an option to support stationary sites. However, lack of infrastructure and high costs involved in developing a large mobile network has deterred monitoring agencies from deploying them extensively.

One of the growing concerns for regulatory agencies has been the exposure of a vast majority of the population to pollutant concentrations related to roadway sources. Roadway pollution monitoring has been particularly difficult due to the considerations of appropriate placement of monitoring stations to accurately capture the pollutant concentration levels at near roadways distance. Also, many of the health effects studies, related to near roadway pollution sources have focused on highway traffic. However, there is considerable lack of information related to roadways emissions in an urban scenario characterized by large traffic volumes and frequent stop-and-go operations. Space requirements of stationary monitoring stations pose a challenge in placement of adequate near-roadways pollution measurement sites to address the contribution of roadways emissions to urban air quality.

The emergence of new sensing technologies that are of small size, capable of broadcasting real-time response readings and which can be produced at low cost is currently leading to a paradigm shift in ambient air monitoring away from government dominated air quality assessment with lab-grade fixed monitoring sites to more community involvement using large quantities of '*lower quality*' data at significantly increased temporal and spatial resolution [1, 2, 3]. Miniature sensors carried by citizens can communicate in real-time with central data-processing servers and act as dispersed continuous monitors able of capturing time-varying criteria air pollutants [1]. In theory this would allow to instantaneously deliver high-resolution spatiotemporal data [1]. A large number of demonstration projects using low-cost sensors that are being either carried by individual citizen [4] or stationary placed by communities [5, 6] have been presented in the past. Hystad et al. [1] and Castell et al. [2] provide a detailed review of numerous low-cost sensor applications for ambient air monitoring. Devarakonda et al. [7] for example demonstrated a preliminary prototype of a vehicular-based mobile pollution measurement approach for measuring find-grained air quality in real-time.

The *AirCom* system proposed in this study would demonstrate the utilization of heavy-duty vehicle fleets (i.e. goods movement trucks and transit buses) as mobile platforms for low-cost ambient air quality sensors units serving as mobile air monitoring stations allowing to measure criteria pollutants at high spatial and temporal resolution. The data from *AirCom* would supplement current fixed monitoring stations, with better spatial resolution and help identify hot-spots of criteria pollutants within the confines of the representative area of a stationary air quality monitoring station. Initially the use of miniature low-cost sensors could pose quality assurance limitations, however future advancements in sensing technologies combined with the outcome of this network demonstration study would lay the foundation for a robust air quality monitoring network that would address complex spatial and temporal variations in pollutant concentration over extended regions of the country.

The versatility of *AirCom* offers the EPA with an observation network that can evolve to address specific geographies, new standards, different instruments, and air pollutants of interest. Also, the network could assist in bridging the spatial data void between the SLAMS (that monitor regions of interest to the state and local agencies) and the NAMS (that monitor urban regions with high population density). Not only does *AirCom* provide the EPA with an observation network, but also a surveillance network that can alert authorities that certain pollutants or compounds were detected at a specific location. Figure 1 depicts the data path and system layout

of the proposed *AirCom* ambient air monitoring system.
The *AirCom* could serve as tool in effectively reporting roadways pollutant concentration, especially in an urban scenario. The network of ground vehicles moving through the traffic would report real-time pollutant concentrations and meteorological data at regular spatial and temporal intervals. Meteorological data combined with air quality information along the measurement routes could enhance the scope for efficient air quality modeling and better understanding of health effects.

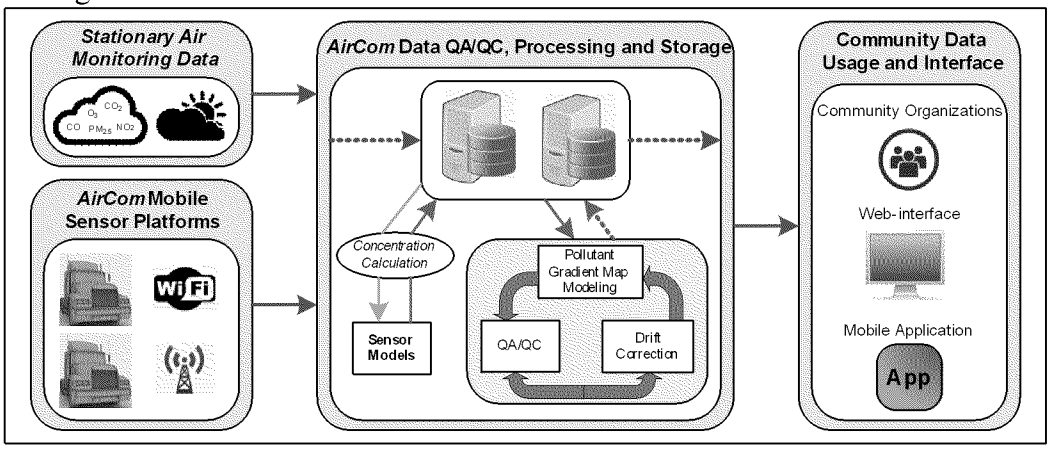


Figure 1: System layout of the *AirCom*.

Three different modeling approaches have been traditionally used to generate concentration gradient maps from individual ambient air monitoring station data [1], including i) land-use regression (LUR) models, ii) dispersion models (e.g. Community Model for Air Quality (CMAQ)), and iii) spatial interpolation methods (e.g. kriging methods). LUR is a stochastic modeling approach using multivariate regression with ambient pollutants being the dependent variables. Once the model is developed, pollutant concentrations at any location within the study domain can be predicted. The advantage of LUR methods is their cost effectiveness and ability to identify emissions hot-spots, however, are plagued by shortcomings in their ability to resolve meaningful short-duration temporal trends [1]. A study by Marshall et al. [8] comparing LUR, spatial interpolation and a community multi-scale air quality model, for assessing spatiotemporal variability, found that LUR models (i.e. neighborhood-scale) have the finest spatial resolution compared to the other two approaches (i.e. urban-scales). Ryan et al. [9] provide a review of land-use regression model studies and show that such models better characterizes air pollution exposure source and patterns by assessing multiple location sites with the model incorporating prominent variables such as road type, traffic count, elevation, and land cover. Dispersion models such as the CMAQ calculate receptor level pollutant concentrations based on Gaussian pollutant dispersion parameters combining data from ambient air concentrations, meteorological, topographical data as well as source-receptor distance and time information [1]. CMAQ is traditionally applied to urban and regional scales. The primary disadvantages of CMAQ are the demand for high-quality input data as well as the need for high-power computing. Cyrys et al. [10] compared dispersion to LUR models and results indicated similar success in explaining variability in measured concentrations of air pollutants.

b) The secondary objective of the study is to identify compact, high-sensitivity sensor technologies capable of forming the basis of future ambient air quality measurement

network. The identification of sensors would be followed by a detailed investigation of possible factors influencing air quality measurements through a mobile platform.

The implementation of the Clean Air Act required EPA to set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants (CO, NO_2, O_3, SO_2, Lead, PM_{10} and $PM_{2.5}$). These were further divided into a primary and a secondary standard, where the first is intended to protect the public health, including the health of "sensitive" populations (children, elderly, asthmatics, etc.) and the latter to protect the public welfare (damage to environment, animals, crops, buildings, etc.) [11]. Title 40, subpart 50 of the Code of Federal Regulations (CFR) describes maximum pollutant levels, measurement as well as calibration methods [12]. Conventional air quality monitoring, under these regulations, is performed using Ultraviolet Fluorescence or Pararosaniline methods for SO_2, NDIR methods for CO, Chemiluminescence methods for NO_2 and high-volume sampling methods for PM, all of them being labor and cost intensive to operate and requiring considerable amount of space; hence, are limited to stationary measurement stations [12, 13]. However, long term needs for air quality monitoring, especially for mobile applications, include compact, real time, high sensitivity sensors with low power consumption and wireless communication capabilities.

State-of-the- art micro-sensors are dominated by a variety of solid state semiconductor oxides, detecting gases based on a change in electrical resistance of a porous sensing body, and miniaturize electrochemical cells [14] that produce an electrical signal proportional to the gas concentration based on chemical reactions between the gas of interest and an electrode. Although, these types of micro-sensors can be produced on a mass basis at low costs, their application to air quality monitoring is currently limited due to lack of accuracy, sensibility as well as reliability [15]. Depending on the production method, the baseline resistance of SnO_2 based metal oxide sensors is reported to vary by up to a factor of 5 with a typical sensitivity spread between a factor of 2 to 8, depending on the target gases [16]; hence, individual calibration of each sensor would be necessary. Furthermore, current metal oxide type sensors are affected by changes in temperature, humidity and the presence of interfering gases [17] and therefore need integrated compensation algorithms. Electrochemical type sensors on the other hand are minimally affected by pressure changes, however, are quite sensitive to temperature variations [14]. Recent research has focused on Tungsten-Trioxide (WO_3) materials [15, 17], among others, since they showed particularly large resistance-increase signals in response to low concentrations of oxidizing gases such as O_3 and NO_2 and didn't exhibit SO_2 poisoning and surface hydration-dehydration effects frequently experienced with SnO_2 materials [17]. A month long comparison between reference instruments and WO_3 based semiconductor sensors reported stable measurements results for NO_2 and O_3 at atmospheric levels without recalibration [17]. There is however, only a very limited amount of actual in-field studies reporting correlations between newly developed micro gas-sensors and EPA certified reference methods in terms of sensitivity and long-term accuracy. Moreover, the majority of sensor technologies discussed, capable of measuring pollutants at atmospheric levels (ppb) as required by the NAAQS, are still in development state and not yet commercially available [15].

While the aforementioned technologies represent a major step forward, current materials advances represent a potential leap forward in sensing capabilities. Graphene (i.e., films comprised of one to several atomic carbon layers) is among those materials showing great promise in the area. Because of its high carrier mobility, low carrier densities, and low noise levels graphene provides the basis for high speed and high sensitivity gas and liquid species sensors. As an example of both the sensitivity and low noise level of graphene based sensors,

Schedin et al. [18] have demonstrated the detection of individual gas molecules adsorbed on graphene. Despite the huge opportunity provided by graphene based sensors, there are significant materials and technology barriers which must be overcome. First and foremost, large area graphene films (wafer scale) are required for the production of the sensor platform. Second, methods controlling sensor selectivity / specificity must be established. Third, in addition to the usual inorganic gas species (e.g., SO_2, NO_2, CO, CO_2, NH_3, and O_3), it is highly desirable to have sensors which can identify the hydrocarbon species which either coat or comprise environmental particulate matter. Research at West Virginia University (WVU) is presently focused on these three key areas has already demonstrated the feasibility of producing large area graphene films on 6H-SiC using halogen based plasma etching methods [19, 20]. Two methods of achieving target specificity with graphene films are being explored. In the first approach, arrays of electrically readable graphene areas on the sensor platform will each be coated with metal nano-dots (or a porous nano thin metal film). When a gas adsorbs on the metal, the carrier density (i.e., the doping level) of the graphene will be altered, and this change can be detected electrically. Because gases adsorb differently on different metals, arrays coated with different metals will provide a response indicative of the specific gas. The second approach to achieving target specificity involves functionalization of the graphene with target specific receptor molecules. When a target molecule binds to its receptor, changes in electron charge distribution of the complex will alter the doping level of the graphene. As before, this change can be detected electrically and represents the sensor response. This approach is particularly useful for organic molecules which either coat or comprise environmental particulate matter.

Additional to gaseous pollutants, the NAAQS also limits the PM_{10} and $PM_{2.5}$ mass based concentrations, averaged over a 24-hr and annual period. Current EPA reference methods include high-volume sampling with subsequent gravimetric analysis, Beta Attenuation Monitor (BAM), Tapered Element Oscillating Microbalance (TEOM™) and Nephelometer. These methods however are, similar to the gaseous reference methods, labor and cost intensive, require bulky instruments and need in case of gravimetric and BAM methods frequent change of sampling filters or tape, respectively. The TEOM method requires a stable instrument setup which, in case of mobile application, would involve an elaborate construction to dampen any vibrations caused by the moving sampling platform. Moreover, recent health studies showed evidence that PM exposure on time scales of less than a few hours can lead to adverse health effects, especially for "sensitive" groups of the population [21]. However, current ambient PM sampling methods operate on multiple hour averages; hence, are not able to account for short-term PM variations. The most promising instruments to date for real-time PM mass concentration measurements at atmospheric levels are based on light scattering technology, which continuously measures the amount of scattered light due to particles flowing through a sensing zone. These measurements can further be related to particle concentration using the well-established light scattering theory derived by Kerker et al. (1969) [21]. The primary limiting factor for optical PM mass instruments arises from the fact that they are typically not capable of measuring particles less than approximately 0.2μm in diameter and are therefore not able to account for a significant amount of particles related to primary engine combustion emissions ($\leq$ 0.1μm). Additionally, instrument specific sample preparation methods (dilution, heating) may volatilize organic PM prior to measurement; hence underestimating the amount of volatile and semi-volatile compounds that may account for a considerable amount of combustion derived PM [22]. Currently, there exist several commercially available instruments, sensitive to particles between 0.1 and 10μm and often possible to be equipped with different cut-size cyclones to

distinguish between TPM, PM_{10} and $PM_{2.5}$.

2 Approach/Activities

WVU proposes to instrument a fleet of heavy-duty vehicles, more specifically, freight moving trucks and transit buses with *AirCom* ambient air quality sensor units. These vehicles will serve as mobile air quality measurement platforms while traveling within their designated area of operation. Deploying the sensor units on commercial fleets has the advantage that i) fleet operators and vehicle maintenance personnel can be specifically trained on using the sensor units and identifying possible hardware malfunctions, thus, assuring increased quality of sensor data (i.e. acting as first data QA/QC step) and ii) vehicles are predominantly operating on predefined routes allowing for a more consistent and spatially distributed data stream as opposed to sensors installed on private cars (i.e. due to increased possibility of vehicle clustering and infrequent operation), thereby improving the resolution of air quality monitoring over a larger area.
Data from pollutant sensors along with metadata including meteorological and vehicle location information will be sent from the individual *AirCom* units via wireless or cellular communication to a central server located at West Virginia University's main campus in Morgantown, WV. Using sensor response models developed as part of this proposed research, raw *AirCom* data will be converted to actual pollutant concentrations. A combination of land-use regression (LUR) models and EPA's community multi-scale air quality model (CMAQ) in conjunction with pollutant concentration information from fixed air quality monitoring stations, located within the area of mobile platform deployment, will be applied to perform in-situ sensor quality validation, outlier identification, and sensor data drift correction. Finally, CMAQ modeling will be utilized to generate pollutant concentration maps and infer air quality index (AQI) values that will subsequently been disseminated to community organizations and the broader public through interactive web-based interface and mobile device applications in the form of spatial and temporal resolved gradient maps.
In order to ensure the accomplishment of the primary objectives of this proposed study, the research has been divided into following six main tasks.

Task 1: Sensor Identification and Evaluation.
An important part of the proposed research comprises identification, selection and characterization of commercially available low-cost gaseous and particle phase sensors suitable for measuring pollutants at levels below concentrations specified in the National Ambient Air Quality Standards [1]. From preliminary research into miniature sensor technologies, it has been found that with the exception of carbon-monoxide and carbon-dioxide and ozone sensors, measurement of other criteria pollutants through micro sensors still pose significant challenges with respect to detection limits, accuracy and variability. Major limitations of miniature sensors can be summarized [2, 23, 24, 25], but are not limited to, i) linearity of response to increasing concentrations, ii) sensor response specificity and interference, iii) effects of environmental conditions including temperature, pressure and relative humidity of ambient air, iv) suboptimal functioning with atmospheric changes, v) sensor response times, vi) repeatability and long-term drift.
During this task, miniature low-cost sensors will be identified for measuring gaseous criteria pollutants of CO, CO_2, ozone (O_3), and nitrogen dioxide (NO_2) as well as sensors to measure particle phase $PM_{2.5}$ emission concentrations. Primary selection criteria will include i)

measurement range, ii) resolution, ii) lower detection threshold, iii) accuracy, iv) repeatability and long-term drift, v) linearity, vi) sampling frequency (i.e. response time), vii) physical dimensions, and viii) power requirement. Sensor response time becomes especially important for sensor application in conjunction with a mobile platform, as the spatial resolution of the measurement will become a function of vehicle speed and sensor sampling rate [7]. Also, low response times may lead to concentration '*smearing*' effects when traveling at elevated speeds.

Task 1.1: Sensor Response, Interference, Linearity Assessment.

This subtask will comprise of extensive testing of the identified miniature gas and particle phase sensor, at WVU's Engines and Emissions Research Laboratory (EERL) against calibrated laboratory grade reference instruments, as described by EPA's reference methods, complying with detection levels and calibration methods put forth in title 40 CFR, part 50 [12] and processes to ensure data quality for use in NAAQS decisions as outlined in title 40 CFR, part 53.20, and part 58, appendix C as well as title 40 CFR, part 58, appendix A, QA handbook volume II. Sensors can be broadly classified into three sub-categories [25], namely i) sensors behaving as black boxes with and calibrated concentration output, ii) sensors provided with only a model equation for the response, and iii) sensors where no prior information are available to relate the response to a physical measure (i.e. concentration). Studies have identified relative humidity (RH) and ambient temperature to have significant impacts on the sensor response and correction algorithms are necessary to account for their influence [24, 25, 26].

This task will to assess measurement accuracy, zero and span drift and long time stability at low pollutant concentrations as well as sensor response linearity over a wide concentration range. Furthermore, standardized calibration procedures for the selected sensors will be developed. To this aim, WVU proposes to conduct controlled experiments in an ambient simulation chamber allowing for air conditions (i.e. pressure, temperature, and RH) to be varied and closely controlled as well as allow to artificially simulate the chamber atmosphere by adding possible interfering gases. Experiments will be conducted following a design of experiment (DOE) approach including temperature, pressure, RH, and relevant interfering gases as control parameters at different levels (i.e. at least three levels per parameter to asses possible curvature). Reference instrumentation will include an MKS MultiGas 2030HS FTIR and standard NDIR for CO_2, CO as well as CLD-base analyzer for NO, NO_2, measurements. Ozone concentrations will be monitored Teledyne BME400E analyzer.

The European Metrology Research Programme developed as part of their Metrology for Chemical Pollutants in Air (MACPoll) research detailed sensor evaluation procedures outlined in 24, 25. Sensor evaluation and response assessment for this proposed study will aim at taking advantage of these already established procedures.

Task 1.2: Sensor Calibration and Model Development.

During this task response models will be developed for the individual miniature sensors based on data obtained during Task 1.1. Model development will be based on physical properties of the sensor technology, interfering gases and meteorological impacts and closely follow recommendations outline in the MACPoll protocol [25].

Task 2: Design of AirCom Unit.

Task 2.1: Hardware Design of AirCom Unit.

Devarakonda et al. [7] observed that the orientation of the sensor relative to vehicle movement

significantly influences measurements. Therefore, the effect of sensor location on the measurement values needs to be studied to frame guidelines for mobile air quality measurements. The fact that the mobile platform is going to be subject the effects of the measurement sensor moving through the exhaust plume of other vehicles should be considered while placement of sensors. WVU proposes to conduct controlled experiments to evaluate the effect of sensor platform placement on vehicles in order to effectively capture ambient pollutant concentration with minimal interaction from other vehicle emissions sources.

The WVU environmental wind tunnel [27, 28], shown in Figure 2 (exterior view with entrance section open in the foreground), is of a subsonic non-recirculating design. The wind tunnel has a square cross section of dimensions 16ft x 16ft. The WVU wind tunnel has been specifically designed to study exhaust plume dispersion from vehicles and other ambient mixing problems. With that in mind, the test section length (115 feet) has been designed for achieving at least a 2 seconds residence time of the plume at a wind speed of 35 mph within the tunnel. The open circuit configuration of the wind tunnel guarantees no re-entrainment of the diluted plume exiting the tunnel. Further, the wind tunnel inlet section is equipped with honeycomb screens to limit the turbulence intensity within the test section to less than 1%.

As part of this exercise WVU proposes to introduce pollutant streams such as NO, CO and ozone upstream of the sensor network. The sensor platform will be tested at various location on the heavy-duty vehicle in order to discern the effect of vehicle aerodynamics on sensor readings. The readings of the sensor will be compared with slip-stream measurement from MKS 2030 high speed Fourier Transform Infrared (FTIR) analyzer.

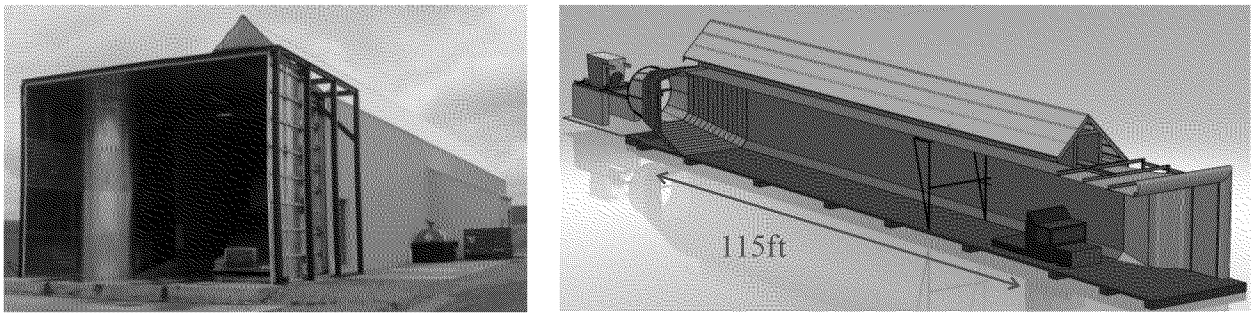


Figure 2: Large-scale environmental wind-tunnel at West Virginia University [27, 28].

Task 2.2: Data Acquisition and Software Design of AirCom Unit.

The electronics of the sensor platform will based on a low-power ARM based embedded Linux system. Of the many choices available to us in this platform, the proposed work expects to use a Beaglebone Black (AM3335x 1GHz ARM Cortex-A8) open-source hardware single-board computer to interface with the sensor data acquisition system. The open-source hardware provides the flexibility to pick and choose the various microprocessors needed for receiving sensor data, and interfacing with the telemetry and GPS chips. The CTT-865 GSM chip

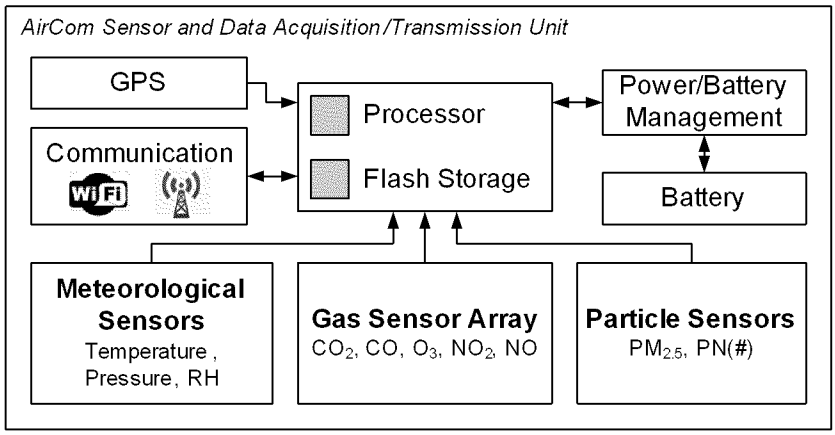


Figure 3: Schematic of *AirCom* sensor and data acquisition /transmission unit.

from cellular tracking technologies will be interfaced with the Beaglebone platform for telemetry applications. A USB Wifi chip will also be interfaced for data transfer in the absence of cellular connections. A SensorCape hardware will provide the Beaglebone platform with sensing capabilities. The SensorCape module is capable of interfacing with different sensor types such as temperature, humidity, ambient light, accelerometers and simple analog sensor outputs. The hardware layout of the AirCom unit is shown in **Error! Reference source not found.**.

Task 3: Sensor Communication Network.

WVU proposes to use Wi-Fi to access public access points, as well as cellular communication modules in order to establish robust communication between *AirCom* and data servers. Depending on availability of public networks and their accessibility the *AirCom* units will switch between Wifi-WAN and cellular network to establish a data link with the WVU server. Once the data link is established the *AirCom* unit will transfer raw digital signal to WVU server for data post processing and archiving. The unit will also house flash storage module that will buffer raw digital signals from the sensors before being uploaded onto the server, thus if the device where to loose connection it will still collect and store the data into the flash storage module until it can re-establish a connection with the server.

WVU server will download data from all sensor devices after ensuring a good data link is established, once the transfer is completed file size and time of logging will be confirmed with the sensor device to verify transmission of data was completed successfully. Once the raw sensor signal data is downloaded from the AirCom unit, WVU server will post process the data by performing necessary calculations for obtaining concentration values and associating them with GPS and meteorological data.

Task 3.1: Data archiving and Post Processing

Archiving and real-time processing of the data would prove to be a significant challenge as processing data from multiple platforms could be computing intensive. During the initial phase of the development of this project, the developed post processing and archiving software will use geographical information system (GIS) tools to monitor sensor signals pertaining to different parameters. This phase of the project will involve the development of quasi real-time post processing, and data QA/QC tools that would monitor sensor performance, process data and communicate with weather servers to append data with corresponding ambient conditions required for dispersion modeling to be performed by Dr. Mejia at DRI.

Task 3.2 Calculation of Ambient Concentrations

During the sensor qualification phase of this study, we expect to characterize interferences, sensor drift and accuracy of the miniature sensors. Upon receiving the raw data from the sensors, offline post processing of the data to account for the quality and performance checks of the sensors will be applied to correct the measured pollutant concentrations. During the initial phase, we anticipate this process to be conducted offline through our server prior to displaying the real-time sensor readings. However, the study expects to perform this task with on-board microprocessors to reduce the delay time in displaying sensor data on the interactive website.

Task 4: Deployment/Installation of AirCom Units on Mobile Platforms.

Task 4.1: Identification of Region of Interest for Mobile AirCom.

WVU proposes to choose a region with a well established network of existing fixed air quality

monitoring stations to demonstrate this project. The metropolitan statistical areas (MSA) of Los Angeles-Long Beach-Santa Ana and Riverside-San Bernardino-Ontario, with an estimated total population of 15.5 millions (based on 2000 U.S. Census), were identified as viable areas. Both MSA's fall under the jurisdictional boundary of the South Coast Air Quality Management District (AQMD) who operates a total of 41 permanent air pollutant monitoring stations (including 36 permanent stations within SC-AQMD area, 3 within the Mojave Desert AQMD area, and 2 additional near-road monitors) as well as a Mobile Monitoring Station (MMS) for temporary deployment to identify possible emissions hot spots (as of October 2014) [29]. This is making this specific area best suited for the proposed project since the number of monitoring stations well exceeds the minimum requirement as mandated by EPA. The vehicle routes would encompass urban and highway regions to demonstrate the spatial and temporal variation in pollution concentration. Figure 5 shows the 41 permanent measurement stations within the enforcement area of South-coast AQMD (i.e. dark line is district border).

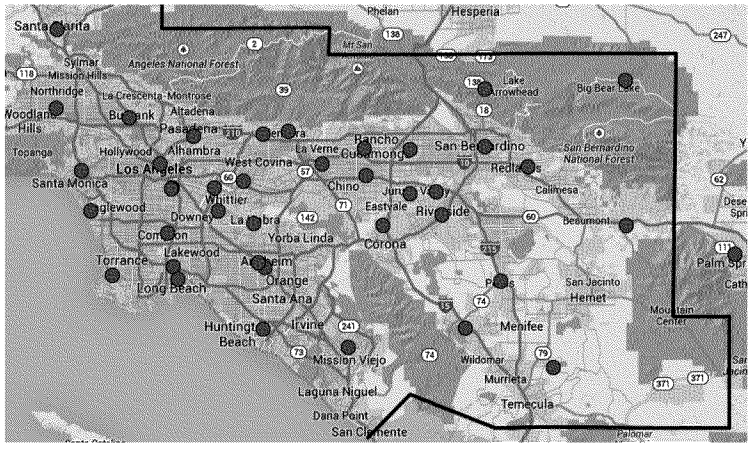


Figure 4: Permanent monitoring stations within the area of South-Coast AQMD.

Furthermore, AQMD's latest annual air quality monitoring network plan [29] identified the need for additional fixed monitoring stations within their air monitoring district in order to achieve increased resolution in ambient air quality data needed to identify pollutant sources that contribute to the current non-attainment of certain NAAQS criteria pollutants. Fixed measurement stations are associated with large costs for instrument purchase, initial setup and operation of the station, thus, making the mobile platform based air quality sensor network *AirCom* a good candidate to provide air quality data at increased spatial and temporal resolution, possibly leveraging the need for additional fixed monitoring stations.

Task 4.2: Installation/Integration of AirCom into Mobile Platforms.

Sensor installation will involve the placement of the *AirCom* sensor units on a fleet of transportation vehicles (i.e. heavy duty goods movement trucks and/or transit buses) and integration with the wireless and cellular communication system. This task will also include training of fleet operators and vehicle maintenance personnel in the handling, operation and error identification of the *AirCom* sensor units. WVU proposes to install up to 40 *AirCom* units on heavy-duty trucks of Ralphs Grocery distribution center (i.e. located in Riverside, CA) whose fleet is primarily operating within the South coast air basin and the greater Los Angeles metropolitan area for initial demonstration of the mobile platform air quality sensor network concept.

Task 4.3: Demonstration of Data Collection with AirCom from Mobile Platforms.

This task will comprise initial demonstration of the *AirCom* system, including data acquisition via the *AirCom* sensor units and communication with the central database on the data storage servers located in Morgantown, WV. Experience with data collection during this task will allow

for identification of possible hardware or software issues while the system is being in use on a daily basis and exposed to real-world influences.
With increasing availability of vehicle fleet partners, *AirCom* could be expanded to other regions of interest and possibly connect the spatial data void between various stationary ambient air quality monitoring stations.

Task 5: Data QA/QC and Validation.
This task would involve the comparison of *AirCom* observation data with AQMD operated ambient monitoring stations for data validation purposes. The AQMD operated measurement stations will serve as reference observation data to the *AirCom* data.

Task 5.1: Development of Models for Establishing Temporal/Spatial Concentration Maps.
Detailed climate simulations intertwined with pollutant transport models are vital to understand the impact of pollutants to the climate and the influence of climate on pollutant transport. One of the biggest challenges in regional climate modeling is the accurate downscaling of global climate models such as the general circulation model (GCM) to regional scales of approximately 12 km in grid size. Regional Climate Models (RCM) developed by DRI as part of a NSF-EPSCoR Climate Change infrastructure development grant (EPS-0814372; 2008-2013; Dr. Mejia-co-PI) have successfully achieved this downscaling simulation to cover the Western United States. The modeling efforts proposed in this study is aimed at updating rather old simulations based on the Intergovernmental Panel for Climate Change fourth assessment report (Pachauri and Reisinger, 2007) with the latest climate simulations based on the IPCC fifth assessment report CMIP5 simulated output (Stocker et al., 2013) [30]. Such newer downscaling products will follow standard procedures based on recommendations from Mejia et al. (under review) and use the Coordinated Regional Climate Downscaling Experiment (CORDEX).
The Community Model for Air Quality (CMAQ) is a state-of-science model developed by US EPA and designed for multiple-pollutant modeling. It implements a fully compressible Eulerian system of equations for chemical transport and modeling of pollutants. It has been widely used to study complex air quality problems for historical extreme pollution events, and employed as forecast systems to predict air pollution episodes for short term periods . CMAQ simulation for the proposed study will follow similar adaptations and analysis as used in ongoing research related to ozone modeling systems, emission control strategies for Lake Tahoe basin, and Yosemite ring fire simulations. Modeling will focus on two types of periods: 1) wintertime cold pool stagnations, with and without snow on the ground; and 2) summer and fall wildfires, both nearby and distant. Several windblown dust episodes will also be examined.
The modeling efforts performed in this task will use both data received from the mobile platforms and data shared by stationary monitoring stations to study the pollutant transport mechanism. This task is important in bridging the information between stationary monitoring data with finer spatial resolution mobile platform data. Results from this task can be used both as a quality check of the mobile sensor data as well as developing a model to link stationary monitoring stations in other regions of the country.

Task 5.2: Developing and Assessing Data QA/QC Schemes.
Air quality data collected by AQMD within the boundaries of the *AirCom* sensor network will serve as a data quality indicator of the *AirCom* observation data. Due, to the conceptual nature of this study and the proposed use of miniature sensors for ambient air quality monitoring,

anomalies in the data need to be verified with standard reference practices. AQMD operated SLAMS, SPMS and the Mobile Measurement Station (MMS), will serve as tools to compare and validate the mobile platform data. The advantages of mobile measurement trailer operated by AQMD for air quality monitoring in remote locations will be used for validating mobile platform data in specific regions of interest.

Significant temporary increase in pollution levels is a phenomenon that can be caused by passing vehicles which emit elevated mass of emissions (i.e. high emitter, legacy vehicles) [7]. However, such pollution surges are only temporary and are not representative of '*true*' average concentrations for the given area, thus, they will need to be labeled as outliers in order to not negatively affect modeling of local concentration maps. Algorithms will be developed to indentify such events within the stream of raw data and exclude them from further data processing.

Task 6: Connecting AirCom Data with Communities.

A more detailed description of the community engagement plans and data dissemination to the public, as proposed in this study, is given in chapter 5 "*Community Engagement and Communications Plan*".

2.1 Sustainability

West Virginia University's Center for Alternative Fuels and Engines and Emissions (CAFEE) is committed to sustainability as demonstrated by our research activities. The proposed research aims to efficiently monitor air pollution at greater spatial and temporal resolutions, so as to help regulatory agencies in effective air quality planning. The exposure of the human population to air pollution, varies in with geography, time of year and type of occupation. Ambient pollutant monitoring technologies currently used are not capable of discerning the human exposure to pollutants at finer spatial and temporal grid. This shortcoming of current ambient air monitoring methodology could result in under or over prediction of pollutant exposure to humans. Therefore, this proposed research will study the pathway of using miniature sensors housed on mobile vehicle platforms to capture the variations in pollutant concentration in ambient air as a function of time and location. The study focuses on identifying the limitations, advantages and protocols for effectively using low-cost sensors to achieve data quality comparable to that of state-of-the science stationary monitoring stations. The overall goals of the project supports environmental sustainability by identifying a pathway to efficiently monitor air pollution distribution.

Moreover, the study places emphasis on the active participation of communities in achieving the proposed environmental sustainability. Trainings, workshops and interactive data dissemination are the core pathways adopted in this proposed work to engage active participation of communities in air quality monitoring activity. The project emphasis lies on the fact that societal awareness of air quality problems, challenges in measurement and current technology is the most efficient pathway to mitigating air quality issues in non-attainment regions of the country.

2.2 Expected Results and Outcomes

The major outcome of this proposed research is the measurement of ambient concentrations of criteria pollutants of CO_2, CO, NO_2, ozone and $PM_{2.5}$ at fine spatial and temporal resolution. The versatile approach of using heavy-duty vehicles, in specific goods movement trucks and transit buses as mobile platforms, affords the ability to cover both rural and urban regions. The existing

measurement and communication network could be scaled to a larger region with the potential success of this study and could result in a nationwide monitoring network, which could supplement and support fixed monitoring stations. Temporal resolved pollutant concentrations could further aid in real-time traffic control, preventing the creation of pollutant hot-spots during given periods of a day, by means of actively diverting traffic around such areas (e.g. reduce number of highway lanes, close highway entrances).

The proposed study is also expected to create an extensive awareness of air quality challenges faced by many cities in the country. In specific the study will focus on the air quality in non-attainment regions such as California and its impact on the health of the population. The study expects the users of the mobile platform to be adept in the use of mobile sensors and actively participate in collecting air quality data that could potentially alleviate people's interaction with high ambient pollutant concentration. Moreover, the interactive dissemination of *AirCom* data through web-interface and mobile cellular phone application will empower a large group of the population to track AQI and take preventive steps to improve the AQI within their district. The use of mobile sensor platform data in conjunction with atmospheric pollutant dispersion modeling can potentially help bridge the spatial gap between fixed ambient monitoring stations.

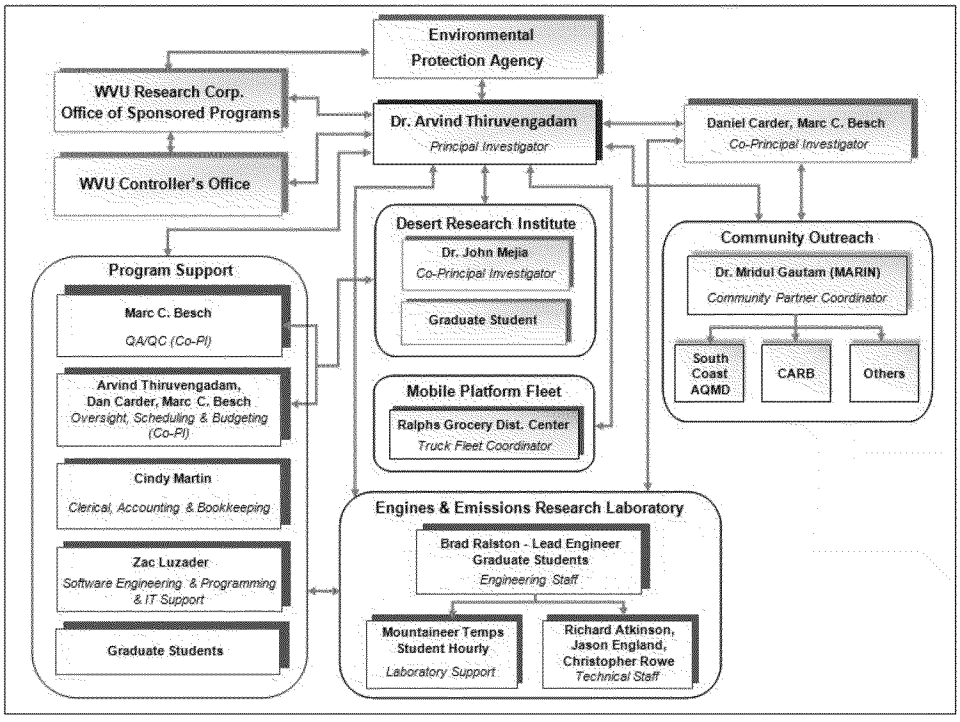
2.3 General Project Information

2.3.1 Facilities

West Virginia University's Center for Alternative Fuels and Engines and Emissions (CAFEE) is an internationally recognized research program in the area of vehicles, engines, emissions, and alternative fuels. CAFEE is a large research center involving over 50 faculty, staff, and graduate students, which have been conducting research specifically focused on fuels, engines, and exhaust emissions since 1990. Since its inception, this Center has conducted hundreds of research projects with total funding of over $80 million. The projects were or are currently sponsored by fuel suppliers (BP, ARCO, Chevron, Biodiesel Board, and others), engine manufacturers (Cummins, Caterpillar, Detroit Diesel, and others), vehicle manufacturers (Ford, GM, and others), Federal Government Agencies (DOE, DOT, EPA, DARPA, and others) and State Agencies (Calif. ARB, Arizona DEQ, NY DEQ, TCEQ, and others). These projects have addressed issues associated with the full spectrum of fuel, engine, and vehicle performance. Emissions are measured in accordance with the Code of Federal Regulations (CFR 40) requirements for engine certification, which is used primarily for fuels testing, certification, and verification procedures for the states of California and Texas. The Center has developed its own analytical measurement, control, and analysis systems in order to comply with various federal test procedures and specific test requirements. Laboratories have been designed as fully self-contained units that can be transported to remote field test sites. Throughout its history, it has been involved in targeted engineering applications in unique areas of field research.

2.3.2 Personnel

The flowchart of the Project Management Plan depicts the relationships between contractual and technical chains that will be proposed under this submittal. Throughout all phases of the study, the primary contractual and technical contact will be the Project Manager, **Dr. Arvind Thiruvengadam**. Full program oversight will also be the responsibility of the Co-Principal Investigator, thus providing necessary redundancy for management contact.



Dr. John Mejia will lead the pollutant modeling efforts of this proposed research from DRI. Dr. Mejia will coordinate the computing schedule and modeling efforts at DRI. The Co-investigators will provide technical consultation and management experience. **Mr. Marc Besch and Mr. Daniel Carder** will serve as the daily technical contacts for the program, and will interface directly with **Dr. Thiruvengadam**. They will provide on-field support for data collection and QC/QA of the data. WVU graduate students will be involved in sensor evaluation, development of sensor calibration models, design and implementation of the *AirCom* sensor units, while being assisted by scientific personnel and laboratory technicians. Instrument preparation and execution of test plan will be responsibility of the graduate students. Graduate students will directly report to **Dr. Thiruvengadam** in a daily basis. **Mr. Marc Besch** will serve as the QC/QA officer for the program. He will hold primary responsibility for project QC/QA, and reports directly to the program manager (**Dr. Thiruvengadam**). The QC/QA officer is independent of the functional groups that generate measurement data. **Mr. Richard Atkinson** and **Mr. Zac Luzader** will be available for project technical support throughout the project. Both provide necessary IT support from data acquisition and reduction, through system control and analytical systems instrumentation maintenance. **Mr. Luzader** will be the primary software engineer responsible for data acquisition software implemented to the *AirCom* sensor units, communication schemes between the mobile sensor units and central servers for data storage as well as generation of the necessary web interface for the purpose of data dissemination with the community members and organizations. Furthermore, any mobile applet development necessary for data dissemination will be programmed by **Mr. Luzader**. **Mr. Carder** will provide the necessary laboratory program management, including personnel scheduling and budget oversight. **Mr. Carder** will manage the activities of the WVU MAE Department accounting staff in order to track expenditures and apprise the principal investigators of project status. **MARIN LLC. (Dr. Mridul Gautam)** will establish and coordinate the involvement of the community partners and provide training sessions to partnering organizations. South-Coast AQMD will serve as the primary partnering organization representing the communities of the South coast air basin. **Ralphs Grocery Distribution Center** (Greg Peterson) of Riverside, CA, will provide and coordinate the operation of heavy-duty trucks from their fleet as mobile test platforms for installation of the *AirCom* sensor units.

2.4 Project Schedule

A detailed project schedule for the first, second as well as for the consecutive third year is given in Figure 5, Figure 6, and Figure 7, respectively. Bi-weekly progress meeting with all project team members and administrative assistants will be conducted to assess budget expenditure and timely progress. The project meetings will also serve as internal review meetings to assess data quality, data transfer between WVU, DRI, MARIN and the community partners, possible issues and strategies to mitigate delays.

Task Name	Duration	1st year: Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Task 1: Sensor Identification and Evaluation	4 W												
Task 1.1: Sensor Response. Interference, Linearity Assessment	4 W												
Task 1.2: Sensor Calibration and Model Development	8 W												
Milestone 1: Completion of sensor identification and evaluation. **Phase 1:** Progress Report													
Task 2: Design of AirCom Unit	4 W												
Task 2.1: Hardware Design of AirCom Unit	8 W												
Task 2.2: Data Acquisition and Software Design of AirCom Unit	16W												
Milestone 2: Completion of AirCom unit system designe and data acquisition software. **Phase 2:** Progress Report													
Task 3: Sensor Communication Network	4 W												
Milestone 3: Completions of sensor commmunication network. **Phase 3:** Progress Report													

Figure 5: Project schedule for first year.

Task Name	Duration	2nd Year: Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Task 4: Deployment/Installation of AirCom Units on Mobile Platforms	12 W												
Task 4.1: Identification of Region of Interest for Mobile AirCom.	4 W												
Task 4.2: Installation/Integration of AirCom into Mobile Platforms	12 W												
Task 4.3: Demonstration of Data Collection with AirCom from Mobile Platforms	12 W												
Milestone 4: Completion of deployment and installation of AirCom units on mobile platforms. **Phase 4:** Progress Report.													
Task 5: Data QA?QC and Validation	16 W												

Figure 6: Project schedule for second year.

Task Name	Duration	3rd Year: Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Task 5: Data QA/QC and Validation	16 W												
Task 5.1: Development of Models for Establishing Temporal/ Spatial Concentration Maps	16 W												
Task 5.2: Developing and Assessing Data QA?QC schemes	12 W												
Milestone 5: Completion of data QA/QC, validation and establishing temporal/spatial concetration maps. **Phase 5:** Progress Report													
Task 6: Connections AirCom Data with Communities	11 W												
Task 7: Final Report	1 W												
Milestone 6: Meeting project deliverable and completion of final project report. **Phase 6:** Project report													

Figure 7: Project schedule for third year.

Quality Assurance Statement

An overview of proposed program quality assurance and quality control is included in this section. Due to content length restrictions, a detailed plan is not included, but shall be forwarded to the EPA upon request of additional plan details.

2.5 Responsible Party for Program QA/QC

The West Virginia University Center for Alternative Fuels, Engine and Emissions (WVU CAFEE) is committed to implement a Quality Control/Quality Assurance (QC/QA) program to assure generation of measurement of data of the highest quality. This data quality will meet all objective requirements. The responsibility of the QC/QA rests on one of the senior investigators (the principal investigator or the Co-principal investigators) who are often designated as senior engineers on several projects. The QC/QA engineer reports directly to the Project Director/Principal Investigator who then shares the data with the Co-Principal Investigators. The primary responsibility for management and execution of the project for conducting a work assignment and associated deliverables rests with the PI. The Co-PIs bring in their expertise and form an integral part of the management and execution plan.

The QC/QA officer will work with the project engineers to ensure that the daily activities are logged, calibration gases meet the stated requirements (discussed in detail), all instruments, sensors, sampling systems, and data acquisition systems are maintained and operated in accordance with the stated plan.

2.6 Project Objectives as Related to QA/QC

The primary objective of the project is to demonstrate the real-time data collection of ambient air pollutant concentration through sensors placed on a network of transportation vehicles. Due to the complexities and uncertainties involved in this method of ambient air sampling, a strict QA/QC procedure would be adopted to validate and provide quality data to accomplish this primary task. The message from the mobile platform will be QC flagged in the event of any loss information pertaining to vehicle information, time, location and sensor data. All mobile platform observations are linked to the platform with a unique ID that is fixed. If a problem sensor is identified, the data provider is notified so that instrumentation can be replaced. Comparison of data amongst multiple mobile platforms would be carried out to assess the accuracy of the readings. In the event of deviations data will not be discarded, instead will be flagged for further offline QC checks.

The secondary objective of identifying sensors and validating them would be carried out through existing QA/QC practices adopted by WVU engines and emissions research center together with required practices from EPA. The sensors would be calibrated and verified against laboratory grade analyzers that have been certified to have an accuracy of 1% traceable to NIST. All emissions measurement instruments are calibrated using appropriate ranges of calibration gases, which in the current case would be concentrations observed at ambient levels.

2.7 Project Elements

2.7.1 Collection of New/Primary data:

Data quality objectives and acceptance criteria, characterized in terms of accuracy, precision, detection limits, completeness, and representative, will be set based upon intended uses. Since, the project involves the use of miniature and prototype sensors for sensing ambient pollutant

concentrations, the QA/QC will strive to meet the QA standards prescribed for ambient air quality monitoring and methods for calibration and sampling will be based according to the procedures prescribed in 40 CFR Part 50 for the chosen criteria pollutant in this study. A minimum performance goal of 85% successful data capture will be implemented. Achievement of this goal will require vigilance on the part of field operations personnel to detect and address variations in instrumental performance in a timely manner.

Stationary monitoring stations compliant with ambient air quality measurement standards would be used to provide an indication of the minimum and maximum bounds of the ambient pollutant concentrations over a spatial region. Data would be QA/QC flagged in the event of a large deviation in sensor observations from within these bounds. Subsequently, an offline analysis of the sensor data, involving the history of data received before and after the flagged time period would be analyzed to verify drift or sensor malfunction.

2.7.2 Use of Existing/Secondary Data

For the purposes of the efforts proposed herein, secondary data will be those data not acquired from the *AirCom* system. Therefore, those data, used for comparative and integration efforts, will be obtained primarily from AQMD's MMS and SLAMS and SPMS. As these data sources are well-documented, no additional information shall be presented herein.

2.7.3 Method Development

The integration of additional air quality sensors into the *AirCom* infrastructure will require refinement in system maintenance and calibration standards. The research team will begin with manufacturer specifications, but will conduct extensive drift studies, both within and outside of a laboratory environment. During the demonstration phase, it is anticipated that data provided from multiple sensors will be compared to one another in order to identify sensor drift or deterioration The research team will implement a two-tier approach in order to identify/characterize/quantify outliers. First, if data are invalid due to deviation from the specified test procedure and cannot be corrected using a redundant measurement, then it will be marked as invalid and the data will be removed from the dataset. Secondly, if there are no known physical reasons why the data should be excluded from the dataset, the statistical significance of the disputed data will be examined. The methodology described in Schiff and D' Agostino (1996) will be employed for the dataset with a 1% significance level. It is noted that the second approach is the same methodology employed in ASTM E178-02 (2002), Section 6. Identification of a statistically significant outlier will result in the *AirCom* unit being recalled in order to perform inspection and maintenance procedures.

2.7.4 Development or Refinement of Models

The data provided by the mobile air quality measurement platform will be used to enhance the existing air quality database. Specific modification of air inventory models in order to accommodate these mobile data has not been deemed to be within the scope of this proposed effort.

2.7.5 Development or Operation of Environmental Technology

2.7.5.1 Overall Purpose and Anticipated Impact of the Technology

The objectives of the study are two-fold: (1) to improve air pollution measurement technologies and (2) to address emerging air pollution issues and improve the spatial and temporal coverage

of air pollution measurement data. The proposed mobile network will provide data from a variety of locations without the need for multiple fixed monitoring stations. These data can be integrated with the current air quality measurements from fixed stations in order to enhance spatial and temporal resolution of air inventory models.

2.7.5.2Technical and Quality Specifications

The current specifications for the *AirCom* system components are included below in Table 1.

Table 1: *AirCom* Weather Sensor Accuracy and Resolution.

Parameter Monitored	Range	Accuracy	Resolution
Air Temperature	-40 to + 80 °C	± 0.2 °C over the range -15 °C to + 85 °C; ± 1.0 °C over the range -40 °C to -15 °C	0.0625 °C
Barometric Pressure	300 to 1100 hPa (mBar)	± 0.5 hPa (mBar)	0.01 hPa (mBar)
Humidity	0 to 100% Rh	± 2% over the range 20 to 80%; ± 3% over the ranges 0 to 20% and 80 to 100%	0.04% Rh
Light Level	0 to 128000 Lux (human	± 10 Lux	10 Lux
Ozone Level	0 to 250 ppb	± 10%	1ppb

Although a significant portion of the program involves the determination and implementation of optimal air quality sensors, preliminary sensor accuracies and resolutions are included (Table 2).

Table 2: Sensor Information for Preliminary System Identification.

Parameter Monitored	Range	Accuracy	Resolution	Response Time
CO2 NDIR	0 to 2000 ppm	± 10 ppm at 20ºC Operating Temp. Range -20ºC to +50ºC Humidity Range 0 to 95% RH (non-condensing)	2.5 ppm	< 40s (T_{90}) at 20ºC
CO (Electrochemical)	0 to 500 ppm	± 3.1 ppm at 20ºC Operating Temp. Range -20ºC to +50ºC Humidity Range 15 to 90% RH (non-condensing)	1 ppm	< 30 sec (T_{90})
CO (WO3 Semiconductor)	0 to 25 ppm	± 0.2 ppm at 20ºC	0.01 ppm	< 180 sec

2.7.5.3Procedures for Documenting and Controlling Design Changes

Any proposed design changes will be at the discretion of the *AirCom* system management team.

2.7.5.4Procedures for Documenting the Acceptability of Processes and Components

Identification/implementation of candidate air quality sensors will involve benchmarking to quantify drift and accuracy, using NIST-traceable calibration gases and NIST-traceable gas dividers. Benchmarking will be performed in laboratory and in-field environments.

2.7.5.5Proposed System Documentation Requirements

A document outlining the operating guidelines for mobile air quality prototypes, as determined from the proposed activities, will be authored at program conclusion.

2.7.6 Conducting Surveys:

The activities proposed by this research team are intended to demonstrate that air quality measurement improvements can be afforded through the enhancement of an existing mobile weather data telematic system. Considering that the objective is a "proof-of-concept" for the manner in which these data may augment current air quality measurement infrastructure, a

thorough investigation of survey size and scope has not been provided, nor will statistical techniques for determining the weighting of the proposed mobile data be provided.

Data Management Plan

The proposed effort includes a process through which data generated by *AirCom* miniature sensors units mounted onto mobile platforms will be acquired, transferred and stored in a database. The database will contain all raw sensor measurement signals and will be used to further qualify the sensor data for its accuracy and precision using data queried from fixed ambient air monitoring stations within the region where the *AirCom* network is being applied (i.e. South-coast air basin, CA). Also, the database will be instrumental in providing the data required to develop models to represent spatial and temporal concentrations of the measured pollutants and their interaction with ambient atmosphere. WVU has developed in-house software based on the Python™ programming language for the acquisition of data from various instruments and sensors through a central data acquisition system. Continuous data streams from individual instruments and/or sensors is stored along with meta data pertaining to i) the instrument/sensor, ii) the method of measurement, and iii) any necessary calibration information and/or coefficients for the given instrument/sensor. All acquired data is automatically stored on multiple network storage systems (i.e. at the minimum on two independent storage systems) for backup purposes.

The PI will engage with the WVU Office of Information Technology (OIT) to develop the appropriate protocols to insure that data is not only archived but also positioned for dissemination as noted below.

2.8 Expected Data and Availability

The data generated by this grant include:

1) Primary sensor data from *AirCom* mobile sensor units including i) concentrations of pollutant sensors (i.e. CO_2, CO, NO_2, O_3, $PM_{2.5}$, PN), ii) meteorological data (i.e. pressure, temperature, relative humidity), and iii) position of *AirCom* mobile unit (i.e. GPS).
2) Processed sensor data after correction, quality assurance and necessary drift correction which is data indicative of '*true*' pollutant concentrations as a function of time and location.
3) Quasi real-time pollutant concentration gradient maps from the CMAQ models for the area of project demonstration.

Data generated from this study will be made available upon request, following an appropriate Quality Control/Quality Assurance (QC/QA) review period. Per EPA's directives, data could be publically released only after publications are generated and accepted by the relevant journals, thesis/dissertation work is published and/or preliminary patents are filed to insure protection of the intellectual property.

2.9 Data Formats and Dissemination

The team recognizes the benefits of freely sharing this data with the scientific community and of archiving in a format that provides maximum interoperability between our collaboration efforts, support modeling studies initiated by interdisciplinary groups, as well as providing support to the users' community to ease their interpretation and analysis of the simulated data. All of the WVU experimental observations will be disseminated though a project website after appropriate quality checks. All of the simulated data based on CMAQ modeling will be distributed under open-source, but governed by the Nevada System of Higher Education and the National Science Foundation policies pertaining to intellectual property, record retention, and data management.

Quasi real-time emissions concentration maps will be made available to the communities and broader public via an interactive web interface and mobile device application allowing to openly query ambient pollutant information broadcasted by the *AirCom* ambient air sensor units.
Raw data will be packaged with necessary executable software or interface utilities that are necessary to utilize commercial software, such as, but not limited to, Microsoft® Excel or MathWorks Matlab®. NetCDF is a very widely used file format that has been specifically designed for storing scientific data, including model output. It is a flexible, self-describing format that bundles data together with any relevant metadata. It can be used to store virtually any kind of data including spatial grids, time-indexed grid stacks, time series, time-indexed profiles (e.g. soil moisture vs. depth) and time-indexed "cube series" and using the so-called Climate and Forecast (CF) convention conformant.
Data will be disseminated though peer reviewed journals and conference presentations.

2.10 Data Archival

All data (paper and digital) and supporting materials will be stored in a way that allows them to repudiate challenges to the work or address requests from other researchers. The minimum period for data retention is three years after the conclusion of the award, or three years after public release, whichever is later. Data related to a student's research work will be retained for at least three years after the degree is awarded. Published data will be available in print or electronically from publishers and stored in the computers of the participants in this project. Given the ever-decreasing costs of digital storage, data may be retained almost indefinitely. Archived data will be available on password protected servers with additional backup maintained off-line.

3 Community Engagement and Communications Plan

The global objective of this proposed research is to communicate to the public quasi real-time air quality information measured using a network of mobile air monitoring sensors. The ultimate expected outcome of this proposed research is to empower the public with real-time air quality information to create awareness and a proactive approach to avoid exposure and mitigate emissions of criteria pollutants. The success of this research proposal is to large extent dependent on the interaction of individuals with the *AirCom* mobile sensor platform. The quality of information relayed by the *AirCom* platform and the proper functioning of the platform is entirely dependent on the level of ownership and responsibility undertaken by the individual operating the mobile platform. This research proposes to use a heavy-duty vehicle fleet such as trucks and transit buses as a mobile platform to install *AirCom*, in order to communicate concentration of criteria pollutants at greater spatial and temporal variations. Although, *AirCom* is designed to operate as a standalone unit with minimal operator interaction, high quality data with greater geographical coverage can be assured with periodic monitoring and maintenance of equipment. The overall success of this research work hinges on both, the engagement of the community, and efficient dissemination of measured air quality as a simple metric to large group of people. One of the important objectives of this study is to provide communities the platform to better understand air pollution as it changes with time and place. This spatiotemporal variation in Air Quality Index (AQI) is illustrated in www.airnow.gov. However, pollutant concentration levels pertaining to various geographical locations are provided to AirNow from stationary monitoring stations. Data from these large spatially isolated monitoring stations are modeled using dispersion models to predict air quality information at various locations. Therefore, this study expects to showcase the air quality data measured by *AirCom* platform at a finer spatial resolution to help identify pollutant hot spots.

WVU proposes to achieve the task of both engaging communities and communicating the air quality information through the following programs:

3.1 Heavy-duty Fleet Engagement

WVU CAFEE has a rich experience of working with South Coast Air Quality Management District (SCAQMD) and California Air Resources Board (CARB) for over a decade through various research contracts. The proposed research expects to engage both SCAQMD and ARB as community partners that can engage heavy-duty truck fleet owners and transit bus agencies to incorporate the *AirCom* sensors in their vehicles. SCAQMD manages multiple programs that provide incentives to heavy-duty fleets to purchase cleaner heavy-duty vehicles. WVU expects to leverage fleet information through SCAQMD partnership to engage heavy-duty fleets to participate as a mobile platform for the *AirCom* sensor network system. Ralphs Distribution Center, Riverside, California is one such organization that has expressed interest in participating this proposed research by providing up to 20 vehicles to be installed with *AirCom* sensor platform. These 20 vehicles were purchased through incentives from SCAQMD and hence are required to operate a minimum of 80% of their total distance within the South Coast region of California. As a result we expect to cover large geographical section of a non-attainment region through the partnership with Ralphs and SCAQMD. WVU has an extensive working experience with transit bus agencies in both Orange County and Sacramento, CA. Through this proposed research WVU will engage SAC Transit Agency to be a participant in providing mobile

platforms for the *AirCom* sensors. Through this partnership the study expects to provide air quality measurements in urban locations such as downtown and residential communities served by SAC transit in City of Sacramento.

The partnership with multiple fleets is imperative for obtaining highly spatiotemporal resolved air quality information. However, the partnership of fleets should extend beyond simply providing a mobile platform and involve a certain level of responsibility from the vehicle operators to ensure proper functioning of the *AirCom* device. Mid Atlantic Research Institute, Nevada (MARIN) will work as community coordinator to provide training sessions to vehicle fleets. These trading sessions will illustrate the current air quality challenges in non-attainment region such as Southern California, the short comings of current stationary air quality monitoring stations and basic principles of various sensing technologies for criteria air pollutants.

The outcomes of these training sessions are improved awareness from fleet partners on the necessity of a mobile platform for air quality monitoring and basic trouble shooting methods to ensure proper functioning of the mobile sensor platform. Publicizing the participation of fleets in this study is an added incentive to large fleets to showcase their participation in clean air activities. The study proposes to distribute vehicle decals showing the fleet participation in EPA funded air monitoring activity during these training sessions.

3.2 Workshop

WVU proposes to conduct a bi-annual, one day workshop in California during the second and third year of the project period to share project status and preliminary sensor data with local regulatory boards and fleet partners. The workshop will involve presentation from project PI on the current status of the project and quality of information collected. These workshops will also serve a medium to communicate with the feet partners the level of participation from their mobile platform operators. These workshops will help WVU convey to the mobile platform operators of any changes to the *AirCom* hardware and develop any additional training sessions if needed. One of the important tasks that will be carried out in this study, is to validate mobile sensor data with data collected from stationary air monitoring stations through a combination of CMAQ and atmospheric models headed by Dr. Mejia from DRI. These workshops will serve a forum to disseminate the high spatial resolution pollutant dispersion model to the air quality regulatory boards. WVU expects to conduct these workshops in conjunction with SCAQMD advisory group meetings that is attended by people from cross-section of the community represented by businesses, academia, regulatory boards and local government body. Attendance of such diverse group of people will help both a critique and steering body of the proposed research. The workshop will also serve as medium to discuss pathways to integrate data from *AirCom* with existing web-based air quality index tools such as AirNow (www.airnow.gov).

3.3 Interactive Dissemination of Data

WVU proposes to develop an interactive website to share quasi real-time data obtained from the server. The website will enable the public to query data from the multiple sensor units to view the spatial movement of the sensor platform and the measured ambient pollutant concentrations from the on-board sensors. The website will be designed to request for a free open-to-all registration, in order to monitor site visitation based on internet protocol (IP) address. The web based data dissemination will be interfaced with a Geographic Information System (GIS) tool

ArcGIS in order to provide a detailed illustration of sensor data over a topographic map of the chosen location. The website will have provisions for a secure login for the fleet partners to report information regarding their *AirCom* device. This platform will provide fleet operators to report problems and ask technical questions regarding the *AirCom* device. Figure 8 gives an example of the web-based interface providing pollutant concentration and metadata for mobile *AirCom* units traveling on individual vehicles.

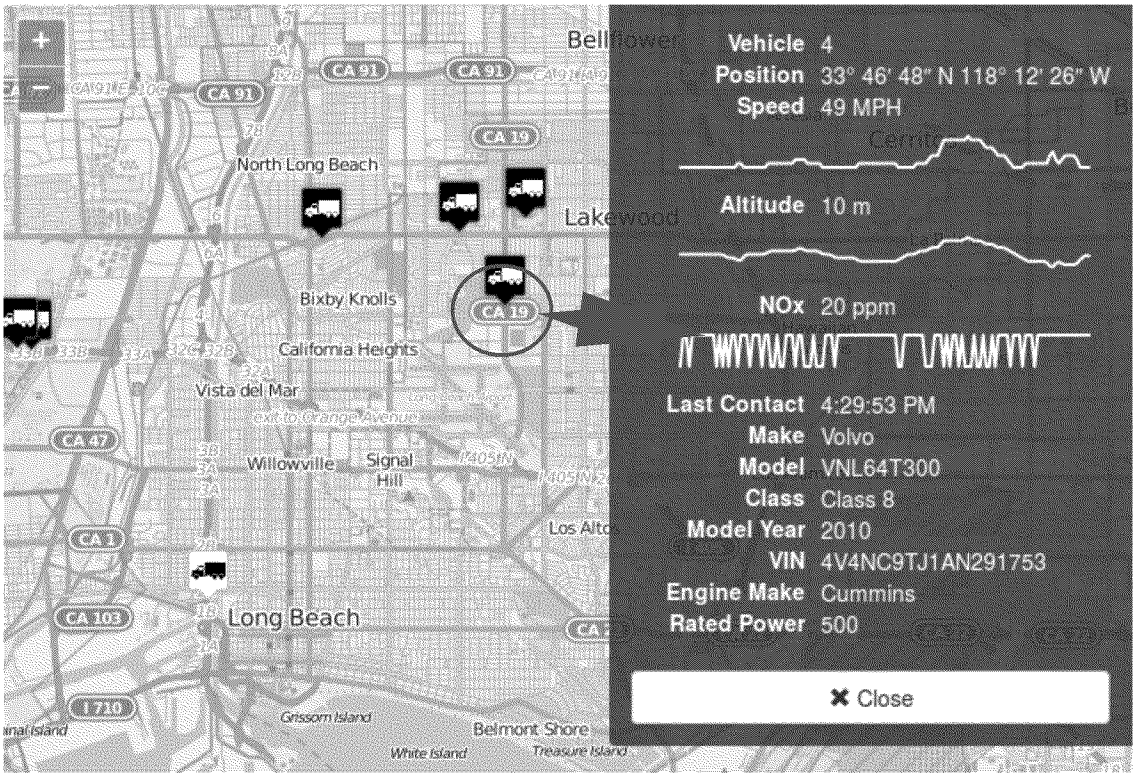


Figure 8: Example of real-time data stream from *AirCom* monitoring unit installed on mobile platform.

Much of the quasi real-time data broadcasted by the sensor platform would be of high value to academic and regulatory communities. However, in order to create awareness about current air quality status, a simpler metric such as AQI associated with a color based legend will have far reaching impact on communicating air quality information. The AQI legend [31] shown in Table 3 below will serve as the metric for communicating air quality status of the chosen location.

Through this proposed research WVU expects to provide air quality data of CO_2, ozone, NO_2, CO and $PM_{2.5}$ at greater spatial and temporal resolution to improve the air quality data presented by the US-EPA through the website www.airnow.gov.

WVU proposes to develop a mobile application that will query the WVU server for location based air quality information. The app will be programmed to alert users during periods of high AQI in their current geographical region. This app should provide users with changing AQI during adverse conditions such as rush hour traffic and forest fires.

Table 3: Color legend for AQI values provided by US-EPA [31] (www.airnow.gov)

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
When the AQI is in this range:	*..air quality conditions are:*	*...as symbolized by this color:*
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

One of the current limitations of existing air quality sensor networks are the quality and reliability of the data captured. Conducting data quality checks from multiple sensors at real-time is challenging. Hence, pollutant concentration data will be converted AQI and predetermined threshold levels will inform project investigators of high AQI data. This will prompt an immediate cross verification of the data from the corresponding sensor unit. High AQI data reported from a sensor unit in question will be compared with data from other units passing through the same location to verify the validity of the reported concentration. Also, data from stationary monitoring stations operated by SCAQMD and CARB will be compared with CMAQ modeling to account for pollutant transport and compared with mobile platform data. This procedure will ensure high quality AQI data reported through the website and avoid false "*High AQI*" alerts.

3.4 Data Sharing

The quality of data communicated by the *AirCom* sensor platform is dependent of comparison of mobile platform data with stationary monitoring stations. Although, this proposed research attempts to quantify and characterize the interferences, measurement challenges and accuracy miniature sensors through robust experimental methodology, a reference data set is imperative to conduct periodic sanity check of measured data. Therefore, data measured using stationary monitoring stations will be leveraged to compare against *AirCom* data to validate sensor performance. Conversely, the *AirCom* data measured at a finer spatial and temporal resolution will be shared with local air quality districts operating the stationary air monitoring stations. The data shared between this study and existing air monitoring stations will serve the dual purpose of validating *AirCom* data as well as populating the spatial gap between the various stationary air monitoring stations. Programs such as Congestion Mitigation and Air Quality Improvement Program (CMAQ) of the Federal Highway Administration (FHWA) can leverage the data from this study to evaluate the benefits of their CMAQ activity.

4 References

1. Hystad P, Setton E, Cervantes A, Poplawski K, Deschenes S, Brauer M, "Creating National Air Pollution Models for Population Exposure Assessment in Canada," Environ Health Perspect, Vol. 119, Issue 8, pp. 1123–9132, (2011).
2. Castell, N., Viana, M., Minguillon, M.C., Guerreiro, C., and Querol, X., "Real-world application of new sensor technologies for air quality monitoring," ETC/ACM Technical Paper 2013/16, November, (2013).
3. Jones, R., "Low cost sensor networks for measuring urban air quality," Presentation, Measuring Environmental Exposure Conference, Montreal, (2011).
4. Honicky, R., Brewer, E.A., Paulos, E., and White, R., "N-smarts: networked suite of mobile atmospheric real-time sensors," In Proceedings of the 2nd ACM SIGCOMM workshop on Networked systems for developing regions (NSDR '08), Seattle, WA, August 18th, (2008).
5. Watkins, T., "Next Generation Air Monitoring: An Overview of US EPA Activities," Presentation, EPA Region 4 Air Directors Meeting, Charleston, SC, October 30th, (2013).
6. Air Quality Egg, http://airqualityegg.com, Last accessed: 10/05/2014.
7. Devarakonda, S., Sevusu, P., Liu, H., Liu, R., Iftode, L., and Nath, Badri, "Real-time Air Quality Monitoring Through Mobile Sensing in Metropolitan Areas," Proceedings of the 2nd ACM SIGKDD International Workshop on Urban Computing (UrbComp 2013), Chicago, IL, August 11th, (2013).
8. Marshall, J.D., Nethery, E., and Brauer, M., "Within-urban variability in ambient air pollution: Comparison of estimation methods," Atmos Environ, Vol. 42, Issue 6, pp.1359–1369, (2008).
9. Ryan, P.H., and LeMaster, G.K., "A Review of Land-use Regression Models for Characterizing Intraurban Air Pollution Exposure," Inhal. Toxicol., Vol. 19, Issue 1, pp. 127-133, (2007).
10. Cyrys, J., Hochadel, M., Gehring, U., Hoek, G., Diegmann, V., and Brunekreef, B., „GIS-Based Estimation of Exposure to Particulate Matter and NO_2 in an Urban Area: Stochastic versus Dispersion Modeling," Environ Health Perspect, Vol. 113, Issue 8, pp. 987–92, (2005).
11. National Ambient Air Quality Standards (NAAQS), U.S. EPA, (Updated 06/03/2010), http://www.epa.gov/air/criteria.html.
12. CFR, Title 40, Subpart 50, Electronic CFR, (Updated 01/28/2011).
13. S., Choi, N., Kim, H., Cha and R., Ha, Micro Sensor Node for Air Pollutant Monitoring: Hardware and Software Issues, Sensors, Vol. 9, pp 7970-7987, (2009).
14. J., Chou, "Hazardous Gas Monitors - A Practical Guide to Selection, Operation and Applications," McGraw-Hill, Published October 1999.
15. M., Gerboles, Sensors for Monitoring Regulated Compounds, Royal Society of Chemistry and AirMonTech, London, 14th to 15th December, 2010.
16. MiCS Gas Sensors, e2V Technology, Application Manual (Updated 08/2007)
17. D.E., Williams, J., Salmond, Y.F., Yung, J., Akaji, B., Wright and J., Wilson, Development of Low-Cost Ozone and Nitrogen Dioxide Measurement Instruments Suitable for Use in Air Quality Monitoring Network, IEEE SENSORS 2009 Conference, (2009).
18. F., Schedin, A.K., Geim, S.V., Morozov, E.W., Hill, P., Blake, M.I., Katsnelson and K.S., Novoselov, Detection of individual gas molecules adsorbed on grapheme, Nature Materials, Vol. 6, pp 652-655, (2007).

19. S., Raghavan, Comparative Studies of 6H-SiC Surface Preparation, MS Thesis, West Virginia University, (2008).
20. S., Raghaven, et al., Mater. Res. Soc. Symp. Proc. 1259, S17-02, (2010).
21. B., Chakrabarti, P.M., Fine, R., Delfino, C., Sioutas, Performance evaluation of the active-flow personal DataRAM PM2.5 mass monitor designed for continuous personal exposure measurements, Atmospheric Environment, Vol. 38, pp 3329-3340, (2004).
22. R., Baldauf, N., Watkins, D., Heist, C., Bailey, P., Rowley and R., Shores, Near-road air quality monitoring - Factors affecting network design and interpretation of data, Air Qual. Atmos. Health, Vol. 2, pp. 1-9, (2009)
23. Wang, A., Brauer, M., "Review of Next Generation Air Monitors for Air Pollution," Report, March 15th, (2014).
24. Spinelle, L., Gerboles, M., and Aleixandre, M., "Report of laboratory and in-situ validation of micro-sensor for monitoring ambient air," JRC Technical Report, EUR 26681-EN, (2014).
25. Spinelle, L., Aleixandre, M., and Gerboles, M., "Protocol of evaluation and calibration of low-cost gas sensors for the monitoring of air pollution," JRC Technical Report, EUR 26112-EN, (2013).
26. Williams, R., "Sensor Technology Performance Characteristics: Field and Laboratory Observations, Presentation, (2014).
27. Littera, D., Velardi, M., Cozzolini, A., Yoder, G., Besch, M.C., Carder, D.K., and Gautam, M., "Integrated Physical and Chemical Measurements of PM Emissions of Dispersing Plume Heavy-Duty Diesel Truck: Wind Tunnel Studies (Part I: Design and Commissioning)," Proc. of the ASME 2012 ICE Division Fall Technical Conference, Paper No. ICEF2012-92091, Vancouver, BC, Canada, Sept. 23rd-26th (2012).
28. Littera, D., "Investigation of PM Formation and Evolution in Plumes Emitted by Heavy-Duty Diesel Vehicles: Wind Tunnel Study," Dissertation, West Virginia University, May, (2014).
29. R.M., Bermudez, A., Polidori, and J., Low, South Coast Air Quality Management District Annual Air Quality Monitoring Network Plan, SCAQMD, Diamond Bar, CA, July 2014.
30. STOCKER, T., QIN, D., PLATTNER, G. K., TIGNOR, M., ALLEN, S. & HBOSCHUNG, J. 2013. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC.
31. U.S. Environmental Protection Agency, "AQI - Air Quality Index, A Guide to Air Quality and Your Health," Document EPA-456/F-14-002, February, (2014).

5 Budget and Budget Justification

5.1 Personnel

Proposed labor and costs for the program are included in Table 4 on a yearly basis. Included are the position titles, project role, annual salary, percent effort, and total costs associated for each effort year, as well as a summation for total program.

Table 4: Overview of Labor and Fringe Costs.

	Project Role	Annual Salary	Year 1 %effort	Year 1 Funding	Year 2 %effort	Year 2 Funding	Year 3 %effort	Year 3 Funding	Program Funding
Research Assistant Professor	Principal Investigator, Program oversight	$ 95,000	14%	$ 13,642	15%	$ 14,616	5%	$ 4,872	$ 33,130
Director, Center for Alternative Fuels, Engine and Emissions	Program administrative management	$ 100,845	12%	$ 12,413	5%	$ 5,172	3%	$ 2,586	$ 20,171
Research Assistant Professor	Data QA/QC, field data collection planning	$ 78,202	14%	$ 13,642	15%	$ 13,539	2%	$ 4,872	$ 32,053
Research Assistant	Laboratory data acquisiton system maintenance and setup	$ 75,540	2%	$ 1,880	0%	$ -	2%	$ 1,880	$ 3,760
Software Engineer	Software development for data acquisition and data processing	$ 69,671	10%	$ 6,700	10%	$ 6,700	0%	$ -	$ 13,400
Lab Instrumentation Specialist	Field measurement setup and data collection assistance	$ 45,066	3%	$ 1,156	0%	$ -	0%	$ -	$ 1,156
Associate Field Engineer	On field laboratory equipment and instrumentation support	$ 55,049	2%	$ 1,324	0%	$ -	0%	$ -	$ 1,324
M.S Student	Data collection, analysis and reporting	$ 18,600	50%	$ 9,298	25%	$ 4,649	0%	$ -	$ 13,946
Ph.D Candidate	Data collection, analysis and reporting	$ 22,080	75%	$ 16,559	50%	$ 11,040	50%	$ 11,040	$ 38,639
	Yearly and Program Total			**$ 76,612**		**$ 55,715**		**$ 25,250**	**$ 157,577**

5.2 Fringe Benefits

The following schedule of standardized fringe benefits rates for West Virginia University will be adhered to under the proposed program: Full time (Faculty and Staff) – 25%, Part time – 8.4%, Undergraduate Student – 2.3%, Graduate Student (Graduate Research Assistants) – 9.2%.

5.3 Travel

Travel cost estimates are included in Table 5, below, and are provided based upon previous project travel costing experience, as well as estimates obtained during the time of proposal development. Year 1 costs include travel to California to install the *AirCom* sensor units on mobile platforms (i.e. trucks, transit buses). Year 2 and Year 3 travel budget include travel costs for attending the workshops and mobile sensor platform training to fleet operators.

Table 5: Summary of Program Travel Estimates

Travel Category	Year 1	Year 2	Year 3	Program
Lodging	$ 5,400	$ 2,400	$ 480	$ 8,280
Fuel	$ 1,800	$ 250	$ 250	$ 2,300
Per Diem	$ 3,525	$ 1,140	$ 826	$ 5,491
Airfare	$ 6,000	$ 4,000	$ 4,000	$ 14,000
Rental	$ -	$ -	$ -	$ -
Total	$ 16,725	$ 7,790	$ 5,556	$ 30,071

5.4 Equipment

WVU request funding for purchasing miniature ambient air sensors along with necessary data acquisition hardware and components needed for telemetry. In addition, WVU requests the purchase of a Teledyne, model BME400E ozone analyzer as lab-grade reference instrument for miniature sensor model development and linearization checks.

Table 6: Summary of cost for required equipment

Category	Year 1	Year 2	Year 3
Sensor supplies	$ 6,000	-	-
Telemetry Data Acquisition	$ 6,000	-	-
Teledyne BME400E Ozone analyzer	$ 10,000		

5.5 Supplies

Supplies purchase estimates are based upon vendor estimates and prior purchase experience, and cover laboratory and office supplies required to efficiently and successfully meet proposed goals.

5.6 Repairs and Alterations

No repairs and alterations are expected in this study.

5.7 Contractual

No contractual funding is estimated for this project.

5.8 Other Direct Costs

No additional direct costs are being proposed for this program.
DRI will be provided the sub award in this proposed study. DRI will perform the bulk of the modeling activities proposed in the study during the Year 2 and Year 3 of the project. The first year of the proposed work will involve DRI and WVU working closely with data collection, analysis and pollutant concentration maps prediction.
MARIN will be provided the sub award during Year 2 of this study to provide training to fleet operators selected for installation and operation of *AirCom* sensor units. MARIN will further engage and coordinate community organizations including SCAQMD and CARB during Year 2.

5.9 Indirect Costs

The U.S. Department of Health and Human Services is West Virginia University and West Virginia University Research Corporation's "cognizant agency" for negotiating facilities and

administration (F&A) and Fringe Benefits rates to be charged on all sponsored agreements. The activities proposed herein are predominantly off-campus in nature, and have an applied F&A rate of 26%. F&A Rates are only applied to the first $25,000 of any subcontract award.

Table 7: Summary of Program Direct and Indirect Costs.

	Year 1	Year 2	Year 3	Program
Direct	255,270	121,893	79,662	456,825
Indirect	40,093	27,158	9,678	76,929
Yearly and Program Total	**295,363**	**149,051**	**89,340**	**533,754**

5.10 Sub award Budget Justification

General: The methods used in estimating the costs for this proposal are consistent with those used in other projects of this type and are consistent with DRI's governing Federal cost principles, OMB A-122.

Salaries: The Desert Research Institute (DRI) is a non-profit research institution of higher education. Monthly rates are based on current actual salaries with a 5% increase for annual merit and cost of living adjustment for the future project years. Funding is requested for: Dr. John Mejia to manage the project, modeling integrations, and simulated output analyses; Mr. Travis McCord (Programmer) to support the modeling infrastructure; and a PhD level graduate research assistant (GRA) who will be responsible for constructing and managing the databases. GRA dissertation will be derived from these proposed research goals.

Fringe Benefits: The fringe benefit rate is 46.6% for professional employees, 50.3% for technologist, and 21.1% for graduate students. Rates are negotiated and approved annually by the U.S. Department of Health and Human Services. DRI uses a fringe benefit rate, which is applied to salaries for both budgeting and charging purposes for research projects. The benefits that are included in the rate are FICA, health insurance, vacation, sick leave, unemployment, grant-in-aid, disability insurance, Medicare, and retirement plan.

Travel: All per diem rates are based on the GSA Federal Travel Regulations, airfare rates are based on 7-21 day advance coach-class, and vehicle rental rates are based on contracted rates for State of Nevada agencies. Funding is requested for PI to travel to WVU for project collaboration in Years 2-3. In addition, funding for one domestic conference per year (American Geophysical Union fall meeting or American Meteorological Society meeting) is requested in Year 2-3.

Equipment: No cost for equipment is estimated for this project.

Other Direct Costs: Funding is requested for computers and a group workshop.

Indirect Costs: Indirect cost rates are negotiated and approved by the U.S. Department of Health and Human Services. The current provisional indirect cost rate for federal projects is 66.5% effective 07/01/2013. Indirect cost has been applied to modified total direct cost (excludes equipment and sub-awards in excess of $25,000). If awarded by USDA/NIFA, a revised budget will be submitted with the 30% indirect cost limitation.

6 Resumes

Arvind Thiruvengadam
Research Assistant Professor
West Virginia University, 279 Engineering Sciences Building Addition, Morgantown, WV 26506-6106
Ph: (304)-293-0805 (Voice); (304) 293 6689 (fax); Email: Arvind.Thiruvengadam@mail.wvu.edu

I. Professional Preparation:

University of Madras, India	Mechanical Engineering	B.E 2004
West Virginia University	Mechanical Engineering	M.S 2007
West Virginia University	Mechanical Engineering	Ph.D. 2012

II. Appointments

Research Assistant Professor	Department of Mechanical And Aerospace Engineering, West Virginia University	Sep, 2013-Present
Research Assistant	Center for Alternative, Fuels, Engines and Emissions (CAFEE), West Virginia University	2012-2013

III. Publications

- **Thiruvengadam, A.;** Besch, C. M.; Carder, D.; Oshinuga, A.; Gautam, M., Influence of Real-World Engine Load Conditions on Nanoparticle Emissions from a DPF and SCR Equipped Heavy-Duty Diesel Engine. Environmental Science and Technology 2011, 46 (3), 1907-1913
- Yoon, S.; Collins, J.; **Thiruvengadam, A.**; Gautam, M.; Herner, J.; Ayala, A.; Criteria pollutant and greenhouse gas emissions from CNG transit buses equipped with three-way catalysts compared to lean-burn engines and oxidation catalyst technologies. J Air Waste Manag Assoc. 2013, 63 (8), 926-933
- Yoon, S.; Shaohua, H.; Kado, N.; **Thiruvengadam, A.**; Collins, J.; Gautam, M.; Herner, J.; Ayala, A.; Chemical and Toxicological Properties of Emissions from CNG Transit Buses Equipped with Three-Way Catalysts Compared to Lean-Burn Engines and Oxidation Catalyst Technologies. Atmospheric Environment, *Accepted.*
- **Thiruvengadam, A.;** Carder, D. K.; Krishnamurthy, M.; Oshinuga, A.; Gautam, M., Effect of an economical oxidation catalyst formulation on regulated and unregulated pollutants from natural gas fueled heavy duty transit buses. Transportation Research Part D: Transport and Environment 2011, 16 (6), 469-473
- Littera, D.; Cozzolini, A.; Besch, C. M.; **Thiruvengadam, A.**; Gautam, M., High Temperature Sampling System for Real Time Measurement of Solid and Volatile Fractions of Exhaust Particulate Matter. SAE International Journal of Engines 2011, 4 (2), 2477-2489.
- Ardanese, R., Ardanese, M., Besch, M. C., Adams, T. R., **Thiruvengadam, A**., Shade, B. C., et al. (2009). PM Concentration and Size Distributions from a Heavy-duty Diesel Engine Programmed with Different Engine-out Calibrations to meet the 2010 Emission Limits. *SAE* , 2009-01-1183.

IV. Synergistic Activities

1. Co-principal investigator in funded programs that have contributed to policy making and refinement of emissions inventory of regulatory agencies such as South Coast Air Quality Management District and the California Air Resources Board.
2. Supervising and mentoring a large group of undergraduate and graduate (Ph.D. and M.S)

students pursuing research in CAFEE.

3. Development of a database for the dissemination of emissions inventory of a large population heavy-duty vehicles characterized by different fuels, vocation and engine technology.
4. Development of a web based portal for continuous tracking of ambient and vehicle pollution through mobile on-board communication system.

V. Collaborators & Other Affiliations

a. Collaborators

- Adewale Oshinuga, South Coast Air Quality Management District
- Dr. Alberto Ayala, California Air Resources Board
- Dr. John Collins, California Air Resources Board
- Dr. Kent Johnson, University of California, Riverside
- Dr. Yoon Seungju, California Air Resources Board
- Dr. Tao Huai, California Air Resources Board
- Dr. Mridul Gautam, University of Nevada, Reno

VI. Presentation:

- **Thiruvengadam, A. (Speaker)**, Carder, D., Besch, M., & Gautam, M. (2011). Characterization of Unregulated Emissions, Particulate Matter Toxicity, Ammonia and Nanoparticle Emissions from a 2010 Heavy-Duty CNG Vehicle. *21th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.
- **Thiruvengadam, A. (Speaker)**, Carder, D., Krishnamurthy, M., & Gautam, M. (2010). Comparison Of Regulated And Unregulated Exhaust Emissions From Twelve Multi-Fuel Solid Resource Collection Vehicles From The City Of Los Angeles. *20th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.
- **Thiruvengadam, A. (Speaker)**, Gautam, M., Besch, M., Ardanese, M., Ardanese, R., Thiagarajan, M., et al. (2009). PM Size Distributions from a DPF-SCR Equipped 2010 Compliant Heavy-Duty Diesel Engine during NTE zone operation. *19th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.
- **Thiruvengadam, A. (Speaker)**, Krishnamurthy, M., & Gautam, M. (2008). Reduction Of Regulated And Unregulated Emissions From Natural Gas Fueled Heavy Duty Transit Bus Equipped With An "Alternative" Oxidation Catalyst . *18th CRC ON-ROAD VEHICLE EMISSIONS WORKSHOP.* San Diego, CA.

VII. Sponsored Research:

- **Title:**"Diesel Engine Modeling Development for Heavy-Duty Vehicle Simulation Tool", **Principal Investigator**
  Funding Agency: International Council for Clean Transportation (ICCT) (Nov 1, 2013 - May, 2014);
- **Title:**"Diesel Real-World Evaluation of Modern Heavy-Duty Truck Emissions Using PEMS and a Transportable CVS Emissions Measurement System", **Co-Principal Investigator**
  Funding Agency: California Air Resources Board and South Coast AQMD (Nov 1, 2013 – Nov 30, 2015);
- **Title:**" Assessing Fugitive Methane Emissions Impact Using Natural Gas Engines in Unconventional Resources Development", **Co-Principal Investigator**

Funding Agency: National Energy Technology Laboratory, DOE (February, 2014 - January, 2017)

Daniel K. Carder (MS)
Director, Center for Alternative Fuels, Engines and Emissions
West Virginia University, 279 Engineering Sciences Building Addition, Morgantown, WV 26506-6106
Ph: (304)-293-0650 (Voice); (304) 293 6689 (fax); Email: Daniel.Carder@mail.wvu.edu

Areas of Interest:
Alternative Fuels and Energy Sources, Internal Combustion Engines and Emissions, Engine Control.

Professional Preparation:
1999 M.S. Mechanical Engineering. West Virginia University, Morgantown, WV.
1992 B.S. Mechanical Engineering. West Virginia University, Morgantown, WV.

Appointments:

Present	Interim Director, Center for Alternative Fuels, Engines and Emissions, West Virginia University, Morgantown, WV 26506.
1999-2010	Program Coordinator, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.
1998-1999	Engineering Scientist, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.
1992-1993	Supplemental Employee, Ford Motor Company Scientific Research Laboratory

Selected Publications Relevant to this Proposal:

"Atmospheric Emissions from a Passenger Ferry with Selective Catalytic Reduction," Nuszkowski, J., Clark, N., Spencer, T., Carder, D., Gautam, M., Balon, T., and Maynihan, P., Journal of Air & Waste Management Association. Vol. 59, pp. 18-30, January 2009.

"A Work-Based Window Method for Calculating In-Use Brake-Specific NOx Emissions of Heavy-Duty Diesel Engines," Benjamin C. Shade, Daniel K. Carder, Gregory J. Thompson, and Mridul Gautam, Journal of Engines, Vol. 117, 778-793, 2008.

"Summary of In-use NOx Emissions from Heavy-Duty Diesel Engines," Gregory J. Thompson, Daniel K. Carder, Nigel N. Clark, and Mridul Gautam, *Journal of Commercial Vehicles*, Vol. 117, To Be Published Apr. 2008.

"Cost of Lower NOx Emissions: Increased CO_2 Emissions from Heavy-Duty Diesel Engines," Mohan Krishnamurthy, Daniel K. Carder, Gregory J. Thompson, and Mridul Gautam, *Journal of Atmospheric Environment*, Vol. 41 (3), 666-675, 2007.

"Evaluation of Methods for the Determination of Diesel-generated Fine Particulate Matter: Physical Characterization Results," John S. Kinsey, William A. Mitchell, William C. Squier, Kara Linna, Foy G. King, Russell Logan, Yuanji Dong, Gregory J. Thompson, and Nigel N. Clark, *Journal of Aerosol Science*, Vol. 37, 63-87, 2006.

"Design of a Portable Micro-Dilution Tunnel Particulate Matter Emissions Measurement System," Emily D. Pertl, Mridul Gautam, Franz A. Pertl, Daniel K. Carder, James E. Smith, 2005 SAE Transactions, Journal of Fuels and Lubricants, V.114 (4), pp. 1498-1505, SAE International, Warrendale, Pennsylvania.

"Determination of In-Use Brake-Specific Emissions from Off-Road Equipment Powered by Mechanically Controlled Diesel Engines," Daniel K. Carder, Mridul Gautam, Gregory J. Thompson, Ryan A. Barnett, SAE Technical Paper No. 2002-01-1756, 2002.

"Inference of Torque and Power from Heavy-Duty Diesel Engines for On-road Emissions Monitoring," Thompson, G. J., Clark, N. N., Gautam, M., Carder, D. K., and Lyons, D. W., SAE Technical Paper No. 2002-01-0614, 2002.

"Measurement of Brake-specific NOx Emissions using Zirconia Sensors for In-use, On-board Heavy-duty Vehicle Applications," Gautam, M., Riddle, W. C., Thompson, G. J., Carder, D. K., Clark, N. N., Lyons, D. L., SAE Technical Paper No. 2002-SFL-169.

"Measurement of In-Use, On-Board Emissions From Heavy-Duty Diesel Vehicles: Mobile Emissions Measurement System," Gautam, M., Thompson, G. J., Carder, D. K., Clark, N. N., Shade, B. C., Riddle, W. C., Lyons, D. W., SAE Technical Paper No. 2001-01-3643, 2001.

Research Experience

For over 15 years, Mr. Carder has specialized in the measurement of emissions from heavy-duty diesel engines and alternative fuels research at West Virginia University. He has served in the capacity of Design Engineer, Project Manager, Co-Principal Investigator, and Principal Investigator on funded research projects totaling over $70 million dollars; most of it through the Center for Alternative Fuels, Engines and Emissions (CAFEE). Project sponsors include: US Army, US DOE, United Stated Postal Service, South Coast AQMD, multiple engine manufacturers with oversight from the US EPA, Miami Dade Transit, Oak Ridge National Laboratory, ARDEC (through Imperial Machine Tool), US DOT, DHHS, CDC, NIOSH (NIH - RO1), CARB, Coordinating Research Council, State of West Virginia, and other State and Federal agencies, as well as various industrial entities. His project responsibilities have been very diverse in nature, ranging from project proposal formulation to design and proof-of concept. Mr. Carder is currently serving as Interim Director of West Virginia University's Center for Alternative Fuels Engines and Emissions.

Marc C. Besch
Graduate Research Assistant
West Virginia University, 279 Engineering Sciences Building Addition, Morgantown, WV 26506-6106
Ph: (304)-293-0804 (Voice); (304) 293 6689 (fax); Email: Marc.Besch@mail.wvu.edu

Areas of Interest:
Advanced Exhaust Aftertreatment Systems for Diesel Engines, Aftertreatment Modeling, Diesel Combustion Nanoparticles Formation and Morphology, Vehicle and Internal Combustion Engine Performance and Emissions.

Professional Preparation:

2007 - Present	Graduate studies (Direct Ph.D. track), Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV. *PhD Supervisor: Professor Mridul Gautam*
2003 - 2007	B.S. Automotive Engineering, School of Engineering and Information Technology Biel, Berne University of Applied Sciences, Switzerland.

Employment History

2007 - Present	Research Assistant, Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV 26506.

Selected Publications Relevant to this Proposal:
Ardanese, M., Ardanese, R., Besch, M.C., Adams, T.R., Sathi, V., Shade, B.C., Miyasato, M., Oshinuga, A., and Gautam, M., (2009). Emissions of NO_x, NH_3 and Fuel Consumption using High and Low Engine-Out NO_x Calibrations to Meet 2010 Heavy-Duty Diesel Engine Emission Standards. SAE Technical Paper No. 2009-01-0909.

Ardanese, R., Ardanese, M., Besch, M.C., Adams, T.R., Thiruvengadam, A., Shade, B.C., Miyasato, M., Oshinuga, A., and Gautam, M., (2009). PM Concentration and Size Distributions from Heavy-Duty Diesel Engine Programmed with Different Engine-Out Calibrations to Meet the 2010 Emission Limits. SAE Technical Paper No. 2009-01-1183.

Kappanna, H., Besch, M.C., Carder, D.K., and Gautam, M., (2010). Development of an Advanced Retrofit Aftertreatment System Targeting Toxic Air Contaminants and Particulate Matter Emissions from HD-CNG Engines. ASME Technical Paper No. ICEF2010-35131. Proceedings of the ASME Internal Combustion Engine Division 2010 Fall Technical Conference, San Antonio, Texas, September 12^{th} -15^{th}, 2010.

Mulone, V., Cozzolini, A., Abeyratne, P., Littera, D., Thiagarajan, M., Besch, M.C., and Gautam, M., (2010). Soot Modeling for Advanced Control of Diesel Engine Aftertreatment. ASME Technical Paper No. ICEF2010-35160. Proceedings of the ASME Internal Combustion Engine Division 2010 Fall Technical Conference, San Antonio, Texas, September 12^{th} -15^{th}, 2010.

Liew, C., Li, H., Liu, S., Besch, M.C., Ralston, B., and Clark N., (2010). Exhaust Emissions of a H_2-Enriched Heavy-Duty Diesel Engine Equipped with Cooled EGR and Variable Geometry Turbocharger. ASME Technical Paper No. ICEF2010-35179. Proceedings of the ASME Internal Combustion Engine Division 2010 Fall Technical Conference, San Antonio, Texas, September

12th -15th, 2010.

Ardanese, R., Ardanese, M., Besch, M.C., Adams, T., Thiruvengadam, A., Shade, B.C., Miyasato, M., Oshinuga, A., and Gautam, M., (2009). Development of an Open Loop Fuzzy Logic Urea Dosage Controller for use with an SCR equipped HDD Engine. ASME Technical Paper No. ICEF2009-14105. Proceedings of the ASME Internal Combustion Engine Division 2009 Fall Technical Conference, Lucerne, Switzerland, September 20th -24th, 2009.

Selected Projects:

"In-Use Emissions Testing and Demonstration of Retrofit Technology for Control of On-Road Heavy-Duty Engines," South Coast AQMD, Fall 2011-Summer 2012, Diamond Bar, CA.

"Performance of an SCRT System on a Class-8 Tractor," South Coast AQMD, Sep. 1, 2010 - Oct. 30, 2010, Diamond Bar, CA.

"Characterization of Toxicity as a function of Volatility of Ultrafine PM Emissions from Compressed Natural Gas Vehicles," California ARB, Jan. 1, 2010 - May 1, 2010, Sacramento, CA.

"Nanoscale Catalysts for Ground Vehicle Fuel Economy Enhancement," ManTech International Corporation, Nov. 1, 2008 - Nov. 1, 2009.

"Demonstration of Advanced Diesel Emission Control System (ADECS) in Low-Sulfur Diesel-Fueled Heavy-Duty Engines," South Coast AQMD, Sep. 1, 2006 - Aug. 1, 2008, Diamond Bar, CA.

Relevant Research Activities

Participation in emission measurement, performance and research work at the Engine & Emissions Research Laboratory (EERL) including, but not limited to following studies:

- Development and evaluation of an advanced diesel emissions control system (ADECS) for ultra low-sulfur diesel fueled heavy duty engines including design of experiment (DOE) techniques and statistical methods to optimize engine calibration as well as aftertreatment component integration targeting US 2010 HDD emission standards.
- Performance measurement of catalyzed as well as non-catalyzed diesel particulate filters.
- Performance and emissions characterization from HDD engines fueled with fuel-born catalyst additives.
- Characterization of regulated and unregulated emissions form 2010 compliant HD-CNG equipped transit busses mounted on a chassis dynamometer.
- Performance and emissions characterization from a H_2-Enriched Heavy-Duty Diesel Engine
- Effects of different gas (CNG with varying H_2 content) fuels on the engine operation with increased compression ratio on a two-cylinder gasoline research engine.

John F. Mejia
Assistant Research Professor, Climate Modeling Group
Department of Atmospheric Science, Desert Research Institute, Reno, NV.
email: john.mejia@dri.edu

Professional Preparation

National University of Colombia	Civil Engineering	BS-1999
National University of Colombia	Water Resour. Management	MSc-2002
University of Oklahoma	Meteorology	PhD-2008
CIMMS/NSSL/NOAA, Norman, OK	Data Analysis/Climate Modeling	Postdoc-2008
Desert Research Institute, Reno, NV	Data analysis/Climate Modeling	Postdoc-2009

Research Appointments

2011-current DRI assistant research professor.

2009-2011 Postdoctoral Fellow, Data analysis and Regional Climate Modeling, Desert Research Institute, Department of Atmospheric Science, Reno, NV.

2008-2009 Postdoctoral Research Associate, Data analysis and Regional Climate Modeling, National Severe Storms Laboratory-Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK.

2002- 2008 Graduate Research Assistant, National Severe Storms Laboratory-Cooperative Institute for Mesoscale Meteorological Studies, Norman, OK.

2000 –2002 Research Associate Engineer, Hydrological Atlas of Colombia and Land-Atmosphere modeling, Unit of Energy-Mining Management/National University of Colombia, Medellin, Colombia

1998 –2002 Research Associate Engineer: ENSO forecasts into reservoir operation and hydroelectric power distribution procedures. Interamerican Institute to the Research of the Climatic Change/National University of Colombia, Medellin, Colombia.

1998-1999 Research Assistant in the project, Water Budget in Colombia, Unit of Energy-Mining Management and Colombian Institute for the Science and Technology Development, Medellin, Colombia.

Five most relevant products

Mejia, J.F., J. Huntington, B. Hatchett, and D. Koračin, 2012: Linking Global Climate Models to an Integrated Hydrologic Model using a Hybrid Downscaling Approach. J. Contemporary Water Res. and Edu., 147, 17-27.

Mejia, J.F., D. Koracin and E. Wilcox, 2012: Remote Effect of AOGCM SST Systematic Biases over Western U.S Simulated Climate, J. of Climate. In review.

Killeen, T. J., Douglas, M., Consiglio, T., Jørgensen, P. M. and Mejia, J. (2007), Dry spots and wet spots in the Andean hotspot. Journal of Biogeography, 34: 1357–1373. doi: 10.1111/j.1365-2699.2006.01682.x

Dorman, C. E., J. F. Mejia, and D. Koračin (2013), Impact of U.S. west coastline inhomogeneity and synoptic forcing on winds, wind stress, and wind stress curl during upwelling season, J. Geophys. Res. Oceans, 118, 4036–4051, doi:10.1002/jgrc.20282.

Mejia, J. F., M. W. Douglas and P. Lamb, 2010: Low-level Tropospheric Structures observed

from the NOAA WP-3D aircraft of July 12-15, 2004 Moisture Surge Event during the North American Monsoon Experiment. *Monthly Weather Review* **138**:9, 3498-3513.

Mejia, J. F., and D. Koracin, 2010: Regional Climate Modeling: Sensitivity and Transferability tests. Observed Regional Climate Variability and Regional Climate Predictions in the Tri-state Region, *Tri-State Annual Western Consortium, Climate Change Science,* Reno, NV.

Douglas, M. W., J. F. Mejia, N. Ordinola, and J. Boustead, 2009: Synoptic Variability of Rainfall Along The Northern Peruvian Coast During the 1997-8 El Niño Event, *Mon. Wea. Rev.*, 137, 116–136.

Mejia, J. F. and G. Poveda, 2005: Atmospheric Environments of Mesoscale Convective Systems over Colombia during 1999 using TRMM radar and microwave products and NCEP/NCAR reanalysis. Rev. Acad. Colomb. Cienc., 29 (113): 495-514. ISSN 0370-3908.

Synergistic Activities

Current research focus involves the development of a regional climate modeling framework and using Weather Research Forecasting Model (WRF) and Community Climate System Model (CCSM) to study the impacts of the global and regional aspects of Climate change over the complex terrain, and source identification related to systematic errors in climate models.

Extensive experience in managing, developing, and adapting multi-dimensional and ensemble forecasting models, observational and model data processing, data assimilation, and in the research areas of improvement in numerical weather forecasting, renewable energy, and air dispersion. Experience operating atmospheric models to investigate atmospheric dynamics and cloudiness in coastal regions; real-time weather forecasting; atmospheric flows over complex terrain; and evaluation methods applied to atmospheric models using aircraft and satellite data;

Professor for the Atmospheric Science Graduate program, University of Nevada, Reno, NV; courser taught include Climate Modeling, Atmospheric Modeling, Applied Data Analysis, Atmospheric Turbulence, Mesoscale Modeling.

NASA Climate Impacts Investigator and Awardee of the NASA Group Achievement Award (2008). Outstanding accomplishment through the coordination of the NASA African Monsoon Multidisciplinary Analyses (NAMMA). Also, two times winner in the first place: National Award in Environmental Sciences, Fundación Alejandro Angel Escobar.

Collaborators and other affiliations

Graduate Advisors: Michael Douglas, (NSSL/CIMMS), Peter Lamb (U Oklahoma/CIMMS) Collaborators: Chien Wang (Massachusetts Institute of Technology), John Abatzoglou (U. Idaho), William Patzert, Cynthia Rosenzweig, Thomas Mace (NASA/DFRC), Francina Dominguez and Chirstopher Castro (U Arizona), David Mitchell and Darko Koracin (Desert Research Institute), Clive Dorman (UCSD/SCRIPPS), David Gochis and Hugh Morrison (NCAR), John Wilson (New Mexico Tech), Ricardo Mantilla (U Iowa), Hugo Berbery (U Meryland), Kenneth Kunkel (NOAA/CICS/North Carolina State University), Ruby Leung and Philip Rasch (PNNL), Alexander Fierro (NOAA/NSSL/Univ. of Oklahoma/CIMMS/LANL).

7 Current and Pending Support

7.1 Dr. Arvind Thiruvengadam

OMB Approval No. 2030-0020
Approval Expires 4/30/09

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Arvind Thiruvengadam	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Assessing Fugitive Methane Emissions Impact Using Natural Gas Engines

Source of Support: US DOE National Energy Technology Laboratory
Total Award Amount: 765,114.00 Total Award Period Covered: 10/01/2013 to 12/31/2014
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of Modern-Heavy Truck Emissions using Portable Emissions Measurement Systems (PEMS) and Transportable CVS Emissions Measurement System

Source of Support: California Air Resources Board
Total Award Amount: 100,000.00 Total Award Period Covered: 06/01/2013 to 12/31/2014
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of Modern-Heavy Truck Emissions using Portable Emissions Measurement Systems (PEMS) and Transportable CVS Emissions Measurement System

Source of Support: South Coast Air Quality Management District
Total Award Amount: 90,000.00 Total Award Period Covered: 11/01/2014 to 07/01/2015
Location of Project: Los Angeles, CA
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Development of Ammonia Reduction System for Stoichiometric Natural Gas Engines

Source of Support: South Coast Air Quality Management District
Total Award Amount: 250,000.00 Total Award Period Covered: 11/01/2014 to 07/01/2015
Location of Project: Los Angeles, CA
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of ammonia emissions from natural gas heavy-duty transit buses.

Source of Support: California Air Resources Board
Total Award Amount: 15,000.00 Total Award Period Covered: 11/01/2014 to 12/31/2014
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 0.10 Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

NCER FORM 5 (9/01) For Use with EPA STAR Grant Applications

USE ADDITIONAL SHEETS AS NECESSARY

OMB Approval No. 2030-0020
Approval Expires 4/30/09

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Arvind Thiruvengadam	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Development of a Mobile Air Quality Sensor Network System

Source of Support: USEPA
Total Award Amount: 558,374.00 Total Award Period Covered: 04/01/2015 to 03/31/2018
Location of Project: California
Person-Months Per Year Committed to the Project. Cal: 3.00 Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

NCER FORM 5 (9/01) For Use with EPA STAR Grant Applications

USE ADDITIONAL SHEETS AS NECESSARY

VW FOIA, EPA 06/20/2017 2017-FFP_034539

7.2 John Mejia

OMB Approval No. 2030-0020
Approval Expires 4/30/09

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: John Mejia	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Cloud Seeding Project for the Walker Basin WY2011-2015

Source of Support: DOI- Bureau of Reclamation
Total Award Amount: 1,357,569.00 Total Award Period Covered: 07/01/2010 to 06/30/2015
Location of Project: Walker River Basin, NV
Person-Months Per Year Committed to the Project. Cal: 0.16 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Strategies for Climate Change Adaptation at the Dryden Flight Research Center and Within the Mojave Desert Region

Source of Support: NASA-Ames Research Center
Total Award Amount: 240,690.00 Total Award Period Covered: 02/07/2012 to 02/06/2015
Location of Project: Mojave Desert, CA and Reno, Las Vegas, Nevada
Person-Months Per Year Committed to the Project. Cal: 1.45 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Cloud Seeding Project for the Tahoe and Truckee Basins for WY2014

Source of Support: DOI- Bureau of Reclamation
Total Award Amount: 100,000.00 Total Award Period Covered: 11/01/2013 to 12/31/2014
Location of Project: Reno/Lake Tahoe
Person-Months Per Year Committed to the Project. Cal: 0.60 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Environmental Decision Methodology (EDM)

Source of Support: Gas Technology Institute (GTI)
Total Award Amount: 794,608.00 Total Award Period Covered: 09/01/2013 to 08/31/2015
Location of Project: NV,IL,TX
Person-Months Per Year Committed to the Project. Cal: 2.25 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Development of Mobile Air Quality Network System

Source of Support: West Virginia University (Prime)
Total Award Amount: 213,941.00 Total Award Period Covered: 04/01/2015 to 03/31/2018
Location of Project:
Person-Months Per Year Committed to the Project. Cal: 3.00 Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

NCER FORM 5 (9/01) For Use with EPA STAR Grant Applications

USE ADDITIONAL SHEETS AS NECESSARY

7.3 Daniel K. Carder

OMB Approval No. 2030-0020
Approval Expires 4/30/09

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Daniel Carder	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: An Investigation of Reforming Gas Impact on Performance and Emissions of Diesel Engines, Phase II

Source of Support: Lynntech Inc.
Total Award Amount: 210,150.28 Total Award Period Covered: 01/03/2013 to 12/01/2014
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of Modern-Heavy Truck Emissions using Portable Emissions Measurement Systems (PEMS) and Transportable CVS Emissions Measurement System

Source of Support: California Air resources Board
Total Award Amount: 100,000.00 Total Award Period Covered: 06/01/2013 to 12/31/2014
Location of Project: Sacramento, CA
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of Modern-Heavy Truck Emissions using Portable Emissions Measurement Systems (PEMS) and Transportable CVS Emissions Measurement System

Source of Support: South Coast Air Quality Management District
Total Award Amount: 90,000.00 Total Award Period Covered: 11/01/2014 to 07/31/2015
Location of Project: Sacramento, CA
Person-Months Per Year Committed to the Project. Cal: 0.50 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Assessing Fugitive Methane Emissions Impact Using Natural Gas Engines

Source of Support: US DOE National Energy Technology Laboratory
Total Award Amount: 765,114.00 Total Award Period Covered: 10/01/2013 to 12/31/2014
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Advanced Communications for Wireless Sensor Networks

Source of Support: Department of Defense-US ARMY
Total Award Amount: 2,720,000.00 Total Award Period Covered: 09/29/2010 to 12/31/2014
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 0.20 Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

NCER FORM 5 (9/01) For Use with EPA STAR Grant Applications

USE ADDITIONAL SHEETS AS NECESSARY

OMB Approval No. 2030-0020
Approval Expires 4/30/09

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Daniel Carder	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Development of a Mobile Air Quality Sensor Network System

Source of Support: USEPA
Total Award Amount: 558,374.00 Total Award Period Covered: 04/01/2015 to 03/31/2018
Location of Project: California
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal:

Source of Support:
Total Award Amount: Total Award Period Covered: to
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

NCER FORM 5 (9/01) For Use with EPA STAR Grant Applications

USE ADDITIONAL SHEETS AS NECESSARY

VW FOIA, EPA 06/20/2017 2017-FFP_034542

7.4 Marc C. Besch

OMB Approval No. 2030-0020
Approval Expires 4/30/09

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Marc Besch	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☑ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of Modern-Heavy Truck Emissions using Portable Emissions Measurement Systems (PEMS) and Transportable CVS Emissions Measurement System

Source of Support: California Air Resources Board
Total Award Amount: 100,000.00 Total Award Period Covered: 06/01/2013 to 12/31/2014
Location of Project:
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☑ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of Modern-Heavy Truck Emissions using Portable Emissions Measurement Systems (PEMS) and Transportable CVS Emissions Measurement System

Source of Support: South Coast Air Quality Management District
Total Award Amount: 90,000.00 Total Award Period Covered: 11/01/2014 to 07/01/2015
Location of Project: Sacramento, CA
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Development of Ammonia Reduction System for Stoichiometric Natural Gas Engines

Source of Support: South Coast Air Quality Management District
Total Award Amount: 250,000.00 Total Award Period Covered: 11/01/2014 to 07/01/2015
Location of Project: Morgantown, WV
Person-Months Per Year Committed to the Project. Cal: 1.00 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Real-world evaluation of ammonia emissions from natural gas heavy-duty transit buses.

Source of Support: California Air Resources Board
Total Award Amount: 15,000.00 Total Award Period Covered: 11/01/2014 to 12/31/2014
Location of Project: Los Angeles, CA
Person-Months Per Year Committed to the Project. Cal: 0.10 Acad: Sumr:

Support: ☐ Current ☑ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support
Project/Proposal: Development of Mobile Air Quality Sensor Network System

Source of Support: USEPA
Total Award Amount: 558,374.00 Total Award Period Covered: 04/01/2015 to 03/31/2018
Location of Project: Southern California
Person-Months Per Year Committed to the Project. Cal: 3.00 Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

NCER FORM 5 (9/01) For Use with EPA STAR Grant Applications

USE ADDITIONAL SHEETS AS NECESSARY

8 Guidelines, Limitations, and Additional Requirements

8.1 Letters of Intent/Letters of Support

Mid Atlantic Research Institute, Nevada (MARIN) has provided a letter of support which is included on the following page. MARIN will work as community coordinator between the proposing team of PI and Co-PI's and community organizations including SCAQMD and CARB. Furthermore, MARIN will foster partnership between fleet operators and community leaders, and provide necessary training sessions about in-field operation of *AirCom* sensor units.

8.2 Funding Opportunity Number

The proposing team is applying for the regular award Funding Opportunity Number (FON), **Air Pollution Monitoring for Communities, EPA-G2014-STAR-K1.**

8.3 Confidentiality

By submitting an application in response to this solicitation, the proposing team has agreed to grant the EPA permission to make limited disclosures of the application to technical reviewers both within and outside the Agency for the express purpose of assisting the Agency with evaluating the application. No claim of confidentiality for any portion of this proposal package has been made.

8.4 Human Subjects Research Statement

The proposed research does not involve human subjects.

MARIN LLC
3170 Vista Lucci
Reno, NV 89519

October 5, 2014

Dr. Arvind Thiruvengadam
Department of Mechanical and Aerospace Engineering
West Virginia University
Morgantown, WV 26506

Dear Professor Thiruvengadam:

MARIN, LLC is excited at the opportunity to work with you and your team at West Virginia University. We are very supportive of your proposal entitled, "Development of a Mobile Air Quality Sensor Network System". It's very encouraging to note that you are taking full advantage of the recent advances in sensor network technology and communications and linking them your world-renown expertise to capture a desperately needed picture of emissions and the air-quality in our communities.

The team at MARIN has worked for years with SCAQMD and CARB to mitigate emissions from heavy-duty vehicles and improve air quality. MARIN will help establish and foster partnerships with fleets, vehicle operators, and community leaders to raise awareness of the current air quality challenges in non-attainment regions, highlight shortcomings of current stationary air quality monitoring stations and discuss the basic principles of various sensing technologies for criteria air pollutants. MARI will provide training sessions to vehicle fleets on all of the above.

Again, please feel free to contact me if you need additional information. We wish you all the best with your proposal.

Thank you and regards,

Seema Gautam

Seema Gautam
MARIN, LLC

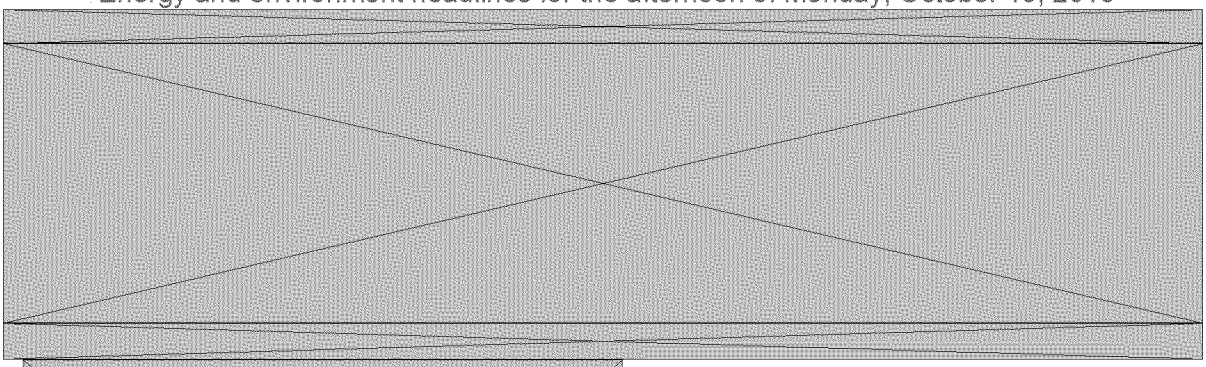
cc: Dr. Mridul Gautam, Chief Engineer

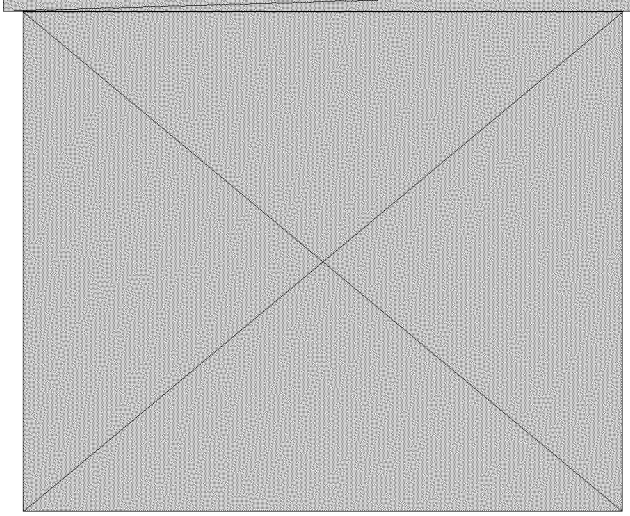
MARIN LLC, 3170 Vista Lucci, Reno, NV 89519, 304-216-4487, marinevadallc@gmail.com, seemagautam@comcast.net

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Mon 10/19/2015 9:20:17 PM
Subject: White House: Paris deal needs to 'ratchet up' commitments over time

Advertise | Contact

Energy and environment headlines for the afternoon of Monday, October 19, 2015





White House: Paris deal needs to 'ratchet up' commitments over time

By Kevin Rogers

The Obama administration on Monday launched a full-court press for an international climate deal, as top administration officials said the United Nations-sponsored talks needed to reach an agreement that strengthens nations' pollution-curbing commitments over time.

At a White House climate summit, officials also announced commitments from major corporations to support a strong deal emerging from negotiations scheduled for December in

Paris, and to cut their own emissions as well.

State Department Special Envoy for Climate Change Todd Stern, while upbeat about the prospects of a Paris agreement, said that countries have not made commitments strong enough to adequately restrain the rise in global temperatures, so any agreement must have a mechanism for getting stricter over time.

"We have proposed and pushed the idea of successive rounds of targets, so you keep ratcheting ambition up. The first round of targets is hugely significant," he said. "They're very good, but they're not enough. What we need is a multi-part package for ambition, successive rounds of ratcheting up targets over time [and] long-term targets as well."

Stern, the top U.S. negotiator in Paris, cited Climate Action Tracker, a climate data group, which projects that the current national pledges would keep the rise in global temperatures to 2.7 degrees Celsius above pre-industrial levels. The goal of the UN talks is to limit that rise to 2 degrees, the point where many scientists believe the most severe impacts would become irreversible. The Intergovernmental Panel on Climate Change projects that the world could hit that point by 2050, absent strong action to cut greenhouse gas emissions.

The U.S., for its part, has pledged to cut overall emissions to 26 to 28 percent below 2005 levels, and to achieve that goal by 2025. The administration said it would do so through power plant carbon regulations, fuel efficiency standards, oil and gas methane emissions rules, and improved energy efficiency.

Private-sector support for a strong deal was announced in connection with a roundtable with business executives and President Barack Obama. Some 81 companies — including Apple, Berkshire Hathaway Energy, and Google — pledged to cut their carbon emissions and expand renewable energy investment.

"The perception is that this is an environmental issue, it's for tree huggers, and that hard-headed businesspeople either don't care about it or see it as a conflict with their bottom lines," Obama said. "This conversation has confirmed what we've known for quite some time, which is that considerations of climate change, energy efficiency, renewable energies are not only not contradictory to their bottom lines, but for these companies, they're discovering that they can enhance their bottom lines."

"We support the conclusion of a climate change agreement in Paris that takes a strong step forward toward a low-carbon, sustainable future," the companies pledged. "We recognize that delaying action on climate change will be costly in economic and human terms, while accelerating the transition to a low-carbon economy will produce multiple benefits with regard to sustainable economic growth, public health, resilience to natural disasters, and the health of the global environment."

The United Nations talks are the topic of a Tuesday Senate Foreign Relations subcommittee hearing, where Stern is slated to testify on the U.S. commitment.

Chairman Sen. Bob Corker, R-Tenn., has already pressed Stern on the administration's approach to the negotiations, including whether the agreement would be in the form of a treaty subject to Senate ratification. He contended that, since the United Nations Framework Convention on Climate Change and the Kyoto Protocol were submitted for congressional approval, any deal from Paris should be as well.

Many of Corker's colleagues, including Senate Majority Leader Mitch McConnell, R-Ky., have vowed to find a legislative channel to block a climate deal or U.S. commitment.

Tom Pyle, president of the free market group American Energy Alliance, said the administration's decision on whether to pursue a treaty or some other form of agreement will be critical.

"The lead-up to this treaty is all backdrop and photo-ops from my perspective, especially if they're not going to submit it to the Senate," he said. "The next person that comes in can just basically undo it with the stroke of a pen. I'm not sure what they're going to ultimately achieve in terms of anything meaningful out of Paris."

But Stern and other White House officials were all optimism Monday, especially because, they say, India, Brazil and China have put substantial commitments on the table. Stern called it a "fundamental pivot" for global climate policy.

"We are uniquely positioned like we never have been as a global community, but we have a lot of work today," White House Senior Adviser Brian Deese said. "Taken together, we now have 150 countries that have submitted their official contributions to the UN process. That represents more than 85 percent of global emissions. That, in and of itself, reflects success."

Quick Links

Tests underway after fire put out at radioactive waste site

Upcoming nuke plant closure could roil New England energy markets

Lawsuits could force VW to buy back cheating diesels

Ohio River's huge algae bloom a warning for water suppliers

Oil collapse gives US colleges a test on backpedaling donors

Pope rallies bishops to press climate call before Paris meet

Czech Republic to expand brown coal mining program

Global Witness: How 4 African countries lost $4 billion

Supreme Court to hear another electricity case

Ex-BLM heads push for tougher methane rules

Oil slumps on China data, gasoline slide

Borrowing bite for oil companies may come next year

Halliburton swings to a 3Q loss, cuts more jobs

Americans plowing gasoline savings back into gasoline products; Study

Trump would cut EPA funding

"Fire Obama" signs to cost Murray Energy $5,000

Harper loss could mean more Canadian moves to fight climate change

Say 'no' to Suncor takeover, Canadian Oil Sands board urges

Upcoming Events

Tests underway after fire put out at radioactive waste site

By Sally Ho and Ken Ritter

LAS VEGAS (AP) — A contractor from the former nuclear weapons testing site in Nevada joined several state agencies checking air quality and monitoring for other problems Monday following a fire at a radioactive waste disposal site in rural southern Nevada.

No injuries were reported after the fire, which began Sunday afternoon in an industrial area near Beatty, Nevada, about 115 miles northwest of Las Vegas, said Bud Marshall, southern Nevada regional supervisor for the state Division of Emergency Management and Homeland Security.

It was not clear how the fire started at the shuttered disposal site, which is about 8 miles from populated areas. Authorities say it closed in 1992 after accepting low-level radioactive waste for 30 years, which typically can include tools, protective clothing, and parts and machinery from nuclear plants.

A fixed-wing aircraft and a helicopter from the former Nevada Test Site were flying

radiation detection equipment over and around the area, Nevada National Security Site spokesman Darwin Morgan said. The results were being turned over to state officials, he said.

More

Upcoming nuke plant closure could roil New England energy markets

By Stephen Singer

HARTFORD, Conn. (AP) — The impending retirement of Massachusetts' only nuclear power plant could roil energy markets across New England, leading to greater reliance on natural gas, driving up carbon emissions and putting more pressure on pipelines already facing bottlenecks.

Pilgrim Nuclear Power Station, the only nuclear power plant in Massachusetts, announced last week it will close by June 2019 because it's becoming too expensive to run. Two other nuclear plants operate in New England, at Seabrook Nuclear Power Plant in New Hampshire and Millstone Power Station in Connecticut.

"We're concerned about the apparent enthusiasm around the states for a leap to fill this void with natural gas plants," said Greg Cunningham, of the Conservation Law Foundation, an environmental advocacy group. "It's heading us in the wrong direction."

States have set low-carbon emissions caps in law and will have to find ways to meet those goals after Pilgrim goes dark. Massachusetts Gov. Charlie Baker said the shutdown of Pilgrim will be a "significant loss of carbon-free electricity generation" and will undermine the state's progress in achieving greenhouse gas emission reduction goals.

More

Lawsuits could force VW to buy back cheating diesels

By Tom Krisher

DETROIT (AP) — Volkswagen almost inevitably will have to compensate owners of diesel cars equipped with emissions-rigging software. Some legal experts say the automaker could be forced to buy back the cars altogether.

Many of the more than 200 lawsuits filed in the past few weeks allege that for seven years VW marketed four-cylinder diesel Golfs, Jettas, Beetles and Passats as clean alternatives to

gas engines, knowing all along that the cars were spewing pollution that far exceeded legal limits.

In September, Volkswagen admitted to rigging emissions tests in the U.S. Earlier this month, Michael Horn, the head of its U.S. operations, told a congressional panel that VW was considering compensating owners for the lost value of their cars. He also said that it could take from one to two years to fix all the affected cars.

Seattle lawyer Steve Berman seized on that time frame when he sued VW last week in Los Angeles, seeking full restitution for owners of nearly 70,000 affected cars in California.

More

Ohio River's huge algae bloom a warning for water suppliers

By John Seewer, The Associated Press

A toxic algae outbreak that snaked more than 600 miles down the Ohio River past four states is forcing water utilities to reassess the threat from harmful algal blooms that are popping up increasingly around the nation.

Treatment plant operators and researchers along the river were surprised by the large bloom and said it should be a warning to cities that get their water supply from lakes, rivers and manmade reservoirs.

"You need to be ready and have a plan in place," said Roger Tucker, who monitors algae sampling for the Louisville Water Co. in Kentucky. "The Ohio River is proof of that."

The bloom appears to be winding down now, two months after being detected in the middle of August. It made its way from Wheeling, West Virginia, and past Cincinnati and Louisville, setting off warnings about boating and fishing in the river. Organizers canceled a swim from Cincinnati to northern Kentucky.

More

Oil collapse gives US colleges a test on backpedaling donors

By Paul J. Weber

AUSTIN, Texas (AP) — It's easy to see what oil money means to the University of Texas. Tuition hasn't budged in three years because of gushing wells in the Permian Basin. More than a few buildings, including the football team headquarters, are named after wildcatters,

and a pump jack stands outside the 100,000-seat stadium to commemorate the 1920s oil boom.

But the latest bust and tumbling crude prices are now pinching off the largesse that helps this university and others in oil-rich states afford what they want when state budgets are straitened, which is especially the case now. Already, the consequences are becoming obvious.

Campus construction projects are being stretched out or put in limbo, scholarship funds are taking a hit and across the Southwest, donors are asking for more time to make good on big pledges.

"When the price of oil was $100 a barrel we had a lot more gifts. They had the ability to make more gifts," said Bob Walker, who raised hundreds of millions of dollars for Texas A&M University for three decades before retiring last year.

More

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

Pope rallies bishops to press climate call before Paris meet

By The Associated Press

VATICAN CITY (AP) — The Vatican is seeking to reinforce Pope Francis' environmental message by encouraging bishops from around the world to sign an appeal to world leaders meeting in Paris next month for crucial climate change talks.

Cardinals, patriarchs and bishops, including representatives of regional bishops' conferences from Asia, Africa, Latin America and Oceania, are expected to sign the appeal Monday.

Francis outlined his eco-message in a major teaching document in June, denouncing what he called the "structurally perverse" fossil fuel-based world economy that he says exploits the poor and destroys the Earth.

The encyclical was cheered by environmentalists and ignored or criticized by big business interests. In the U.S., it was met with particular unease and so far no U.S. bishop is scheduled to participate in the conference to launch the appeal.

Czech Republic to expand brown coal mining program

By The Associated Press

PRAGUE (AP) — The Czech government has approved a plan to expand the mining of lignite, a fossil fuel known as brown coal.

Despite protests from environmentalists and local citizens, the government is allowing the mining to expand beyond previously set limits to get access to up to 120 million metric tons of coal in the northwest of the country.

The limits were set in 1991 to prevent environmental damage as brown coal is a major source of greenhouse gases.

Trade and Industry Minister Jan Mladek says the coal is needed to secure the country's energy supply.

More

Global Witness: How 4 African countries lost $4 billion

By The Associated Press

LAGOS, Nigeria (AP) — A watchdog group says four African countries lost more than $4 billion in shady oil and mining deals and calls for the Extractive Industries Transparency Initiative to police the hidden ownership of companies used for such corruption.

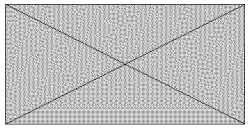
Global Witness details contracts in Nigeria, Angola, Republic of Congo and the Democratic Republic of Congo and "lays bare how anonymous companies facilitate the loss of national wealth on an epic scale."

The report questions the role of international oil companies that facilitate such deals.

Global Witness says the transparency group faces "a credibility test" when its board meets in Switzerland this week to decide whether to make disclosure of true owners a membership condition.

More

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

Supreme Court to hear another electricity case

Days after the Supreme Court heard arguments over the demand response rule, the high court agreed to take on another electricity case exploring the boundary between the Federal Energy Regulatory Commission's powers and those of the states, E&E reports.

More

Ex-BLM heads push for tougher methane rules

Stricter rules regulating methane generated by oil and gas operations on federal lands would help curb emissions and provide more revenue to Native American tribes, former Bureau of Land Management chiefs Bob Abbey and Mike Dombeck wrote in a letter to the White House, The Hill reports.

More

Oil slumps on China data, gasoline slide

A significant drop in gasoline futures alongside data showing a continued slowdown in Chinese economic growth sent oil prices tumbling again Monday. West Texas Intermediate crude for November delivery fell $1.37 to settle at $45.89 a barrel on the Nymex, while in London, December Brent lost $1.85, or 3.7 percent, to $48.61, MarketWatch reports.

More

Borrowing bite for oil companies may come next year

Oil companies seem to have escaped massive cuts in their credit lines this autumn, but banks' reassessment of their borrowing bases may be much tougher in the spring, FuelFix reports.

More

Halliburton swings to a 3Q loss, cuts more jobs

Halliburton reported a $54 million loss in the third quarter, despite cutting 4,000 jobs, so it will consider more cuts if the market doesn't pick up, FuelFix reports.

More

Americans plowing gasoline savings back into gasoline products; Study

A JPMorgan Chase study found that Americans saved around $41 a month last winter when gasoline prices fell, but ended up using almost half of that to buy more gas and higher octane fuel—a phenomenon researchers call "mental accounting," The New York Times reports.

More

Trump would cut EPA funding

Republican presidential candidate Donald Trump told Fox News Sunday that he'd reduce funding for the Environmental Protection Agency, whose regulations he called a "disgrace," Bloomberg reports.

More

"Fire Obama" signs to cost Murray Energy $5,000

Back in 2012 Murray Energy didn't include a disclosure notice showing it paid for signs it handed to employees, which read "STOP the WAR on COAL—FIRE OBAMA," and the company has now agreed to pay the Federal Election Commission a $5,000 penalty as a result, the Plain Dealer reports.

More

Harper loss could mean more Canadian moves to fight climate change

If Canadians voting Monday bring the Liberal Party and its leader Justin Trudeau into government, analysts expect more effort to develop clean energy and fight climate change, and less of a focus on oil drilling, E&E reports.

More

Say 'no' to Suncor takeover, Canadian Oil Sands board urges

The hostile takeover offer from Suncor Energy—at $4.5 billion Canadian given the current share price—substantially undervalues Canadian Oil Sands, the company board has told shareholders, CBC news reports.

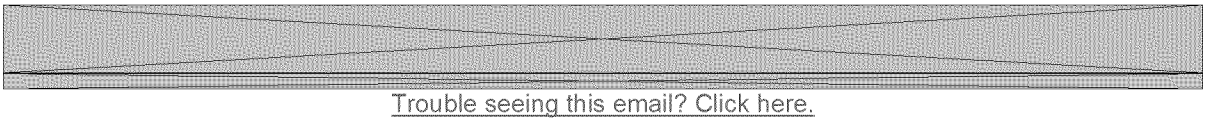
More

Upcoming Events

- Oct. 19, Washington: Vice President Joe Biden, Energy Secretary Ernest Moniz and

White House Senior Adviser Brian Deese to speak at a White House summit on the path forward for United Nations climate talks. 12:30 pm , The White House.

- Oct. 20, Washington: The Senate Foreign Relations Subcommittee on Multilateral International Development, Multilateral Institutions, and International Economic, Energy, and Environmental Policy to hold a hearing on December's United Nations climate talks. State Department Special Envoy for Climate Change Todd Stern to testify. 2:45 pm , Dirksen 419.
- Oct. 20, Washington: The Senate Energy and Natural Resources Committee to hold a hearing on six Interior Department and Energy Department nominees, including Cherry Ann Murray, to be Director of the Office of Science at the Department of Energy; Victoria Marie Baecher Wassmer, to be Under Secretary of Energy; Mary Kendall, to be Inspector General at the Department of the Interior; Suzette Kimball, to be Director of the United States Geological Survey; Kristen Joan Sarri, to be an Assistant Secretary of the Interior (Policy, Management and Budget) ; and John Frances Kotek, to be an Assistant Secretary of Energy (Nuclear Energy). 10:00 am , Dirksen 366.
- Oct. 20, Washington: Secretary of State John Kerry to headline a State Department forum on climate and clean energy investment forum. 9:15 am , State Department.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

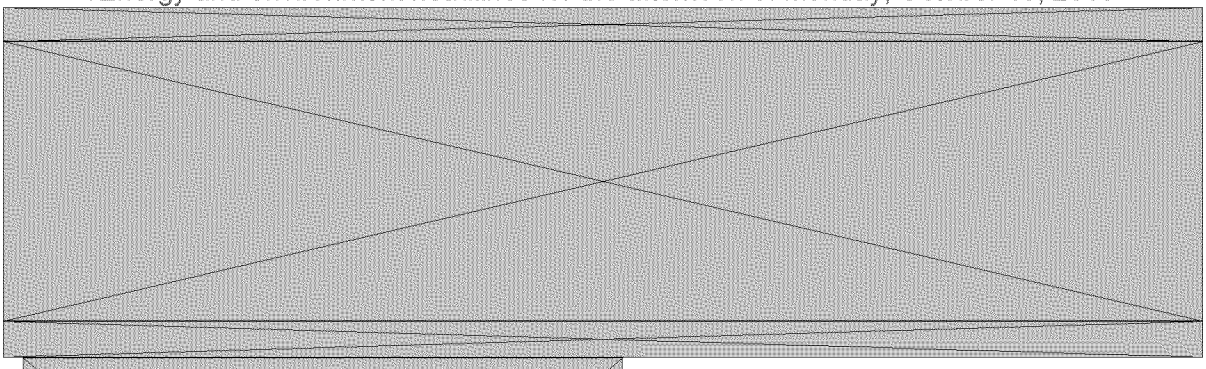
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

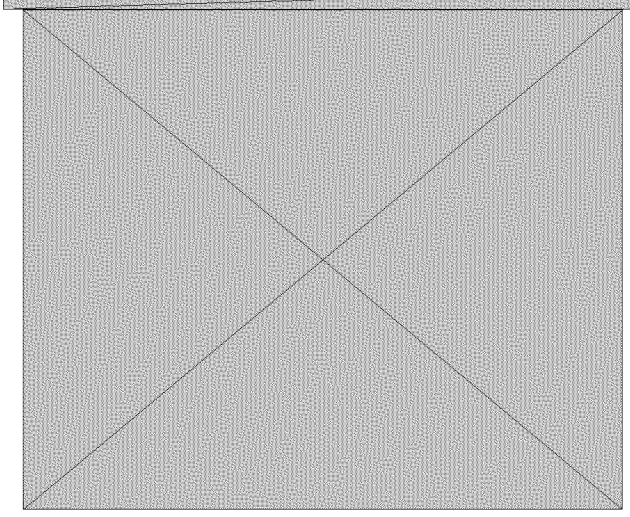
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Mon 10/19/2015 9:20:32 PM
Subject: White House: Paris deal needs to 'ratchet up' commitments over time

Advertise | Contact

Energy and environment headlines for the afternoon of Monday, October 19, 2015





White House: Paris deal needs to 'ratchet up' commitments over time

By Kevin Rogers

The Obama administration on Monday launched a full-court press for an international climate deal, as top administration officials said the United Nations-sponsored talks needed to reach an agreement that strengthens nations' pollution-cutting commitments over time.

At a White House climate summit, officials also announced commitments from major corporations to support a strong deal emerging from negotiations scheduled for December in

Paris, and to cut their own emissions as well.

State Department Special Envoy for Climate Change Todd Stern, while upbeat about the prospects of a Paris agreement, said that countries have not made commitments strong enough to adequately restrain the rise in global temperatures, so any agreement must have a mechanism for getting stricter over time.

"We have proposed and pushed the idea of successive rounds of targets, so you keep ratcheting ambition up. The first round of targets is hugely significant," he said. "They're very good, but they're not enough. What we need is a multi-part package for ambition, successive rounds of ratcheting up targets over time [and] long-term targets as well."

Stern, the top U.S. negotiator in Paris, cited Climate Action Tracker, a climate data group, which projects that the current national pledges would keep the rise in global temperatures to 2.7 degrees Celsius above pre-industrial levels. The goal of the UN talks is to limit that rise to 2 degrees, the point where many scientists believe the most severe impacts would become irreversible. The Intergovernmental Panel on Climate Change projects that the world could hit that point by 2050, absent strong action to cut greenhouse gas emissions.

The U.S., for its part, has pledged to cut overall emissions to 26 to 28 percent below 2005 levels, and to achieve that goal by 2025. The administration said it would do so through power plant carbon regulations, fuel efficiency standards, oil and gas methane emissions rules, and improved energy efficiency.

Private-sector support for a strong deal was announced in connection with a roundtable with business executives and President Barack Obama. Some 81 companies — including Apple, Berkshire Hathaway Energy, and Google — pledged to cut their carbon emissions and expand renewable energy investment.

"The perception is that this is an environmental issue, it's for tree huggers, and that hard-headed businesspeople either don't care about it or see it as a conflict with their bottom lines," Obama said. "This conversation has confirmed what we've known for quite some time, which is that considerations of climate change, energy efficiency, renewable energies are not only not contradictory to their bottom lines, but for these companies, they're discovering that they can enhance their bottom lines."

"We support the conclusion of a climate change agreement in Paris that takes a strong step forward toward a low-carbon, sustainable future," the companies pledged. "We recognize that delaying action on climate change will be costly in economic and human terms, while accelerating the transition to a low-carbon economy will produce multiple benefits with regard to sustainable economic growth, public health, resilience to natural disasters, and the health of the global environment."

The United Nations talks are the topic of a Tuesday Senate Foreign Relations subcommittee hearing, where Stern is slated to testify on the U.S. commitment.

Chairman Sen. Bob Corker, R-Tenn., has already pressed Stern on the administration's approach to the negotiations, including whether the agreement would be in the form of a treaty subject to Senate ratification. He contended that, since the United Nations Framework Convention on Climate Change and the Kyoto Protocol were submitted for congressional approval, any deal from Paris should be as well.

Many of Corker's colleagues, including Senate Majority Leader Mitch McConnell, R-Ky., have vowed to find a legislative channel to block a climate deal or U.S. commitment.

Tom Pyle, president of the free market group American Energy Alliance, said the administration's decision on whether to pursue a treaty or some other form of agreement will be critical.

"The lead-up to this treaty is all backdrop and photo-ops from my perspective, especially if they're not going to submit it to the Senate," he said. "The next person that comes in can just basically undo it with the stroke of a pen. I'm not sure what they're going to ultimately achieve in terms of anything meaningful out of Paris."

But Stern and other White House officials were all optimism Monday, especially because, they say, India, Brazil and China have put substantial commitments on the table. Stern called it a "fundamental pivot" for global climate policy.

"We are uniquely positioned like we never have been as a global community, but we have a lot of work today," White House Senior Adviser Brian Deese said. "Taken together, we now have 150 countries that have submitted their official contributions to the UN process. That represents more than 85 percent of global emissions. That, in and of itself, reflects success."

Quick Links

Tests underway after fire put out at radioactive waste site

Upcoming nuke plant closure could roil New England energy markets

Lawsuits could force VW to buy back cheating diesels

Ohio River's huge algae bloom a warning for water suppliers

Oil collapse gives US colleges a test on backpedaling donors

Pope rallies bishops to press climate call before Paris meet

Czech Republic to expand brown coal mining program

Global Witness: How 4 African countries lost $4 billion

Supreme Court to hear another electricity case

Ex-BLM heads push for tougher methane rules

Oil slumps on China data, gasoline slide

Borrowing bite for oil companies may come next year

Halliburton swings to a 3Q loss, cuts more jobs

Americans plowing gasoline savings back into gasoline products; Study

Trump would cut EPA funding

"Fire Obama" signs to cost Murray Energy $5,000

Harper loss could mean more Canadian moves to fight climate change

Say 'no' to Suncor takeover, Canadian Oil Sands board urges

Upcoming Events

Tests underway after fire put out at radioactive waste site

By Sally Ho and Ken Ritter

LAS VEGAS (AP) — A contractor from the former nuclear weapons testing site in Nevada joined several state agencies checking air quality and monitoring for other problems Monday following a fire at a radioactive waste disposal site in rural southern Nevada.

No injuries were reported after the fire, which began Sunday afternoon in an industrial area near Beatty, Nevada, about 115 miles northwest of Las Vegas, said Bud Marshall, southern Nevada regional supervisor for the state Division of Emergency Management and Homeland Security.

It was not clear how the fire started at the shuttered disposal site, which is about 8 miles from populated areas. Authorities say it closed in 1992 after accepting low-level radioactive waste for 30 years, which typically can include tools, protective clothing, and parts and machinery from nuclear plants.

A fixed-wing aircraft and a helicopter from the former Nevada Test Site were flying

radiation detection equipment over and around the area, Nevada National Security Site spokesman Darwin Morgan said. The results were being turned over to state officials, he said.

More

Upcoming nuke plant closure could roil New England energy markets

By Stephen Singer

HARTFORD, Conn. (AP) — The impending retirement of Massachusetts' only nuclear power plant could roil energy markets across New England, leading to greater reliance on natural gas, driving up carbon emissions and putting more pressure on pipelines already facing bottlenecks.

Pilgrim Nuclear Power Station, the only nuclear power plant in Massachusetts, announced last week it will close by June 2019 because it's becoming too expensive to run. Two other nuclear plants operate in New England, at Seabrook Nuclear Power Plant in New Hampshire and Millstone Power Station in Connecticut.

"We're concerned about the apparent enthusiasm around the states for a leap to fill this void with natural gas plants," said Greg Cunningham, of the Conservation Law Foundation, an environmental advocacy group. "It's heading us in the wrong direction."

States have set low-carbon emissions caps in law and will have to find ways to meet those goals after Pilgrim goes dark. Massachusetts Gov. Charlie Baker said the shutdown of Pilgrim will be a "significant loss of carbon-free electricity generation" and will undermine the state's progress in achieving greenhouse gas emission reduction goals.

More

Lawsuits could force VW to buy back cheating diesels

By Tom Krisher

DETROIT (AP) — Volkswagen almost inevitably will have to compensate owners of diesel cars equipped with emissions-rigging software. Some legal experts say the automaker could be forced to buy back the cars altogether.

Many of the more than 200 lawsuits filed in the past few weeks allege that for seven years VW marketed four-cylinder diesel Golfs, Jettas, Beetles and Passats as clean alternatives to

gas engines, knowing all along that the cars were spewing pollution that far exceeded legal limits.

In September, Volkswagen admitted to rigging emissions tests in the U.S. Earlier this month, Michael Horn, the head of its U.S. operations, told a congressional panel that VW was considering compensating owners for the lost value of their cars. He also said that it could take from one to two years to fix all the affected cars.

Seattle lawyer Steve Berman seized on that time frame when he sued VW last week in Los Angeles, seeking full restitution for owners of nearly 70,000 affected cars in California.

More

Ohio River's huge algae bloom a warning for water suppliers

By John Seewer, The Associated Press

A toxic algae outbreak that snaked more than 600 miles down the Ohio River past four states is forcing water utilities to reassess the threat from harmful algal blooms that are popping up increasingly around the nation.

Treatment plant operators and researchers along the river were surprised by the large bloom and said it should be a warning to cities that get their water supply from lakes, rivers and manmade reservoirs.

"You need to be ready and have a plan in place," said Roger Tucker, who monitors algae sampling for the Louisville Water Co. in Kentucky. "The Ohio River is proof of that."

The bloom appears to be winding down now, two months after being detected in the middle of August. It made its way from Wheeling, West Virginia, and past Cincinnati and Louisville, setting off warnings about boating and fishing in the river. Organizers canceled a swim from Cincinnati to northern Kentucky.

More

Oil collapse gives US colleges a test on backpedaling donors

By Paul J. Weber

AUSTIN, Texas (AP) — It's easy to see what oil money means to the University of Texas. Tuition hasn't budged in three years because of gushing wells in the Permian Basin. More than a few buildings, including the football team headquarters, are named after wildcatters,

and a pump jack stands outside the 100,000-seat stadium to commemorate the 1920s oil boom.

But the latest bust and tumbling crude prices are now pinching off the largesse that helps this university and others in oil-rich states afford what they want when state budgets are straitened, which is especially the case now. Already, the consequences are becoming obvious.

Campus construction projects are being stretched out or put in limbo, scholarship funds are taking a hit and across the Southwest, donors are asking for more time to make good on big pledges.

"When the price of oil was $100 a barrel we had a lot more gifts. They had the ability to make more gifts," said Bob Walker, who raised hundreds of millions of dollars for Texas A&M University for three decades before retiring last year.

More

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

Pope rallies bishops to press climate call before Paris meet

By The Associated Press

VATICAN CITY (AP) — The Vatican is seeking to reinforce Pope Francis' environmental message by encouraging bishops from around the world to sign an appeal to world leaders meeting in Paris next month for crucial climate change talks.

Cardinals, patriarchs and bishops, including representatives of regional bishops' conferences from Asia, Africa, Latin America and Oceania, are expected to sign the appeal Monday.

Francis outlined his eco-message in a major teaching document in June, denouncing what he called the "structurally perverse" fossil fuel-based world economy that he says exploits the poor and destroys the Earth.

The encyclical was cheered by environmentalists and ignored or criticized by big business interests. In the U.S., it was met with particular unease and so far no U.S. bishop is scheduled to participate in the conference to launch the appeal.

Czech Republic to expand brown coal mining program

By The Associated Press

PRAGUE (AP) — The Czech government has approved a plan to expand the mining of lignite, a fossil fuel known as brown coal.

Despite protests from environmentalists and local citizens, the government is allowing the mining to expand beyond previously set limits to get access to up to 120 million metric tons of coal in the northwest of the country.

The limits were set in 1991 to prevent environmental damage as brown coal is a major source of greenhouse gases.

Trade and Industry Minister Jan Mladek says the coal is needed to secure the country's energy supply.

More

Global Witness: How 4 African countries lost $4 billion

By The Associated Press

LAGOS, Nigeria (AP) — A watchdog group says four African countries lost more than $4 billion in shady oil and mining deals and calls for the Extractive Industries Transparency Initiative to police the hidden ownership of companies used for such corruption.

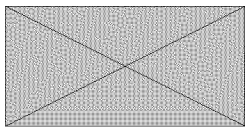
Global Witness details contracts in Nigeria, Angola, Republic of Congo and the Democratic Republic of Congo and "lays bare how anonymous companies facilitate the loss of national wealth on an epic scale."

The report questions the role of international oil companies that facilitate such deals.

Global Witness says the transparency group faces "a credibility test" when its board meets in Switzerland this week to decide whether to make disclosure of true owners a membership condition.

More

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

Supreme Court to hear another electricity case

Days after the Supreme Court heard arguments over the demand response rule, the high court agreed to take on another electricity case exploring the boundary between the Federal Energy Regulatory Commission's powers and those of the states, E&E reports.

More

Ex-BLM heads push for tougher methane rules

Stricter rules regulating methane generated by oil and gas operations on federal lands would help curb emissions and provide more revenue to Native American tribes, former Bureau of Land Management chiefs Bob Abbey and Mike Dombeck wrote in a letter to the White House, The Hill reports.

More

Oil slumps on China data, gasoline slide

A significant drop in gasoline futures alongside data showing a continued slowdown in Chinese economic growth sent oil prices tumbling again Monday. West Texas Intermediate crude for November delivery fell $1.37 to settle at $45.89 a barrel on the Nymex, while in London, December Brent lost $1.85, or 3.7 percent, to $48.61, MarketWatch reports.

More

Borrowing bite for oil companies may come next year

Oil companies seem to have escaped massive cuts in their credit lines this autumn, but banks' reassessment of their borrowing bases may be much tougher in the spring, FuelFix reports.

More

Halliburton swings to a 3Q loss, cuts more jobs

Halliburton reported a $54 million loss in the third quarter, despite cutting 4,000 jobs, so it will consider more cuts if the market doesn't pick up, FuelFix reports.

More

Americans plowing gasoline savings back into gasoline products; Study

A JPMorgan Chase study found that Americans saved around $41 a month last winter when gasoline prices fell, but ended up using almost half of that to buy more gas and higher octane fuel—a phenomenon researchers call "mental accounting," The New York Times reports.

More

Trump would cut EPA funding

Republican presidential candidate Donald Trump told Fox News Sunday that he'd reduce funding for the Environmental Protection Agency, whose regulations he called a "disgrace," Bloomberg reports.

More

"Fire Obama" signs to cost Murray Energy $5,000

Back in 2012 Murray Energy didn't include a disclosure notice showing it paid for signs it handed to employees, which read "STOP the WAR on COAL—FIRE OBAMA," and the company has now agreed to pay the Federal Election Commission a $5,000 penalty as a result, the Plain Dealer reports.

More

Harper loss could mean more Canadian moves to fight climate change

If Canadians voting Monday bring the Liberal Party and its leader Justin Trudeau into government, analysts expect more effort to develop clean energy and fight climate change, and less of a focus on oil drilling, E&E reports.

More

Say 'no' to Suncor takeover, Canadian Oil Sands board urges

The hostile takeover offer from Suncor Energy—at $4.5 billion Canadian given the current share price—substantially undervalues Canadian Oil Sands, the company board has told shareholders, CBC news reports.

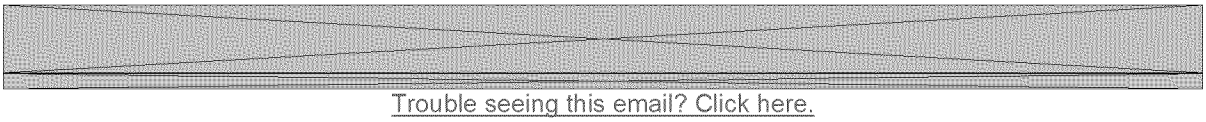
More

Upcoming Events

- Oct. 19, Washington: Vice President Joe Biden, Energy Secretary Ernest Moniz and

White House Senior Adviser Brian Deese to speak at a White House summit on the path forward for United Nations climate talks. 12:30 pm , The White House.

- Oct. 20, Washington: The Senate Foreign Relations Subcommittee on Multilateral International Development, Multilateral Institutions, and International Economic, Energy, and Environmental Policy to hold a hearing on December's United Nations climate talks. State Department Special Envoy for Climate Change Todd Stern to testify. 2:45 pm , Dirksen 419.
- Oct. 20, Washington: The Senate Energy and Natural Resources Committee to hold a hearing on six Interior Department and Energy Department nominees, including Cherry Ann Murray, to be Director of the Office of Science at the Department of Energy; Victoria Marie Baecher Wassmer, to be Under Secretary of Energy; Mary Kendall, to be Inspector General at the Department of the Interior; Suzette Kimball, to be Director of the United States Geological Survey; Kristen Joan Sarri, to be an Assistant Secretary of the Interior (Policy, Management and Budget) ; and John Frances Kotek, to be an Assistant Secretary of Energy (Nuclear Energy). 10:00 am , Dirksen 366.
- Oct. 20, Washington: Secretary of State John Kerry to headline a State Department forum on climate and clean energy investment forum. 9:15 am , State Department.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

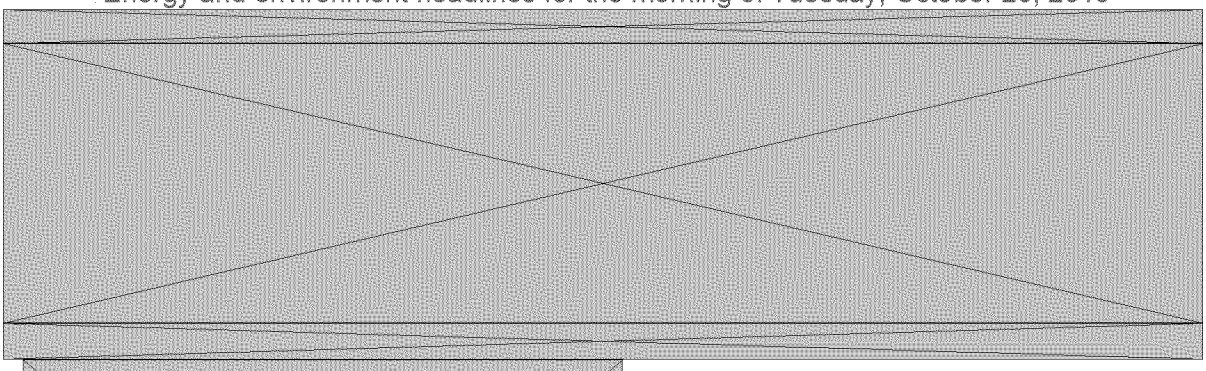
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

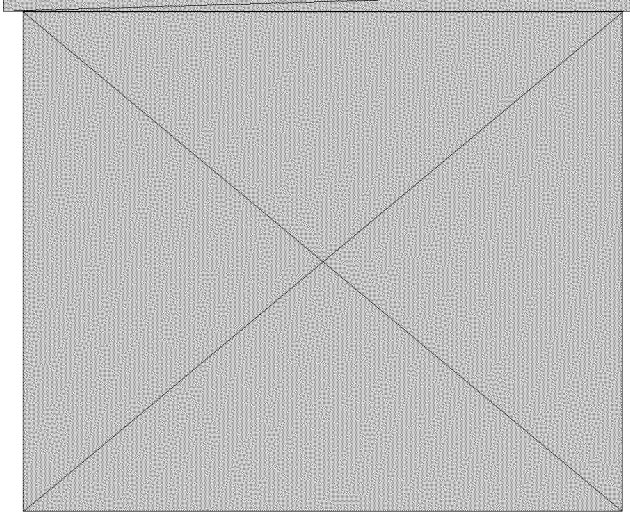
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Tue 10/20/2015 11:15:28 AM
Subject: Markey presses NRC on nuclear fleet's climate resilience

Advertise | Contact

Energy and environment headlines for the morning of Tuesday, October 20, 2015





Markey presses NRC on nuclear fleet's climate resilience

By Kevin Rogers

A week after he welcomed the announcement that his home-state Pilgrim Nuclear Power Station would shut down by 2019, Massachusetts Sen. Ed Markey is pressing the federal government to detail the climate resilience of the rest of the nuclear fleet.

In a letter sent Monday to Nuclear Regulatory Commission Chairman Stephen Burns, the Massachusetts Democrat raised concerns that the nation's nuclear plants might be at risk as

climate impacts worsen and extreme weather events become more frequent.

"I write to request information about how extreme weather, higher water temperatures, and the effects of climate change may impact the U.S. nuclear power industry in light of the increase in the number of plant shutdowns," he wrote.

"Other extreme weather events have also threatened the safe operation of U.S. nuclear power plants, including tornado outbreaks, hurricanes, and droughts," he continued.

Markey called on Burns to supply him with data on any nuclear shutdown or power reduction in the past decade that came as a result of flooding, hurricanes and other extreme weather events, as well as how much generating capacity was lost as a result of the shutdowns.

A spokesperson for NRC said that Burns would respond appropriately and offered no additional comment.

Markey also raised concerns that warming water temperatures could force additional plant shutdowns and generation reductions reductions.

"Rising water temperatures, exacerbated by global warming, have also directly impacted nuclear power plants," he said.

Currently, NRC regulations allow nuclear plants to intake water 75 degrees Fahrenheit or lower for cooling operations, with the option to seek permission to bring in water as warm as 80 degrees.

Markey noted that the Pilgrim plant had to shut down four times in the past three years due to warmer-than-legal temperatures in Cape Cod Bay. He warned that the Entergy-owned plant's problems could be emblematic of a larger climate issue facing the nuclear fleet.

"This and past actions at other reactors may signal that plant operators believe that partial or full shutdowns may become regular occurrences," he said. "As the risk of elevated water temperatures continue to rise, so will the risk of nuclear power plant full or partial shutdowns."

Markey believes nuclear energy to be a high-cost, high-risk venture, despite its status as a zero-emitting source of electricity. In response to the announcement that the Pilgrim plant would shut down last week, Markey urged his state to work to replace it with renewable power.

A spokesperson for the Nuclear Energy Institute, the nuclear industry's advocacy group, did not return a request for comment on Markey's letter and concerns. NEI, however, contends that nuclear plants are highly resilient to extreme weather, especially in Markey's region.

"New Englanders are no strangers to extreme weather," NEI President Marvin Fertel said in

response to last week's Pilgrim announcement. "Over the years, with rare exception, nuclear energy facilities have supported the area by reliably providing the electricity that can be the difference between life and death."

Quick Links

States probe VW over emissions, look for settlement money

Son of late PM Pierre Trudeau becomes Canada's new leader

Oil slips following big slide

Monitors arrive after radioactive waste site fire in Nevada

More workers testify on mine conditions in ex-coal CEO trial

Dalai Lama calls action on climate a 'human responsibility'

Utilities meet efficiency with raised fees

Oklahoma cracks down on disposal wells in Cushing

Biden outlines his climate record

Railroads seek more time to install safety technology

Gasoline glut: Futures at 6-year low

Proposed coal mine expansion in Montana hits snag

Faster hydro permitting would aid climate fight: Industry

Solar projects encroaching on natural landscapes: Study

Saudi debt sees govt. holding up on payments

Worker's cancer linked to Fukushima

Upcoming Events

States probe VW over emissions, look for settlement

money

By Ronnie Greene and Ryan J. Foley

WASHINGTON (AP) — An expanding investigation into Volkswagen's emissions-cheating scandal launched by state attorneys general could last years and will likely end in a negotiated settlement.

Forty-five states and D.C. have joined the review, investigating how VW was able to game emissions tests to hide that its "Clean Diesel" cars emitted smog-causing exhaust up to 40 times dirtier than the law allows. The attorneys general are likely to seek compensation for consumers and redress for environmental harm, building their own investigations under state laws that protect consumers from deceptive trade practices and set clean air standards.

"This is a really important case and it has big economic and health consequences. It's nowhere near the scale of tobacco but you are kind of in that realm," said former Wisconsin governor and attorney general Jim Doyle, who participated in the multistate investigation that ended in a landmark settlement against tobacco companies in 1998. "This is the kind of case that you elect an AG for, to stand up for the safety and health of the people of the state."

Volkswagen is "looking at an enormous settlement, just enormous, when you think about how many cars are out there," he said.

More

Son of late PM Pierre Trudeau becomes Canada's new leader

By Rob Gillies

TORONTO (AP) — Canadians voted for a sharp change in their government Monday, returning a legendary name for liberals, Trudeau, to the prime minister's office and resoundingly ending Conservative Stephen Harper's near-decade in office.

Justin Trudeau, the son of late Prime Minister Pierre Trudeau, became Canada's new prime minister after his Liberal Party won a majority of Parliament's 338 seats. Trudeau's Liberals had been favored to win the most seats, but few expected the final margin of victory.

Canada had shifted to the center-right under Harper, who has lowered sales and corporate taxes, avoided climate change legislation and clashed with the Obama administration over the Keystone XL pipeline.

The Trudeau victory will ease tensions with the U.S. Although Trudeau supports the

Keystone pipeline, he argues relations should not hinge on the project. Harper has clashed with the Obama administration over other issues, including the recently reached Iran nuclear deal.

"Tonight Canada is becoming the country it was before," Trudeau said. And he added that positive politics led to his victory.

More

Oil slips following big slide

By EnergyGuardian

Oil was lower early Tuesday following a big slide triggered in part by a fall in gasoline futures.

Benchmark U.S. crude for November delivery was down 11 cents to $46.17 per barrel in electronic trading on the New York Mercantile Exchange. On Monday, the contract fell $1.44 to $46.28.

Brent crude, used to price international oils, lost 10 cents to $48.50 in London. The December contract had plunged $1.85 to $48.61 in the previous session.

More

Monitors arrive after radioactive waste site fire in Nevada

By Sally Ho and Ken Ritter

LAS VEGAS (AP) — Radiation wasn't immediately detected during fly-overs of a burned trench containing long-buried radioactive waste at a commercial disposal site in rural southern Nevada, state and federal officials said Monday.

Ground testing was scheduled next, headed by a U.S. Environmental Protection Agency radiological emergency team sent to the site about 115 miles northwest of Las Vegas, said Rusty Harris-Bishop, spokesman for the EPA Region 9 office in San Francisco.

"No gamma radiation has been detected at this time," Harris-Bishop said in a statement announcing the federal agency was joining a damage and danger assessment headed by the state and involving the Nevada National Guard, Nye County officials and U.S. Energy Department.

The EPA said the unknown amount of low-level radioactive waste that burned had been

deposited sometime in the 30 year-period before 1992, when facility operator US Ecology stopped accepting such material. It was one of six in the nation that accepted low-level radioactive waste, which typically includes tools, protective clothing, and parts and machinery from nuclear plants.

More

More workers testify on mine conditions in ex-coal CEO trial

By The Associated Press

CHARLESTON, W.Va. (AP) — In ex-Massey Energy CEO Don Blankenship's trial, former mine supervisors testified about being pushed to produce more coal despite poor conditions underground before a deadly 2010 mine explosion.

Media outlets report that in Charleston federal court Monday, former section foreman Richard "Smurf" Hutchens recalled unrealistic coal production goals at Upper Big Branch Mine. He said a supervisor threatened to fire him if he didn't meet production goals, despite regularly being behind on cleaning up his section.

Former superintendent Rick Hodges and fire boss Larry Adams said Upper Big Branch never had enough workers to both produce coal and maintain safety.

Blankenship is charged with conspiring to break mine safety laws and lying to financial regulators about safety at the West Virginia mine, which exploded in 2010, killing 29 men.

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

Dalai Lama calls action on climate a 'human responsibility'

By Katy Daigle

NEW DELHI (AP) — The Dalai Lama on Tuesday urged strong global action to limit global warming and to protect fragile environments, including the Himalayan glaciers and Tibetan plateau.

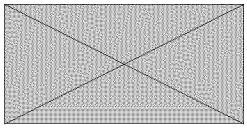
Calling climate change a "problem which human beings created," the 80-year-old Tibetan Buddhist spiritual leader said all of humanity was now responsible for taking action. But instead, he said, "we are relying on praying to God or to Buddha. Sometimes I feel this is very illogical."

He issued his plea in a pre-taped video released as part of a campaign launched by the Tibetan government-in-exile in the north Indian hill town of Dharmsala, where the Dalai Lama has been based since fleeing a Chinese military crackdown in Tibet.

The government-in-exile said the campaign would continue through this year's U.N. climate change talks, where nations hope to conclude a new treaty for limiting climate-warming gas emissions. The exiled government will also send its own delegate to the talks, which start Nov. 30 in Paris, though it will not have a vote of its own.

More

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

Utilities meet efficiency with raised fees

Declining electricity consumption has pushed utilities to increase their customers' monthly fees to pay for fixed costs, including grid maintenance, a practice that's angered consumer advocates, The Wall Street Journal reports.

More

Oklahoma cracks down on disposal wells in Cushing

Following a number of earthquakes near the major crude storage hub at Cushing, the Oklahoma Corporation Commission has ordered cutbacks in the operation of wastewater disposal wells in the area, The Oklahoman reports.

More

Biden outlines his climate record

With a possible move to launch a presidential campaign still up in the air, Vice President Joe

Trouble seeing this email? Click here.

Biden used a speech at the White House Monday to run down his long record on climate and environment issues, The Hill reports.

More

Railroads seek more time to install safety technology

The American Public Transportation Association warns that the hauling of freight cargo – including oil and gasoline – could be stopped in its tracks unless Congress extends the Dec. 31 deadline to install Positive Train Control, FuelFix reports.

More

Gasoline glut: Futures at 6-year low

Growing supplies and worries about weaker demand saw gasoline futures slump to a six-year low on the Nymex Monday, The Wall Street Journal reports.

More

Proposed coal mine expansion in Montana hits snag

The Montana Environmental Information Center has been successful in challenging a 2013 permit allowing expansion at Signal Peak mine, and the matter will now be referred back to the state Department of Environmental Quality for review, Platts reports.

More

Faster hydro permitting would aid climate fight: Industry

The National Hydropower Association launched a promotional blitz Monday that argues a permitting process for hydropower projects that can take "up to ten years" isn't acceptable for a government focused on cutting carbon emissions and expanding clean energy, The Hill reports.

More

Solar projects encroaching on natural landscapes: Study

A Carnegie study released Monday found that new solar projects in California are being located in natural landscapes instead of developed areas, affecting wildlife habitats and reducing arable land, The San Diego Union-Tribune reports.

More

Saudi debt sees govt. holding up on payments

Contractors building infrastructure in Saudi Arabia have been waiting months for payment, sources have told Bloomberg, attributing the delays to a government cash flow problem

triggered by falling crude prices.

More

Worker's cancer linked to Fukushima

A former recovery worker at Japan's crippled Fukushima Dai-ichi nuclear power plant has been diagnosed with leukemia, the government confirmed after he filed a claim for worker's compensation, The Washington Post reports, noting media claims he was exposed to 16 millisieverts of accumulated radiation.

More

Upcoming Events

- Oct. 20, Washington: The Senate Foreign Relations Subcommittee on Multilateral International Development, Multilateral Institutions, and International Economic, Energy, and Environmental Policy to hold a hearing on December's United Nations climate talks. State Department Special Envoy for Climate Change Todd Stern to testify. 2:45 pm , Dirksen 419.
- Oct. 20, Washington: The Senate Energy and Natural Resources Committee to hold a hearing on six Interior Department and Energy Department nominees, including Cherry Ann Murray, to be Director of the Office of Science at the Department of Energy; Victoria Marie Baecher Wassmer, to be Under Secretary of Energy; Mary Kendall, to be Inspector General at the Department of the Interior; Suzette Kimball, to be Director of the United States Geological Survey; Kristen Joan Sarri, to be an Assistant Secretary of the Interior (Policy, Management and Budget) ; and John Frances Kotek, to be an Assistant Secretary of Energy (Nuclear Energy). 10:00 am , Dirksen 366.
- Oct. 20, Washington: Secretary of State John Kerry to headline a State Department forum on climate and clean energy investment forum. 9:15 am , State Department.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

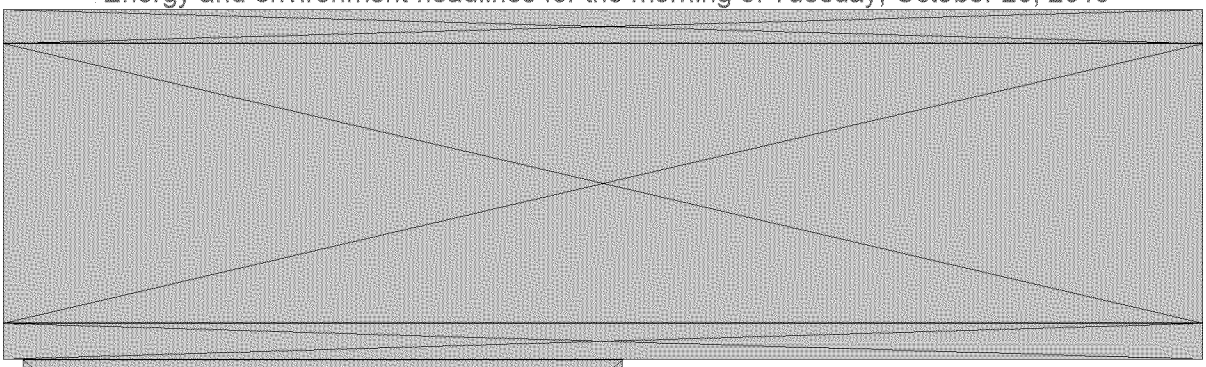
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

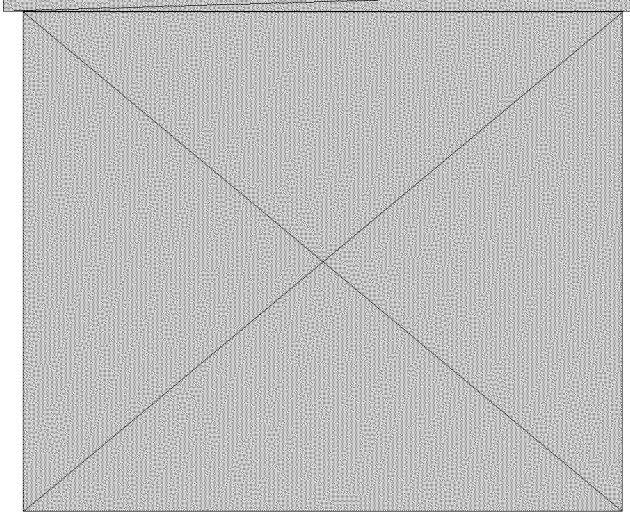
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Tue 10/20/2015 11:15:29 AM
Subject: Markey presses NRC on nuclear fleet's climate resilience

Advertise | Contact

Energy and environment headlines for the morning of Tuesday, October 20, 2015





Markey presses NRC on nuclear fleet's climate resilience

By Kevin Rogers

A week after he welcomed the announcement that his home-state Pilgrim Nuclear Power Station would shut down by 2019, Massachusetts Sen. Ed Markey is pressing the federal government to detail the climate resilience of the rest of the nuclear fleet.

In a letter sent Monday to Nuclear Regulatory Commission Chairman Stephen Burns, the Massachusetts Democrat raised concerns that the nation's nuclear plants might be at risk as

climate impacts worsen and extreme weather events become more frequent.

"I write to request information about how extreme weather, higher water temperatures, and the effects of climate change may impact the U.S. nuclear power industry in light of the increase in the number of plant shutdowns," he wrote.

"Other extreme weather events have also threatened the safe operation of U.S. nuclear power plants, including tornado outbreaks, hurricanes, and droughts," he continued.

Markey called on Burns to supply him with data on any nuclear shutdown or power reduction in the past decade that came as a result of flooding, hurricanes and other extreme weather events, as well as how much generating capacity was lost as a result of the shutdowns.

A spokesperson for NRC said that Burns would respond appropriately and offered no additional comment.

Markey also raised concerns that warming water temperatures could force additional plant shutdowns and generation reductions reductions.

"Rising water temperatures, exacerbated by global warming, have also directly impacted nuclear power plants," he said.

Currently, NRC regulations allow nuclear plants to intake water 75 degrees Fahrenheit or lower for cooling operations, with the option to seek permission to bring in water as warm as 80 degrees.

Markey noted that the Pilgrim plant had to shut down four times in the past three years due to warmer-than-legal temperatures in Cape Cod Bay. He warned that the Entergy-owned plant's problems could be emblematic of a larger climate issue facing the nuclear fleet.

"This and past actions at other reactors may signal that plant operators believe that partial or full shutdowns may become regular occurrences," he said. "As the risk of elevated water temperatures continue to rise, so will the risk of nuclear power plant full or partial shutdowns."

Markey believes nuclear energy to be a high-cost, high-risk venture, despite its status as a zero-emitting source of electricity. In response to the announcement that the Pilgrim plant would shut down last week, Markey urged his state to work to replace it with renewable power.

A spokesperson for the Nuclear Energy Institute, the nuclear industry's advocacy group, did not return a request for comment on Markey's letter and concerns. NEI, however, contends that nuclear plants are highly resilient to extreme weather, especially in Markey's region.

"New Englanders are no strangers to extreme weather," NEI President Marvin Fertel said in

response to last week's Pilgrim announcement. "Over the years, with rare exception, nuclear energy facilities have supported the area by reliably providing the electricity that can be the difference between life and death."

Quick Links

States probe VW over emissions, look for settlement money

Son of late PM Pierre Trudeau becomes Canada's new leader

Oil slips following big slide

Monitors arrive after radioactive waste site fire in Nevada

More workers testify on mine conditions in ex-coal CEO trial

Dalai Lama calls action on climate a 'human responsibility'

Utilities meet efficiency with raised fees

Oklahoma cracks down on disposal wells in Cushing

Biden outlines his climate record

Railroads seek more time to install safety technology

Gasoline glut: Futures at 6-year low

Proposed coal mine expansion in Montana hits snag

Faster hydro permitting would aid climate fight: Industry

Solar projects encroaching on natural landscapes: Study

Saudi debt sees govt. holding up on payments

Worker's cancer linked to Fukushima

Upcoming Events

States probe VW over emissions, look for settlement

money

By Ronnie Greene and Ryan J. Foley

WASHINGTON (AP) — An expanding investigation into Volkswagen's emissions-cheating scandal launched by state attorneys general could last years and will likely end in a negotiated settlement.

Forty-five states and D.C. have joined the review, investigating how VW was able to game emissions tests to hide that its "Clean Diesel" cars emitted smog-causing exhaust up to 40 times dirtier than the law allows. The attorneys general are likely to seek compensation for consumers and redress for environmental harm, building their own investigations under state laws that protect consumers from deceptive trade practices and set clean air standards.

"This is a really important case and it has big economic and health consequences. It's nowhere near the scale of tobacco but you are kind of in that realm," said former Wisconsin governor and attorney general Jim Doyle, who participated in the multistate investigation that ended in a landmark settlement against tobacco companies in 1998. "This is the kind of case that you elect an AG for, to stand up for the safety and health of the people of the state."

Volkswagen is "looking at an enormous settlement, just enormous, when you think about how many cars are out there," he said.

More

Son of late PM Pierre Trudeau becomes Canada's new leader

By Rob Gillies

TORONTO (AP) — Canadians voted for a sharp change in their government Monday, returning a legendary name for liberals, Trudeau, to the prime minister's office and resoundingly ending Conservative Stephen Harper's near-decade in office.

Justin Trudeau, the son of late Prime Minister Pierre Trudeau, became Canada's new prime minister after his Liberal Party won a majority of Parliament's 338 seats. Trudeau's Liberals had been favored to win the most seats, but few expected the final margin of victory.

Canada had shifted to the center-right under Harper, who has lowered sales and corporate taxes, avoided climate change legislation and clashed with the Obama administration over the Keystone XL pipeline.

The Trudeau victory will ease tensions with the U.S. Although Trudeau supports the

Keystone pipeline, he argues relations should not hinge on the project. Harper has clashed with the Obama administration over other issues, including the recently reached Iran nuclear deal.

"Tonight Canada is becoming the country it was before," Trudeau said. And he added that positive politics led to his victory.

More

Oil slips following big slide

By EnergyGuardian

Oil was lower early Tuesday following a big slide triggered in part by a fall in gasoline futures.

Benchmark U.S. crude for November delivery was down 11 cents to $46.17 per barrel in electronic trading on the New York Mercantile Exchange. On Monday, the contract fell $1.44 to $46.28.

Brent crude, used to price international oils, lost 10 cents to $48.50 in London. The December contract had plunged $1.85 to $48.61 in the previous session.

More

Monitors arrive after radioactive waste site fire in Nevada

By Sally Ho and Ken Ritter

LAS VEGAS (AP) — Radiation wasn't immediately detected during fly-overs of a burned trench containing long-buried radioactive waste at a commercial disposal site in rural southern Nevada, state and federal officials said Monday.

Ground testing was scheduled next, headed by a U.S. Environmental Protection Agency radiological emergency team sent to the site about 115 miles northwest of Las Vegas, said Rusty Harris-Bishop, spokesman for the EPA Region 9 office in San Francisco.

"No gamma radiation has been detected at this time," Harris-Bishop said in a statement announcing the federal agency was joining a damage and danger assessment headed by the state and involving the Nevada National Guard, Nye County officials and U.S. Energy Department.

The EPA said the unknown amount of low-level radioactive waste that burned had been

deposited sometime in the 30 year-period before 1992, when facility operator US Ecology stopped accepting such material. It was one of six in the nation that accepted low-level radioactive waste, which typically includes tools, protective clothing, and parts and machinery from nuclear plants.

More

More workers testify on mine conditions in ex-coal CEO trial

By The Associated Press

CHARLESTON, W.Va. (AP) — In ex-Massey Energy CEO Don Blankenship's trial, former mine supervisors testified about being pushed to produce more coal despite poor conditions underground before a deadly 2010 mine explosion.

Media outlets report that in Charleston federal court Monday, former section foreman Richard "Smurf" Hutchens recalled unrealistic coal production goals at Upper Big Branch Mine. He said a supervisor threatened to fire him if he didn't meet production goals, despite regularly being behind on cleaning up his section.

Former superintendent Rick Hodges and fire boss Larry Adams said Upper Big Branch never had enough workers to both produce coal and maintain safety.

Blankenship is charged with conspiring to break mine safety laws and lying to financial regulators about safety at the West Virginia mine, which exploded in 2010, killing 29 men.

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

Dalai Lama calls action on climate a 'human responsibility'

By Katy Daigle

NEW DELHI (AP) — The Dalai Lama on Tuesday urged strong global action to limit global warming and to protect fragile environments, including the Himalayan glaciers and Tibetan plateau.

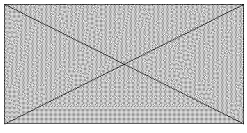
Calling climate change a "problem which human beings created," the 80-year-old Tibetan Buddhist spiritual leader said all of humanity was now responsible for taking action. But instead, he said, "we are relying on praying to God or to Buddha. Sometimes I feel this is very illogical."

He issued his plea in a pre-taped video released as part of a campaign launched by the Tibetan government-in-exile in the north Indian hill town of Dharmsala, where the Dalai Lama has been based since fleeing a Chinese military crackdown in Tibet.

The government-in-exile said the campaign would continue through this year's U.N. climate change talks, where nations hope to conclude a new treaty for limiting climate-warming gas emissions. The exiled government will also send its own delegate to the talks, which start Nov. 30 in Paris, though it will not have a vote of its own.

More

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

Utilities meet efficiency with raised fees

Declining electricity consumption has pushed utilities to increase their customers' monthly fees to pay for fixed costs, including grid maintenance, a practice that's angered consumer advocates, The Wall Street Journal reports.

More

Oklahoma cracks down on disposal wells in Cushing

Following a number of earthquakes near the major crude storage hub at Cushing, the Oklahoma Corporation Commission has ordered cutbacks in the operation of wastewater disposal wells in the area, The Oklahoman reports.

More

Biden outlines his climate record

With a possible move to launch a presidential campaign still up in the air, Vice President Joe

Trouble seeing this email? Click here.

Biden used a speech at the White House Monday to run down his long record on climate and environment issues, The Hill reports.

More

Railroads seek more time to install safety technology

The American Public Transportation Association warns that the hauling of freight cargo – including oil and gasoline – could be stopped in its tracks unless Congress extends the Dec. 31 deadline to install Positive Train Control, FuelFix reports.

More

Gasoline glut: Futures at 6-year low

Growing supplies and worries about weaker demand saw gasoline futures slump to a six-year low on the Nymex Monday, The Wall Street Journal reports.

More

Proposed coal mine expansion in Montana hits snag

The Montana Environmental Information Center has been successful in challenging a 2013 permit allowing expansion at Signal Peak mine, and the matter will now be referred back to the state Department of Environmental Quality for review, Platts reports.

More

Faster hydro permitting would aid climate fight: Industry

The National Hydropower Association launched a promotional blitz Monday that argues a permitting process for hydropower projects that can take "up to ten years" isn't acceptable for a government focused on cutting carbon emissions and expanding clean energy, The Hill reports.

More

Solar projects encroaching on natural landscapes: Study

A Carnegie study released Monday found that new solar projects in California are being located in natural landscapes instead of developed areas, affecting wildlife habitats and reducing arable land, The San Diego Union-Tribune reports.

More

Saudi debt sees govt. holding up on payments

Contractors building infrastructure in Saudi Arabia have been waiting months for payment, sources have told Bloomberg, attributing the delays to a government cash flow problem

triggered by falling crude prices.

More

Worker's cancer linked to Fukushima

A former recovery worker at Japan's crippled Fukushima Dai-ichi nuclear power plant has been diagnosed with leukemia, the government confirmed after he filed a claim for worker's compensation, The Washington Post reports, noting media claims he was exposed to 16 millisieverts of accumulated radiation.

More

Upcoming Events

- Oct. 20, Washington: The Senate Foreign Relations Subcommittee on Multilateral International Development, Multilateral Institutions, and International Economic, Energy, and Environmental Policy to hold a hearing on December's United Nations climate talks. State Department Special Envoy for Climate Change Todd Stern to testify. 2:45 pm , Dirksen 419.
- Oct. 20, Washington: The Senate Energy and Natural Resources Committee to hold a hearing on six Interior Department and Energy Department nominees, including Cherry Ann Murray, to be Director of the Office of Science at the Department of Energy; Victoria Marie Baecher Wassmer, to be Under Secretary of Energy; Mary Kendall, to be Inspector General at the Department of the Interior; Suzette Kimball, to be Director of the United States Geological Survey; Kristen Joan Sarri, to be an Assistant Secretary of the Interior (Policy, Management and Budget) ; and John Frances Kotek, to be an Assistant Secretary of Energy (Nuclear Energy). 10:00 am , Dirksen 366.
- Oct. 20, Washington: Secretary of State John Kerry to headline a State Department forum on climate and clean energy investment forum. 9:15 am , State Department.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Haynes, Ben[haynes.ben@epa.gov]; Mazaitis, Vincent[mazaitis.vincent@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Giles, Michael (EEO)[michael.giles@vw.com]; Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Allen, Gregory (EEO)
Sent: Tue 10/20/2015 1:43:00 PM
Subject: A3 eTron Release

Hello Ben / Vince,

Please release the Audi A3 eTron (Vehicle ID: AU373-6-0813/16) for pick-up. No further testing is requested.

Please let me know when it is ready, and we will schedule our truck to come get it.

Thanks.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Tue 10/20/2015 4:03:35 PM
Subject: Air & Radiation Law News for October 20, 2015

Air & Radiation Law News for October 20, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

Court Denies Rehearing Request on Test Fuel Policy

A federal appeals court panel will not reconsider the Environmental Protection Agency's alternative test fuel policy, which requires automobile manufacturers to use commercially available fuel during emissions testing of new vehicles...

Air Pollution

Industry Sues Over EPA Phosphoric Acid Standards

Two industry groups are challenging the Environmental Protection Agency's revised federal emissions standards for phosphoric acid manufacturing facilities, a rule that established new limits on previously

unregulated mercury...

Air Pollution

OMB Reviewing EPA Guidance on Wildfires

The White House Office of Management and Budget is reviewing supplemental guidance on how states should handle air quality data that is affected by wildfires, the Environmental Protection Agency told Bloomberg BNA in an Oct. 19 e-mail....

Climate Change

Bonn Talks Open With Controversy Over Negotiating Text

Negotiators spent opening day of the Bonn climate talks Oct. 19 adding "surgical insertions" to the document that is meant to eventually become a global climate pact, but critics fear the text could grow unwieldy before it can be finalized...

Climate Change

Markey: Climate Change Threatening Nuclear Reactors

Climate change is threatening the safety of the nation's fleet of nuclear reactors, Sen. Ed Markey (D-Mass.) said in a letter to the Nuclear Regulatory Commission seeking more information about global warming's impacts on the nuclear...

Climate Change

Science Committee Probes Climate Researcher's Grants

A House committee is investigating whether a climate researcher improperly transferred federal grant funds to a school in India he founded as part of a larger probe of a climate research group....

Climate Change

Warming Adds Billions to Hurricanes' Cost, Study Says

Climate change has added billions to the toll of hurricane strikes on the U.S., according to a study that challenges the prevailing scientific view that the rising cost is mainly because more buildings, towns and businesses are in the way....

Elections

Trump Vows to Limit EPA, Calls Rules a 'Disgrace'

A Donald Trump presidency would include a significantly limited or nonexistent Environmental Protection Agency, the front-runner for the Republican presidential nomination said Oct. 18....

Energy

Oil Industry's Anti-Ethanol Ads Cite Climate Impact

In its bid to roll back government mandates for the use of biofuels, petroleum producers have run out a series of arguments: It harms engines; it raises food costs; it is bad for boats; and the mandate is government interference in the economy....

Energy

Supreme Court to Hear Cases on Power Plant Subsidies

The U.S. Supreme Court will decide whether states with competitive power markets have authority to run subsidy programs to develop new power plants (Hughes v. PPL EnergyPlus, U.S., No. 14-614, 10/19/15; CPV Maryland v. PPL EnergyPlus, U.S.,...

International Climate

Debate Over Loss, Damage Likely to Wait Until Paris

Small island nations and other countries vulnerable to rising sea levels and other climate impacts regrouped at the Bonn climate talks Oct. 19 for what is widely seen as an uphill battle to get wealthier nations to commit to a kind of insurance...

International Climate

More Businesses Get on Board with Climate Deal

Pressure is building on the world's governments to successfully strike a deal to fight rising temperatures and other impacts of climate change, as even more American businesses get on board with the idea....

Regulatory Policy

Forest Service Leads List of Agency NEPA Efforts

The latest annual report on compliance with the National Environmental Policy Act has been released by the National Association of Environmental Professionals with a summary of 2014 data on the federal agencies bearing the brunt of NEPA compliance....

Renewable Energy

Near Record-Level Turbine Installation Expected in China

China, the world's biggest wind market by capacity, is expected to continue adding new turbines at close to record levels next year as the nation leans on renewable energy to help cut greenhouse gases....

Vehicle Fuels

Commission Seeks Comment on Fuel, Emission Information

The European Commission called for comments Oct. 19 on the effectiveness of a 1999 European Union law that requires information about fuel economy and carbon dioxide emissions to be included in sales material for new cars....

Inside EPA's **Risk Policy Report**, 10/20/2015

http://insideepa.com/newsletters/risk-policy-report

Latest News

Udall 'Optimistic' On Possible LWCF Deal To Allow Vote On TSCA Reform

Sen. Tom Udall (D-NM), a lead co-sponsor of legislation to overhaul the Toxic Substances Control Act (TSCA), says he is "optimistic" on reaching a deal with senators to resolve a dispute over reauthorizing

the Land and Water Conservation Fund (LWCF) that has led to an indefinite delay of a Senate floor vote on the TSCA bill.

Washington, Tribes Urge 9th Circuit To Uphold CERCLA Air Emissions Ruling

Washington state and several Indian tribes are asking the U.S. Court of Appeals for the 9th Circuit to uphold a lower court's novel ruling finding air emissions stemming from a mining facility constituted "disposal" of hazardous substances under Superfund law, refuting arguments from a large mining company that the lower court decision conflicts with a 2014 ruling by the same circuit.

Academic Study Draws Attention To Growing Airport Air Toxics Emissions

A new study by the New Jersey Institute of Technology (NJIT) shows significant and growing emissions of air pollution -- including air toxics -- from airports across the country, drawing attention to a problem that has so far received less scrutiny from regulators than stationary sources, road vehicles or shipping.

Greenwire

ENERGY MARKETS:

Supreme Court takes on another high-stakes FERC case

Robin Bravender, E&E reporter

Published: Monday, October 19, 2015

The Supreme Court today agreed to tackle its second major case of this term surrounding state and federal turf lines in electricity markets.

In a customary short order issued this morning, the court announced it would hear arguments in two linked cases involving a Maryland program providing incentives for new power generation. A lower court threw out the state program after judges found the incentives infringed on the Federal Energy Regulatory Commission's jurisdiction.

That program had been challenged by existing plants that would compete with the new plants in the regional wholesale electricity market operated by PJM Interconnection LLC. Power generators opposed to the state program and the Obama administration had urged the high court not to hear the appeal.

The high court is currently grappling with a separate case surrounding whether a FERC program inappropriately impeded on states' jurisdiction over retail electricity markets. An opinion in that case is pending after the justices heard oral arguments last week (*Greenwire*, Oct. 14).

The newly granted case is tied to the pending case "in that the problems both FERC and Maryland are trying to address in each situation represent the importance of the concurrent jurisdiction and cooperative federalism that the Federal Power Act envisions," said Natural Resources Defense Council attorney Allison Clements, although she noted there are "important distinctions" differentiating the cases.

The linked Maryland cases the court today agreed to hear later this term are *W. Kevin Hughes v. PPL*

EnergyPlus LLC and *CPV Maryland v. PPL EnergyPlus*. Hughes is the chairman of the Maryland Public Service Commission.

The high court has not yet declared whether it will weigh in on two separate but related cases that involve a similar program in New Jersey.

Both states developed programs that sought to encourage energy generation by setting up programs where new plants were ensured fixed contract rates and stable revenues from retail electricity purchasers. And both states' programs were struck down by federal appeals courts, where judges found that the incentives infringed on FERC's jurisdiction over wholesale rates for electricity and transmission that crosses state lines.

Maryland, New Jersey and Commercial Power Ventures of Maryland had asked the high court to reinstate those programs. State officials argued that the lower courts had inappropriately hampered their ability to ensure adequate and affordable electricity generation and failed to preserve states' authority over electricity generation within their borders.

Last month, U.S. Solicitor General Donald Verrilli said both the Maryland and New Jersey programs were unlawful and urged the court to leave in place the rulings that struck them down. Despite states' contentions that the lower courts' decisions will stifle clean energy generation, he said, "both courts went out of their way to emphasize that their pre-emption decisions were limited to the specific circumstances of the New Jersey and Maryland programs" (*Greenwire*, Sept. 18).

Clements of NRDC said today, "The Supreme Court's consideration of this case is consistent with the recognition that states must be able to pursue their own energy policy agendas -- specifically clean energy agendas -- in a manner that complements FERC's authority."

The court's decision to hear the Maryland case is "good news," said National Association of Regulatory Utility Commissioners general counsel Brad Ramsay. NARUC filed an amicus brief urging the Supreme Court to reverse the lower court's ruling. "If nothing else -- it means petitioners get one more shot in the 'batter's box' to make our case. Plus, the most logical implication of the grant is that at least four justices don't like some aspect of the decision below," Ramsay added.

It takes the votes of four Supreme Court justices to grant review of a case.

Calif. clean water case

In a separate denial issued today, the Supreme Court refused to hear an appeal in the case *Conway v. State Water Resources Control Board*.

In that case, the owners of private property on McGrath Lake in Ventura County, Calif., challenged how regulators had established the "total maximum daily load" of pollutants allowed in the lake.

A California appeals court found that regulators' establishment of pollutant limits was in line with the Clean Water Act, and the California Supreme Court declined to review the case.

Click here to read the property owners' petition to the Supreme Court.

AIR POLLUTION:

Greens decry ozone limit as easier lift than Bush-era reg

Amanda Reilly, E&E reporter

Published: Monday, October 19, 2015

Key green allies are delivering a scathing critique about the new ozone standard finalized by the Obama administration earlier this month: President Obama is letting industry off easy compared to the Bush administration.

Green groups contend that fewer counties are likely to be named out of compliance under U.S. EPA's final standard than were designated in noncompliance under the 2008 limit set during the George W. Bush administration.

While they disagreed with the Bush administration's standard, environmentalists also say that the Republican president set a bigger safety cushion based on analysis of harmful levels of ozone.

"This was the weakest option on the table," Terry McGuire, a Washington representative for the Sierra Club, said of the Obama administration's standard. "It's a step in the right direction, but this is not a huge lift for industry."

Industry, however, maintains that the low-hanging fruit of pollution control has already been picked, leaving on the table more costly options for reducing emissions. Background levels of ozone greatly complicate compliance at the new standard, compared with the 2008 standard, according to industry experts.

EPA on Oct. 1 unveiled a final new ambient air quality standard for ground-level ozone of 70 parts per billion, down from the 2008 limit of 75 ppb. The agency based the new limit on a scientific review of negative public health effects linked to ozone (*Greenwire*, Oct. 1).

Ground-level ozone is a key component of smog that's formed when nitrogen oxides and volatile organic compounds react in the presence of sunlight.

Determining compliance with the standard is complex: An area could exceed the standard four times a year for three years before it's considered in violation.

Using that formula, EPA says it expects 213 counties outside of California that monitor air quality to fail to achieve the new limit when it issues designations in 2017. Under the Clean Air Act, states with nonattainment areas will be required to submit pollution control plans to EPA.

But the agency says all but 14 of those counties will meet the standard by 2025 thanks to the Clean Power Plan, mercury standards, emission limitations for cars and trucks, and other air pollution regulations.

According to EPA's regulatory impact analysis, just five coal-fired power plants will have to make changes to reduce levels of NOx pollution.

When the Bush administration lowered the ozone standard from 84 ppb to 75 ppb in 2008, it later labeled 232 counties in whole or in part in "nonattainment." Many of those other regulations were not in place at the time the standard was promulgated.

The Natural Resources Defense Council, a key green ally of the Obama administration, last week pointed to those figures and argued that industry was being let off the hook under the new limit.

"There are far fewer new nonattainment areas required by this standard than by the Bush administration's

standard in 2008," said John Walke, clean air director at NRDC, during a panel last week held by the Environmental Law Institute.

Concerns about compliance, however, helped fuel an aggressive campaign by industry and business groups against the tighter standard.

Cindy Langworthy, a counsel at Hunton & Williams LLP who represents industry clients, pushed back against the contention that the new standard will be an easy lift and said its reach extends beyond the coal industry.

EPA, she argued, is oversimplifying the compliance process when it says most areas will come into compliance by 2025 thanks to other air regulations.

"EPA's assessment," Langworthy said, "that many areas will come into attainment using business-as-usual approaches -- which, by the way, can be pretty costly, including for the electric utility industry -- that assessment is just really not relevant to what areas are going to have to do."

Langworthy also noted that, under the Clean Air Act, most areas around the country will be required to show compliance before 2025.

She also raised concerns that background levels of ozone stemming from the upper atmosphere, overseas pollution and wildfires will complicate efforts to comply. EPA has several mechanisms for addressing air pollution that is out of states' control, but "historically none of these tools has worked very well," she said.

Lorie Schmidt, associate general counsel at EPA, last week said that the concerns about background ozone were overblown and that the agency intended to release a white paper in the coming months on the subject.

Scientific review also under question

Obama's green allies have also blasted the scientific review that underlies the administration's new ozone standard (*Greenwire*, Oct. 2).

EPA said it determined that negative effects occurred in healthy, exercising adults at ozone concentrations of 72 ppb. The agency set a new standard at 70 ppb to provide the margin of safety required by the Clean Air Act.

In comparison, the Bush administration's EPA found that studies showed actual harm from ozone pollution at 80 ppb. The agency set a new standard at 75 ppb to cushion the public from the negative effects.

Walke of NRDC said the Obama administration did "worse" by adopting a 2 ppb margin of safety.

"They merely lowered the standard to 70 rather than to 67 as they would have done had they followed even the example of the Bush administration," he said.

To be sure, green groups were not pleased with the Bush administration's standard when it was set, arguing that the limit was too weak. Environmentalists and public health groups have long argued that the scientific evidence shows ozone levels above 60 ppb are harmful.

Green groups have already said they would likely sue the Obama administration over a 70 ppb standard (*Greenwire*, Sept. 29).

Schmidt at EPA acknowledged that setting a new ozone standard was "very controversial" and defended the administration's decision.

EPA has said the link to negative health effects at levels below 70 ppb is too uncertain to be the basis of a national ambient air quality standard.

"Because of that uncertainty, we did not believe it was appropriate to require complete elimination of exposures to ozone at levels as low as 60," Schmidt said.

CLIMATE:

68 more companies join White House pledge ahead of Paris

Hannah Northey and Jean Chemnick, E&E reporters

Published: Monday, October 19, 2015

Article updated at 2:06 p.m. EDT.

Sixty-eight companies signed on today to a White House-sponsored statement calling for the Paris climate talks to produce a "strong step forward" in controlling warming.

Today's signatories -- which run the gamut from banks to consumer goods companies to coal-invested energy firms -- bring the total number of companies that have signed the American Business Act on Climate Pledge to 81.

The pledge was initiated in July with 13 participants as part of the White House's strategy to show private-sector support ahead of this year's high-stakes round of U.N. negotiations (*E&E Daily*, July 27).

"We recognize that delaying action on climate change will be costly in economic and human terms, while accelerating the transition to a low-carbon economy will produce multiple benefits with regard to sustainable economic growth, public health, resilience to natural disasters, and the health of the global environment," the pledge says.

President Obama will meet with CEOs from five companies that endorsed the pledge: Berkshire Hathaway Energy, the Hershey Co., Pacific Gas and Electric Co., Johnson & Johnson, and Intel Corp. Each has brought a supplier to the meeting, which will focus on "efforts to tackle climate change both in the United States as well as on a global scale," according to the White House.

All signatories have also pledged to bring down their own greenhouse gas emissions and limit waste. The White House said these company-specific pledges include promises to cut heat-trapping emissions by half, slash water usage by as much as 80 percent and transition to 100 percent renewable energy use.

But while energy giants like Berkshire Hathaway Energy, Calpine, General Electric Co., Iberdrola USA and PG&E have signed on to the White House's pledge, large oil and gas players have not. And when asked about their absence on a call today with reporters, White House climate adviser Brian Deese quickly pivoted to discussing the willingness of the U.S. utility sector to join other sectors -- technology, retail and manufacturing -- in slashing their emissions.

"These are companies that are stepping up to recognize the opportunity associated with moving more toward clean energy. I think that's consistent with the conversations that we're having, broadly speaking,

with the American utility sector," he said. "One of the reactions to the Clean Power Plan we've found domestically is that utilities, generally speaking, we're having a very constructive dialogue ... about their own plans to move toward cleaner sources of energy."

Firms that are taking the pledge are endorsing the Obama administration's effort to tackle climate change and calling for an international agreement in Paris later this year, he added.

Negotiators will spend this week in Bonn, Germany, attempting to craft a draft agreement that will form the basis of talks in Paris, and Deese said the United States' business support will help drive those conversations and progress heading into Paris. Levi Strauss, he noted, is pledging to slash emissions by 25 percent by 2020 in office, retail and distribution hubs, while Nike is vowing to use only renewable energy in its facilities by 2025.

Todd Brady, a global environmental and occupational health director for Intel, the largest purchaser of renewable energy in the United States and one of the pledge's signatories, was also on the call. Intel pledged to continue fueling its operations in the United States and internationally with only renewable energy through 2020 and increase its domestic clean energy production.

"We do believe that business and a focus on climate change can go hand in hand," Brady said.

The White House expects another group of companies to sign on to the pledge before the start of the Paris negotiations in six weeks' time, Deese said.

These companies "are also committing to transparently accounting for the emissions and/or clean energy activities they're undertaking," he said. "Part of this effort includes affording greater transparency and greater access to the data that underlies how these companies are operating."

Focus on private sector

Also today, Deese said an independent consortium of long-term investors is announcing a consortium, which will focus predominantly on growth and deployment capital in clean energy.

The new entity, Aligned Intermediary, will announce its intention to spend $1.2 billion in investment capital, and the formal launch will take place next year, Deese said.

Former Department of Energy Loan Programs Office Executive Director Peter Davidson, the consortium's co-founder and CEO, is slated to appear at Secretary of State John Kerry's two-day summit on climate finance tomorrow, where he will provide more details.

When asked why the White House is spending so much time engaging businesses in hopes of greasing the wheels heading into Paris, Deese said industry backing is critical to reaching ambitious and sustainable climate goals and demonstrating it can act on climate threats.

"For some years, President Obama has been making the case that if we make the right choices, we make smart investments in basic research to try and drive down the cost of clean energy," he said. "I think that's what we're starting to see."

Deese said the meeting is part of other climate talks occurring at the White House today, and members of Congress and other stakeholders will also be in attendance. Discussions, he said, will focus on leveling the playing field for American companies and providing them certainty in areas of emerging technologies.

"We're trying to encourage the companies that are participating today to raise up their commitments in the areas of the country where they operate, where they're headquartered, where their employees work," he

said. "We've got companies that operate in every state."

The Obama administration is not alone in striving to show private sector buy-in for a climate accord out of Paris. The private sector is seen as an important contributor of finance for climate change mitigation projects in the developing world. A recent report showed developed nations supplied more than $60 billion in climate finance to poor countries last year, due in large part to private investment.

CEOs from 10 major fossil fuels companies met in Paris last week to call for an "effective" agreement to keep warming to 2 degrees Celsius above preindustrial levels. The goal is laid out in the U.N. Framework Convention on Climate Change, but analysists say current national pledges fall short of meeting it.

The fossil fuels companies, which include BP, Royal Dutch Shell and Statoil, pledged to collaborate on emissions reduction going forward.

"Over the coming years we will collectively strengthen our actions and investments to contribute to reducing the [greenhouse gas] intensity of the global energy mix," they said.

The Union of Concerned Scientists released a statement ahead of the CEOs' appearance urging skepticism.

"Given their track record, the onus is on them to prove to both their shareholders and the public that they are truly serious," said Alden Meyer, the group's director of strategy and policy.

He proposed that any action taken by the fossil industry be evaluated on the basis of whether it calls for absolute limits on emissions, cuts to fossil fuels tax benefits and subsidies, and a carbon tax in developed countries.

And Reuters quoted Laurence Tubiana, French ambassador for the international climate negotiations, as saying fossil fuels companies should be challenged to explain "what is their next business model for the years to come."

FEDERAL AGENCIES:

IG: Give watchdogs access to all records

Kevin Bogardus, E&E reporter

Published: Monday, October 19, 2015

The Department of Justice's internal watchdog is urging Congress to pass legislation to guarantee inspectors general access to all agency records.

In a *Washington Post* op-ed published yesterday, Michael Horowitz, the inspector general for Justice, said agencies have begun to restrict access to records sought under IG investigations. The move comes despite the Inspector General Act stating that the agency watchdogs should have access to all records.

"Without independent access to agency records, our ability as IGs to conduct the kind of sensitive reviews that have resulted in widespread improvements in the effectiveness of government programs will be significantly compromised," wrote Horowitz, who is also chairman of the Council of the Inspectors General on Integrity and Efficiency.

"Allowing officials whose agencies are under review to decide what documents an inspector general can

have turns the IG Act on its head and is fundamentally inconsistent with the independence that is necessary for effective and credible oversight."

Horowitz takes note in his op-ed of an opinion made by Justice's Office of Legal Counsel that has caused an uproar on Capitol Hill. The July 20 opinion argued against the disclosure of certain records to IGs during their audits.

That sparked action by senators from both parties. They offered legislation last month to reverse the Justice opinion and give inspectors general access to all agency records (*E&E Daily*, Sept. 22).

The Justice IG said lawmakers should pass the bill.

"I urge Congress to pass legislation quickly that clarifies that 'all records' means 'all records' and reject any interpretation that would allow government agencies to shield their misdeeds from inspector general oversight and, more importantly, from the American people," Horowitz said.

Inspectors general haven't always seen eye to eye with the Obama administration. Forty-seven IGs complained of agencies blocking their investigations in an August 2014 letter to lawmakers (*Greenwire*, Aug. 6, 2014).

CAMPAIGN 2016:

Trump vows to cut EPA if he wins the White House

Daniel Bush, E&E reporter

Published: Monday, October 19, 2015

Real estate mogul Donald Trump vowed yesterday to eliminate U.S. EPA if he wins the White House next year.

The Republican presidential front-runner said he would cut several federal agencies including EPA and the Department of Education if he wins the 2016 election.

"Environmental protection, what they do is a disgrace. Every week they come out with new regulations," Trump said on "Fox News Sunday," referring to EPA.

When asked by the show's host Chris Wallace who would protect the environment if EPA no longer existed, Trump responded: "We'll be fine with the environment. We can leave a little bit, but you can't destroy businesses."

An EPA representative declined to respond, saying the agency does not comment on political campaigns.

Green groups slammed Trump for singling out EPA. Daniel Weiss, senior vice president for campaigns at the League of Conservation Voters, said Trump "essentially announced that he would launch an attack on public health if elected to the White House."

"His disdain for health and environmental standards would dirty our waters and foul our air, just to enrich big polluters at the expense of everyone else," Weiss wrote in an email.

While Trump hasn't called for eliminating EPA outright before, he has been highly critical of environmental regulations and climate change policy (*Greenwire*, July 24).

Trump said last year on Twitter that global warming was "bullshit" and also grabbed headlines in 2014 when he told the conservative news outlet *Breitbart News* that he believed "taxing everybody for climate change is ridiculous."

At the same time, Trump has long touted his environmental record, despite criticism from green groups over the environmental impacts of his real estate projects (*Greenwire*, Oct. 5).

Trump's latest comments echoed former Texas Gov. Rick Perry's now-famous slip-up at a 2011 GOP presidential primary debate, where Perry could remember only two of the three federal agencies he would cut if he became president.

Perry, who also ran for president this cycle before dropping out of the race earlier this year, said later that the agency he had forgotten was the Department of Energy.

COAL:

Murray agrees to $5K elections fine for 'war on coal' signs

Manuel Quiñones, E&E reporter

Published: Monday, October 19, 2015

Murray Energy Corp. has agreed to pay $5,000 to the Federal Election Commission for distributing signs opposing President Obama during the 2012 campaign, according to public records.

At issue are signs reading "STOP the WAR on COAL -- FIRE OBAMA." A Murray executive saw them in Ohio and Pennsylvania, and the company decided to make roughly 4,700 more at a cost of almost $22,000, according to FEC records.

The problem, according to the FEC and a complaint by left-leaning group ProgressOhio, is that the signs didn't contain a disclaimer showing who paid for them and whether any candidate committees approved them.

Murray Energy representatives say they didn't know the disclosure was necessary and described the signs as part of long-held company beliefs that Obama is waging a war on the coal industry.

Democratic and public watchdog groups have also complained that Murray was forcing employees to participate in company political activities. Murray has denied the allegations.

Earlier this year, the FEC decided against pursuing a complaint that Murray forced workers to attend a 2012 rally for Republican presidential candidate Mitt Romney (*E&E Daily*, July 29). The six-member bipartisan commission deadlocked on whether to proceed.

BLM:

Ex-directors make pitch for 'rigorous' venting, flaring rule

Phil Taylor, E&E reporter

Published: Monday, October 19, 2015

The Bureau of Land Management should require "significant cuts" to the amount of natural gas being flared on public and tribal lands and should require companies to detect and fix gas leaks, according to two former agency directors who served during the Clinton and Obama administrations.

The former directors, Mike Dombeck and Bob Abbey, sent a letter today to Office of Management and Budget Director Shaun Donovan asking that "prompt and timely consideration" be given to BLM's draft rule to reduce venting and flaring.

Dombeck was BLM's acting director from 1994 to 1996, and Abbey was director from 2009 to 2012.

"We believe a rigorous rule is critical for reducing methane waste (the primary component of natural gas) from oil and gas operations on America's public lands and of the federal mineral estate more broadly," the ex-officials wrote. "As stewards for the American taxpayer, the BLM has the authority and duty to ensure a fair return for publicly-owned oil and gas minerals under the Mineral Leasing Act of 1920."

The rule would be "both practical and cost effective" and could be modeled after regulations recently established in states including Colorado and Wyoming, the directors said.

BLM's rule should end the venting of associated gas from oil-producing wells; force "significant cuts" to natural gas flaring; require leak detection and repair at least four times annually at facilities on federal and tribal lands; and require best management practices that reduce waste at "all points of production," including at pneumatic controllers and pumps, liquids unloading, and storage tanks, Dombeck and Abbey wrote.

The directors are the latest to weigh in on the controversial BLM rule, which has been on the agency's regulatory agenda since the middle of Abbey's tenure.

BLM submitted the rule Sept. 18 to OMB's Office of Information and Regulatory Affairs for interagency review (*E&ENews PM*, Sept. 21).

The rule will update 35-year-old regulations that determine when gas is "avoidably" and "unavoidably" lost and whether it is subject to royalties. It will also determine what gas companies may use on-site free of charge to power their operations (*Greenwire*, Sept. 14).

Capturing more of the natural gas that is currently vented, flared or leaked to the environment could increase domestic production and yield a greater royalty return to the U.S. Treasury, while also reducing the escape of methane, a potent greenhouse gas.

But industry officials say an onerous BLM rule could make it too expensive to drill and produce on public lands, which would reduce energy production and overall revenue to U.S. taxpayers.

HYDRO:

Judges signal skepticism of FERC permitting decision

Robin Bravender, E&E reporter

Published: Monday, October 19, 2015

Federal judges today appeared skeptical of electricity regulators' decision to grant an initial permit for an Iowa hydroelectric project.

A three-judge panel for the U.S. Court of Appeals for the District of Columbia Circuit grilled a Federal Energy Regulatory Commission attorney this morning about why the commission granted a preliminary permit to a private company rather than a municipal power agency, when the law says municipalities and states are entitled to preferential treatment.

In the case, the Western Minnesota Municipal Power Agency is challenging FERC's decision to grant a preliminary permit to FFP Qualified Hydro 14 LLP in 2013 to study the feasibility of developing a hydroelectric project at the Army Corps of Engineers' Saylorville Dam on the Des Moines River in Polk County, Iowa.

FERC denied Western Minnesota Municipal Power Agency's competing permit application, and the Minnesota agency argues that FERC erred by departing from its long-standing practice of giving municipalities preference in awarding such permits.

Attorneys for FERC, meanwhile, have told the court that their agency acted appropriately, and that municipalities should be accorded preference in such permits only with respect to water resources that are located "in their vicinity." The commission "rejected Western Minnesota's claim to municipal preference because -- with headquarters almost 400 miles from the proposed project -- Western Minnesota is not located near the proposed project site," FERC attorneys wrote in a brief to the court.

But all three Democratic-appointed appeals court judges this morning appeared inclined to side with the Minnesota agency, saying the law doesn't stipulate that there are limits based on proximity.

"The commission seems wrong on all counts," said Judge Harry Edwards, a senior judge.

Judge Judith Rogers said, "How could Congress be any clearer?"

And Chief Judge Merrick Garland suggested the commission might be better served by focusing on whether states and municipalities are well adapted to develop projects, as opposed to focusing on proximity.

Michael Swiger, an attorney representing the Western Minnesota Municipal Power Agency, said in an interview last week that the outcome of the case will have broad implications.

For almost 100 years, FERC has applied the municipal preference provision to any state or municipality, Swiger said. He said the geographical limitation imposed by the agency is a "very vague standard" and its decision marks "a real shifting of the competitive landscape for these projects."

And these types of permits for hydroelectric projects are widespread across the country, Swiger said.

FERC's preliminary permits for hydropower are issued for up to three years. They don't authorize construction but give their holders priority when applying for a construction license.

FREIGHT:

Oil boom highlights need for funding -- Obama admin

Sean Reilly, E&E reporter

Published: Monday, October 19, 2015

Freight transportation projects warrant their own stand-alone source of federal funding, similar to what highways and public transit programs already receive, the Obama administration said in a newly released draft plan that points to the boom in domestic oil production as one reason for a more assertive national approach.

Shipments of oil and other energy products already account for more than 30 percent of freight traffic. And the existing pipeline network is generally not well-suited to handle new supplies coming out of places like the Bakken Shale oil fields in North Dakota and Montana and the Eagle Ford Basin in Texas, the plan says. As a result, skyrocketing volumes of oil train shipments have "created stresses on the railroads, contributing to some accidents among North American carriers and concerns about rail safety."

More generally, "we have a fragmented vision of how our freight system should look and operate, rather than a unified vision, with little clear accountability for its performance," says the draft document, dubbed the National Freight Strategic Plan.

The plan was released yesterday by Transportation Secretary Anthony Foxx during an appearance in Seattle. Between an increasingly competitive global marketplace and deteriorating facilities stateside, "the need for us to have a national freight plan could not be more urgent," Foxx said in the release.

Besides tapping existing grant funds for freight projects, the plan recommends that Congress adopt the administration's proposal to create two new programs that would devote $18 billion over six years to freight needs, covering ports, highways and other transportation modes.

The plan also urges more coordination between government and private businesses; improved tracking of freight trends; and a sustained effort to train new workers in the freight transportation sectors to replace those who are retiring.

Congress required the plan under the Moving Ahead for Progress in the 21st Century Act (MAP-21), a transportation authorization measure signed in 2012. The draft arrives about three months after the deadline set by lawmakers.

While there is bipartisan interest on Capitol Hill in freight issues, lawmakers have taken no action on the administration's bid for $18 billion in new grant funding contained in H.R. 2410, its version of a long-term transportation bill.

AIR POLLUTION:

Regs, curiosity drive new measurement technology

Published: Monday, October 19, 2015

Technology to measure carbon emissions and other pollutants has been rapidly advancing as stricter government regulations drive a need to quantify human impact on the planet.

These inventions are coming from massive Silicon Valley clean technology companies and government laboratories, as well as small academic labs such as the one at West Virginia University that discovered the Volkswagen emissions-testing scandal.

"There are a lot of companies picking up on this, but who is interested in the data -- to me, that's also fascinating," said Colette Heald, an atmospheric chemist at the Massachusetts Institute of Technology. "We're in this moment of a huge growth in curiosity -- of people trying to understand their environment. That coincides with the technology to do something more."

NASA is also developing new equipment to take multiple readings per day of air pollutants from a geostationary satellite to help scientists track how pollutants move across the planet.

"To understand our impact on the atmosphere and temperature changes in the future, you've got to know how that stuff's going to move around -- and we don't know that very well right now," said Annmarie Eldering, a NASA scientist who helps lead the project (William Yardley, *Los Angeles Times*, Oct. 18). **-- BTP**

MASSACHUSETTS:

Pilgrim closure highlights energy gap

Published: Monday, October 19, 2015

The announced closure of Massachusetts' only nuclear power plant will leave a large gap to fill in the state's energy portfolio, and lawmakers and activists are already weighing options over how to fill it.

The Pilgrim Nuclear Power Station supplies 680 megawatts of largely carbon-free electricity to the state, according to its operators, but soaring maintenance costs and falling natural gas prices led Entergy Corp. to plan to close the plant in 2019.

Environmentalists have expressed hope that wind and solar energy generation could rise to the occasion, but Gov. Charlie Baker (R) has moved to let Massachusetts purchase hydropower from Canada.

"Solar and wind are intermittent. They don't solve or meet our capacity requirement," Baker said Friday. "One of the things that makes hydro attractive to me is it's a baseload substitution and a baseload solution."

The energy need could also help the proposed Kinder Morgan natural gas pipeline, which Massachusetts officials have yet to take a position on (*EnergyWire*, Oct. 16). Environmentalists have asserted that approving the pipeline would jeopardize the state's goals from the 2008 Global Warming Solutions Act (Steve LeBlanc, AP/*Portland Press Herald*, Oct. 17). **-- BTP**

SOLAR:

Brattle Group's Fox-Penner says utility scale significantly more cost-effective than residential

Published: Monday, October 19, 2015

With the U.S. Energy Information Administration predicting a doubling in utility-scale solar installations by the end of 2016, how cost-competitive is it compared with other forms of solar? During today's OnPoint, Peter Fox-Penner, a principal at the Brattle Group, discusses a new analysis comparing the costs of utility-scale solar versus residential-scale projects. He also talks about the impact storage technology development could have on the pacing of installations.

Click here to watch today's OnPoint.

POWER PLAN HUB:

It's conference season for EPA carbon rule

Emily Holden and Rod Kuckro, E&E reporters

Published: October 19, 2015

Starting today, Infocast will hold its second annual Clean Power Plan Implementation Summit. The first day focuses on using natural gas to comply with the rule. Tomorrow's and Wednesday's sessions kick off with remarks from U.S. EPA Associate Assistant Administrator and Senior Counsel Joe Goffman before delving into legal issues, carbon-cutting options and power system considerations. A variety of state environment and energy officials, as well as electric regulators, will speak. Panelists also include utility and grid organization leaders, consultants, and environmental advocates. *ClimateWire*'s Elizabeth Harball will be there.

Also today, the Great Plains Institute and Bipartisan Policy Center host a workshop in Little Rock, Ark., to discuss implementation options with states and utilities from all over the midcontinent region. The two groups have been supporting talks among the Midcontinent States Environmental and Energy Regulators group and the Midwestern Power Sector Collaborative. Federal Energy Regulatory Commissioner Colette Honorable will give the keynote address. *EnergyWire*'s Jeffrey Tomich will report from Arkansas, and the event is also viewable by webcast.

POWER PLAYS

Each Monday, **Power Plays** previews upcoming moves on the way to Clean Power Plan compliance and recaps the week's developments.

Tomorrow, the Distributed Sun 2015 New Energy Summit in Washington, D.C., will feature a keynote address by Goffman on the Clean Power Plan.

On Wednesday, the Environmental Council of the States -- the organization of state environmental agencies -- holds its own meeting on the Clean Power Plan. Panels will explore state perspectives on the rule's regulatory and economic challenges and feature more than a dozen officials from diverse states. Acting EPA air chief Janet McCabe and White House senior policy adviser Megan Ceronsky will speak.

At 2 p.m. Thursday, the House Energy and Commerce Subcommittee on Energy and Power will hold a hearing on the legal aspects of EPA's CO2 regulations for new and existing power plants. *Greenwire*'s Jean Chemnick will be reporting.

In case you missed it:

- Five states face the highest Clean Power Plan compliance costs, according to Fitch Ratings (*ClimateWire*, Oct. 15).

- A group of states led by Tennessee will receive $800,000 from the Department of Energy to create a voluntary national energy efficiency registry, to standardize benchmarks for projects that could qualify for compliance with the Clean Power Plan (*EnergyWire*, Oct. 14).

- A Republican operative turned federal judge has emerged as one of the most powerful critics of President Obama's environmental rules (*Greenwire*, Oct. 13).

- Entergy Corp. will close Massachusetts' only nuclear power plant in 2019, which might complicate the state's efforts to reach greenhouse gas goals (*Greenwire*, Oct. 13).

- State officials in Minnesota held their first Clean Power Plan stakeholder meeting and are optimistic they can meet EPA's goals (*ClimateWire*, Oct. 13).

- Arkansas kicked off its planning process too and maintained a spirit of coordination (*EnergyWire*, Oct. 13).

- Missouri Attorney General Chris Koster, a Democrat, is joining a lawsuit against the rule (*EnergyWire*, Oct. 13).

For questions or comments about E&E's Power Plan Hub or related stories, please email staff reporters Emily Holden and Rod Kuckro at PowerPlanHub@eenews.net.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Tue., October 20, 2015

READ FULL EDITION

1.BUSINESS:

Obama recruits 68 companies to support economic impacts of new climate treaty

Nearly 70 companies announced plans to cut carbon output yesterday as part of a White House campaign to enlist American businesses in its effort to strike a global deal on climate change and to challenge attacks that describe warming policies as economically harmful.

2.ADVOCACY:

Does Greenpeace really want to get into the coal business?

Is it just a bluff to pressure the development of more renewable energy, or does Greenpeace actually intend to own and manage one of Europe's largest coal mining operations?

TODAY'S STORIES

3.NEGOTIATIONS:

Rift between rich and poor nations appears to heal as climate talks head toward final document

4.POLITICS:

Canadians oust Stephen Harper, elect prime minister promising big climate shift

5.SCIENCE:

Wildfires making boreal forests less able to store carbon -- study

6.ADAPTATION:

Wetlands restoration needs to be sped up in SF Bay to fight sea-level rise -- report

7.SCIENCE:

Researchers track vibrations in new materials that turn heat into electricity

8.RENEWABLE ENERGY:

India's long and difficult 'journey' to harness its abundant solar power

9.REGULATION:

Pa.'s nuclear generation sees lifeline in EPA climate rule

10.AUTOS:

Volvo plans to roll out fully electric car before decade's end

11.POLICY:

Governments that price carbon urge others to join

12.FINANCE:

Calif. pension funds tackle divestment from fossil fuels

13.CALIFORNIA:

Scientists to Gov. Brown -- it's too early to link this year's fire to climate change

14.OCEANS:

Scientists warn of precipitous drop in krill near Antarctica

15.REGIONS:

Mont. experts worry about impact of warming on fishing tourism

E&ETV'S ONPOINT

16.INTERNATIONAL:

Climate Policy Initiative's Buchner says innovative approach needed for public, private climate finance

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Tue., October 20, 2015

READ FULL EDITION

1.CLEAN POWER PLAN:

State regulators, utilities see advantages in mass-based approach to EPA rule

LITTLE ROCK, Ark. -- U.S. EPA's draft Clean Power Plan prompted concerns last year about a "dash to gas" -- a wide-scale, costly build-out of natural-gas-fired generation to replace retiring coal plants. The final plan issued Aug. 3, which is more geared toward facilitating emissions allowance trading, seems instead to be inciting another race -- one toward mass-based compliance plans.

TOP STORIES

2.ELECTRICITY:

A renewable energy success story above the Arctic Circle

3.EARTHQUAKES:

Okla. regulators shutter 3 more wells near rumbling pipeline hub

4.SECURITY:

Whose drone is that? Feds want to know

ELECTRICITY

5.SOLAR:

Fla. bills too low to justify rooftop panels, utility CEO says

6.ELECTRICITY:

Maker of Mr. Clean embraces renewable energy

OIL AND GAS

7.MERGERS:

Halliburton-Baker Hughes deal could stretch into 2016

8.OIL:

Iran calls for OPEC to slow, still aims to grow

9.PENNSYLVANIA:

Enviro justice office to monitor shale drilling permits

10.WYOMING:

Oil production rises while drilling and prices drop

11.OFFSHORE DRILLING:

North Sea oil producers expect job losses to top 15K

E&ETV'S ONPOINT

12.INTERNATIONAL:

Climate Policy Initiative's Buchner says innovative approach needed for public, private climate finance

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

Mass Emissions & Rates

Cycle/Test	Distance	HC (grams)	HC (g/mi)	CO (grams)	CO (g/mi)	NOx (grams)	NOx (g/mi)	CO2 (grams)
UDDS1	7.443	0.003	0.000	0.000	0.000	0.000	0.000	0.826
UDDS2	7.438	0.002	0.000	0.000	0.000	0.000	0.000	0.771
UDDS3	7.443	0.000	0.000	0.000	0.000	0.000	0.000	0.251
UDDS4	7.432	0.059	0.008	0.682	0.092	0.095	0.013	1382.163
UDDS5	7.453	0.007	0.001	0.720	0.097	0.066	0.009	1429.565
UDDS6	7.442	0.006	0.001	0.712	0.096	0.076	0.010	1494.086

Fuel Economy

Cycle/Test	HC (g/mi)	CO (g/mi)	CO2 (g/mi)	Comp FE
UDDS1	0.000	0.000	0.111	79325.319
UDDS2	0.000	0.000	0.104	85204.312

CO2 (g/mi)	CH4 (grams)
0.111	0.000
0.104	0.001
0.034	0.000
185.975	0.009
191.811	0.006
200.764	0.008

To: Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]
From: Snyder, Jim
Sent: Tue 10/20/2015 4:13:40 PM
Subject: FW: Data
eTron_MassEmissions&FuelEconomy_CD_UDDS.xlsx

Sorry, just read your note about Bill. Here you go!

From: Snyder, Jim
Sent: Tuesday, October 20, 2015 12:10 PM
To: 'Rodgers, William (EEO)'
Subject: FW: Data

I think we finally have what we've been asking for. Dan understands now and will also revise the official test printout for future testing.

From: McBryde, Dan
Sent: Tuesday, October 20, 2015 11:09 AM
To: Snyder, Jim
Subject: Data

Jim,

See attached. I copied the mass emissions results and the distance from the CDTCS reports to compute the emission rates and fuel economy for each UDDS. Let me know if you have any questions or need additional information. Thanks.

Dan

Dan McBryde, P.E.
Electrical Engineer
US EPA NVFEL
2565 Plymouth Rd
Ann Arbor MI

(734) 214-4328
(734) 214-4440 (fax)

Mass Emissions & Rates

Cycle/Test	Distance	HC (grams)	HC (g/mi)	CO (grams)	CO (g/mi)	NOx (grams)	NOx (g/mi)	CO2 (grams)
UDDS1	7.443	0.003	0.000	0.000	0.000	0.000	0.000	0.826
UDDS2	7.438	0.002	0.000	0.000	0.000	0.000	0.000	0.771
UDDS3	7.443	0.000	0.000	0.000	0.000	0.000	0.000	0.251
UDDS4	7.432	0.059	0.008	0.682	0.092	0.095	0.013	1382.163
UDDS5	7.453	0.007	0.001	0.720	0.097	0.066	0.009	1429.565
UDDS6	7.442	0.006	0.001	0.712	0.096	0.076	0.010	1494.086

Fuel Economy

Cycle/Test	HC (g/mi)	CO (g/mi)	CO2 (g/mi)	Comp FE
UDDS1	0.000	0.000	0.111	79325.319
UDDS2	0.000	0.000	0.104	85204.312

CO2 (g/mi)	CH4 (grams)
0.111	0.000
0.104	0.001
0.034	0.000
185.975	0.009
191.811	0.006
200.764	0.008

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Allen, Gregory (EEO)
Sent: Tue 10/20/2015 5:21:50 PM
Subject: RE: Data

No problem, thanks Jim

I emailed Vince and Ben to see if we could get this vehicle released, but have not heard anything.

Is there anything else planned at EPA for this vehicle? Or should it be OK to be released?

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Tuesday, October 20, 2015 12:14 PM
To: Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Giles, Michael (EEO) <michael.giles@vw.com>
Subject: FW: Data

Sorry, just read your note about Bill. Here you go!

From: Snyder, Jim
Sent: Tuesday, October 20, 2015 12:10 PM
To: 'Rodgers, William (EEO)'
Subject: FW: Data

I think we finally have what we've been asking for. Dan understands now and will also revise the official test printout for future testing.

From: McBryde, Dan
Sent: Tuesday, October 20, 2015 11:09 AM
To: Snyder, Jim
Subject: Data

Jim,

See attached. I copied the mass emissions results and the distance from the CDTCS reports to compute the emission rates and fuel economy for each UDDS. Let me know if you have any questions or need additional information. Thanks.

Dan

Dan McBryde, P.E.
Electrical Engineer
US EPA NVFEL
2565 Plymouth Rd
Ann Arbor MI
(734) 214-4328
(734) 214-4440 (fax)

To: Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Haynes, Ben[haynes.ben@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Giles, Michael (EEO)[michael.giles@vw.com]; Rodgers, William (EEO)[William.Rodgers@vw.com]; Haynes, Ben[haynes.ben@epa.gov]
From: Mazaitis, Vincent
Sent: Tue 10/20/2015 6:22:23 PM
Subject: RE: A3 eTron Release

Hello Greg,

I've released the vehicle. Please contact Ben Haynes for scheduling a pick up.

Thanks Greg,

Vince Mazaitis

From: Allen, Gregory (EEO) [mailto:Gregory.Allen@vw.com]
Sent: Tuesday, October 20, 2015 9:43 AM
To: Haynes, Ben; Mazaitis, Vincent
Cc: Snyder, Jim; Giles, Michael (EEO); Rodgers, William (EEO)
Subject: A3 eTron Release

Hello Ben / Vince,

Please release the Audi A3 eTron (Vehicle ID: AU373-6-0813/16) for pick-up. No further testing is requested.

Please let me know when it is ready, and we will schedule our truck to come get it.

Thanks.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

To: Ex. 7 Bunker, Byron[bunker.byron@epa.gov]
From: Ex. 7
Sent: Tue 10/20/2015 7:58:42 PM
Subject: FW: Privileged and Confidential: PDF version of dealer presentation
20151020 Dealer meeting presentation v11 vSJ.pdf

Hello Ex. 7 and Byron,

Attached please find a presentation that is planned to be used at a dealer meeting on Thursday, October 22nd. I wanted to make sure you have seen this first. Please let me know if you have any problems with this slides. I think we have good disclaimer statements that this is all preliminary and subject to approval from EPA and CARB.

Thank you,

Ex. 7

Volkswagen Group of America

Ex. 7

To: Ex. 7 Bunker, Byron[bunker.byron@epa.gov]
From: Ex. 7
Sent: Tue 10/20/2015 10:51:45 PM
Subject: RE: Dealer Presentation

Yes, thanks Ex. 7 I have similar concerns. Will look for revision in am.

Ex. 7

Emissions Compliance, Automotive Regulations and Science (ECARS) Division

California Air Resources Board

Ex. 7

Ex. 7

From: Ex. 7
Sent: Tuesday, October 20, 2015 3:20 PM
To: bunker.byron@epa.gov; Ex. 7
Subject: Dealer Presentation

Hello Ex. 7 and Byron,

Many thanks for your feedback on the dealer presentation. I'm not sure if you have spoken but we have heard Byron's concerns and we will revise the slides and share them with you tomorrow morning. Hopefully we can have a short discussion about the revised and simpler presentation tomorrow.

Thanks again and I appreciate the comments,

Ex. 7

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Ex. 7
Ex. 7
Ex. 7
Ex. 7
From: Ex. 7
Sent: Wed 10/21/2015 1:35:32 AM
Subject: Re: Dealer Presentation

Did not happen today. The vehicle needed an unrelated repair (wheel bolt) and will be delivered tomorrow.

Sent from my iPhone

On Oct 20, 2015, at 9:27 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Hi Ex. 7

One more question. Did the Gen 2 car make it from Oxnard to CARB today? If not, do you know when that is going to happen. We keeping getting inquiries if that has happened or not.

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 9:16 PM
To: Bunker, Byron
Subject: Re: Dealer Presentation

Hello Byron,

Please send via email to Ex. 7 and me.

Thank you,

Ex. 7

Sent from my iPhone

On Oct 20, 2015, at 8:44 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

> Hi Ex. 7
>
> Janet has some correspondence that she would like to send to Ex. 7 We have his postal address and will be sending a hard copy there. Does he have an e-mail address where we could send the letter as well? Or, would it be better to send it electronically to you or Ex. 7 to send forward?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 6:20 PM
To: Bunker, Byron; Ex. 7
Subject: Dealer Presentation

Hello Ex. 7 and Byron,

Many thanks for your feedback on the dealer presentation. I'm not sure if you have spoken but we have heard Byron's concerns and we will revise the slides and share them with you tomorrow morning. Hopefully we can have a short discussion about

the revised and simpler presentation tomorrow.

Thanks again and I appreciate the comments,

Ex. 7

To: Boundy, Robert Gary (boundyrg@ornl.gov)[boundyrg@ornl.gov]
Cc: Good, David[good.david@epa.gov]
From: Thomas, Richard (EEO)
Sent: Wed 10/21/2015 10:27:20 AM
Subject: 2016 Volkswagen Passat Image
2016_passat_5390.jpg

Hi Bob;

Please replace the current 2016 Passat model images with this more accurate image for 2016 Passat. This face-lifted 2016 model is just being introduced to the market. If you have any questions, please feel free to call me

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Thomas, Richard (EEO)[Richard.Thomas@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]; Allen, Gregory (EEO)[Gregory.Allen@vw.com]
From: Rodgers, William (EEO)
Sent: Wed 10/21/2015 12:21:57 PM
Subject: RE: Data

Jim,

Thanks for the CD results. The format looks good.

Will the results be put in Verify? If not we will have to use the factory tests for the fuel economy label program in my view. Your thoughts?

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Tuesday, October 20, 2015 12:10 PM
To: Rodgers, William (EEO)
Subject: FW: Data

I think we finally have what we've been asking for. Dan understands now and will also revise

the official test printout for future testing.

From: McBryde, Dan
Sent: Tuesday, October 20, 2015 11:09 AM
To: Snyder, Jim
Subject: Data

Jim,

See attached. I copied the mass emissions results and the distance from the CDTCS reports to compute the emission rates and fuel economy for each UDDS. Let me know if you have any questions or need additional information. Thanks.

Dan

Dan McBryde, P.E.
Electrical Engineer
US EPA NVFEL
2565 Plymouth Rd
Ann Arbor MI
(734) 214-4328
(734) 214-4440 (fax)

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Wed 10/21/2015 12:47:50 PM
Subject: RE: Data

Unfortunately our lab currently has no capability for putting the CD results in Verify. Its up to the mfrs to figure that out. Dave Good has been a real help on that though. Unfortunately he is off this week.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Wednesday, October 21, 2015 8:22 AM
To: Snyder, Jim
Cc: Thomas, Richard (EEO); Giles, Michael (EEO); Allen, Gregory (EEO)
Subject: RE: Data

Jim,

Thanks for the CD results. The format looks good.

Will the results be put in Verify? If not we will have to use the factory tests for the fuel economy label program in my view. Your thoughts?

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Tuesday, October 20, 2015 12:10 PM
To: Rodgers, William (EEO)
Subject: FW: Data

I think we finally have what we've been asking for. Dan understands now and will also revise the official test printout for future testing.

From: McBryde, Dan
Sent: Tuesday, October 20, 2015 11:09 AM
To: Snyder, Jim
Subject: Data

Jim,

See attached. I copied the mass emissions results and the distance from the CDTCS reports to compute the emission rates and fuel economy for each UDDS. Let me know if you have any questions or need additional information. Thanks.

Dan

Dan McBryde, P.E.
Electrical Engineer
US EPA NVFEL
2565 Plymouth Rd
Ann Arbor MI
(734) 214-4328
(734) 214-4440 (fax)

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Wed 10/21/2015 3:29:13 PM
Subject: Air & Radiation Law News for October 21, 2015

Air & Radiation Law News for October 21, 2015

Bloomberg BNA **Daily Environment Report™**

Air Pollution

Personal Air Monitor Data Untrusted; Future Uses Foreseen

The development of low-cost, personal air monitoring devices is expected to generate data that could give people a better sense of their exposure to pollution and could have enforcement implications, but developers, public advocates, industry...

Budget

Democrats Vow to Keep Spending Agreement Free of Riders

Top Senate Democrats said Oct. 20 they would fight Republican attempts to insert energy and environmental policy riders into an end-of-year spending deal as negotiations ramp up behind the scenes.

...

Climate Change

EU on Track for 2020 Emissions Cut Target

European Union greenhouse gas emissions in 2014 were 23 percent below their 1990 level, comfortably ahead of a binding 20 percent reduction target meant to be achieved by 2020, the European Environment Agency said in a report published Oct....

Climate Change

Sanders Seeks Probe of Exxon on Climate Policy

Sen. Bernie Sanders (I-Vt.) has asked the Justice Department to investigate what he described as possible "corporate fraud" on the part of Exxon Mobil Corp. because it appears to have taken the idea of climate change seriously in private...

Climate Regulation

Neighbors' Actions Said to Complicate Power Plan Compliance

In addition to evaluating all of the regulatory variables involved, state regulators say planning their compliance with the Environmental Protection Agency's Clean Power Plan must account for the actions of neighboring states....

Climate Regulation

West Virginia Agency Seeks Clean Power Plan Comments

West Virginia has begun gathering information to craft a Clean Power Plan feasibility study as required by state law....

Emissions Trading

U.S. Said to Engage in Talks on Carbon Market Rules

The U.S. is engaged in talks on setting international rules and guidelines for carbon trading in the event that United Nations climate talks fail to set a framework for such a system, according to a person with direct knowledge of the plan....

Energy Efficiency

California Proposes New Lighting Standards

More energy-efficient track lighting would be required in retail stores, hospitals, museums and other commercial facilities, under standards the California Energy Commission proposed Oct. 19....

Energy Efficiency

Proposed Energy Bills Offer Lobbying Opportunities

Senate legislation that would promote energy efficiency in federal government buildings as well as the residential, commercial and industrial sectors presents a business opportunity for lobbying firms. ...

Energy

Nuclear Power Must Double to Check Climate Change, IAEA Says

To have a realistic chance of holding climate change to manageable levels the world needs to more than double its current nuclear power generation capacity by 2040, an official from the International Atomic Energy Agency said Oct. 20....

Energy

Senators Question Interior, Energy Department Nominees

A Senate committee during a hearing questioned whether several nominees for Interior and Energy department positions have conflicts of interest based on prior work experiences....

Hazmat Transport

DeFazio Urges ICAO Action on Lithium Battery Air Shipments

The Transportation Department at an upcoming international meeting should call for a temporary ban from passenger flights of large shipments of batteries that are known to catch fire, a senior House Democrat said Oct. 20....

Hazmat Transport

House Panel Introduces Hazmat Reauthorization Bill

The House Transportation and Infrastructure Committee formally introduced Oct. 20 a highway bill that would reauthorize hazardous materials transportation programs. The Surface Transportation Reauthorization and Reform Act of 2015...

International Climate

Canada's Trudeau Pledges to Be 'Positive Actor' on Climate

Canada's newly elected prime minister said Oct. 20 his government will be a "positive actor" in seeking action on climate change at the international summit in Paris in December....

International Climate

Canadian Vote Seen as Good News for Climate Negotiations

The election of Liberal Party leader Justin Trudeau as Canada's new prime minister was hailed Oct. 20 as positive news for the prospects of international climate negotiations, though most observers cautioned not to expect a dramatic...

International Climate

Climate Pledges Would Exhaust Carbon Budget by 2040

The top-emitting nations all have pledges on the table to cut greenhouse gas emissions under a global climate agreement to be finalized at the end of 2015, but their offers would only put off the day of reckoning for a temperature increase of 2...

International Climate

Climate Solution 'Staring Us in the Face,' Kerry Says

More investment in clean energy is needed to combat climate change, Secretary of State John Kerry told a group of business leaders assembled for an investment forum at the department Oct. 20. "The solution to climate change is not generations...

International Climate

Indonesian Fires Said to Produce More Emissions Than U.S.

Indonesia's forest fires are producing more greenhouse gas emissions than all U.S. economic activity each day, a study shows, making Indonesia the world's worst polluter in the past month....

International Climate

U.S. Official Questioned on Legality of Climate Accord

The top U.S. official working toward a global deal to fight climate change faced questions from a congressional subcommittee chairman Oct. 20 on whether administration officials would bring the agreement, set to be signed at a United Nations...

International Climate

UN Adds Text to Climate Pact Backed by Poor Countries

After quickly digesting 66 additions to its negotiating text, the United Nations Framework Convention on Climate Change released a new document in the early hours of Oct. 20 on what could become the world's first agreement to fight climate...

Renewable Energy

China Solar Installations Double Despite Grid Issues

China more than doubled the amount of solar capacity it installed in the first nine months of the year even though sales of electricity from some projects was halted because of congestion on the distribution grid....

Vehicle Fuels

Cellulosic Ethanol, Batteries Called Future of Cars

Cellulosic ethanol combined with electric batteries could be the future for low-carbon vehicles, Hugh Welsh, the president of DSM North America, a partner in a commercial-scale cellulosic ethanol plant in Iowa, told Bloomberg BNA....

INSIDEEPA.COM
an online news service from the publishers of Inside EPA

Inside EPA's **Clean Air Report**, 10/22/2015

http://insideepa.com/newsletters/clean-air-report

Latest News

Democrats Cite VW Scandal, Oil Spills In Opposing EPA FY16 Budget Cuts

Senate Democrats and environmentalists are citing EPA's work on uncovering the Volkswagen (VW) vehicle emissions scandal and cleanup work on oil pipeline spills as reasons for opposing GOP plans to cut the agency's budget in fiscal year 2016, urging lawmakers to at least maintain EPA's existing $8.13 billion funding.

U.S. Eyes 2016 Workshop To Move On G7 Sustainable Materials Platform

The United States and the other economically powerful countries that make up the Group of 7 (G7) earlier this month launched an alliance to promote resource efficiency -- an approach to reusing materials more productively -- with plans for the United States to host a workshop next spring focused on supply chain resource efficiencies.

News Briefs

Supreme Court Declines Review Of California TMDL Ruling

The Supreme Court has declined to review a case brought by a group of California landowners that would answer the question of whether regulators can set total maximum daily loads (TMDLs) expressed as concentrations of pollutants rather than traditional measures such as mass per time or toxicity.

Greenwire

NUCLEAR POLICY:

DOE team crafting strategy for moving, storing reactor waste

Hannah Northey, E&E reporter

Published: Tuesday, October 20, 2015

The Obama administration is preparing plans for transporting used reactor fuel to temporary storage sites and creating a federal corporation to oversee the process, according to sources and documents obtained by *Greenwire*.

The Department of Energy has assembled a team of a dozen or so staffers to "lay the groundwork" for transporting spent reactor fuel from closed nuclear power plants to not-yet-identified interim storage sites,

team leaders said in a Sept. 2 presentation to the Office of Nuclear Energy.

The goal is to build a "foundation" for the organization that would oversee waste disposal, documents say.

The administration launched the "Nuclear Fuel Storage and Transportation Planning Project" three years ago under a strategy to build a pilot interim storage site by 2021, a larger interim site by 2025 and a new geologic repository by 2048.

The Sept. 2 presentation provides a new window into those plans.

Andrew Griffith, DOE's associate deputy assistant secretary for fuel cycle technologies in the Office of Nuclear Energy, will lead the effort. He'll report to John Kotek, the acting assistant secretary of nuclear energy, who's being vetted today by the Senate Energy and Natural Resources Committee for the full-time appointment (*E&E Daily*, Oct. 19).

Other key team members: Mark Nutt, a nuclear engineer at Argonne National Laboratory; Rob Howard, a senior project engineer at the Oak Ridge National Laboratory; and Melissa Bates, a DOE engineer who works on nuclear fuels and transportation.

In the near term, the group has been tasked with developing options for interim storage, establishing a database to characterize material that would go into the new waste management system, finding ways for the public to comment on storage and transportation options, and preparing for a pilot interim waste-storage facility.

DOE lists 13 closed nuclear plants where almost 18,000 used nuclear fuel assemblies are being held in dry storage casks -- large concrete vessels -- waiting for final disposal.

The department has expressed interest in moving forward with interim storage as a way to stave off costly lawsuits DOE faces for failing to uphold 1980s agreements to take possession of waste piling up at reactors across the country. Damages could be more than $20 billion by 2020 and up to $500 million annually after 2020, according to the Nuclear Energy Institute.

There have been rumors about the DOE team and the administration's focus on finding temporary solutions for the country's 70,000 metric tons of spent nuclear fuel circulating among industry officials for several weeks.

One industry source praised DOE for its effort to find storage options for reactor fuel after disassembling the Yucca Mountain, Nev., repository program five years ago.

"Since 2010, the department hasn't done a great deal on the back end of the fuel cycle, when Yucca was halted," the source said. "This is finally seeing some action on their part to move forward. While not with Yucca Mountain, which the industry, of course, would like ... they're beginning to plan and think about consolidated storage."

The presentation raises the question of whether DOE is considering proposals for interim storage in Texas and New Mexico, the source said.

Waste Control Specialists, a Dallas-based company whose former owner, billionaire Harold Simmons, once dubbed President Obama the most "dangerous man in America," unveiled plans earlier this year to build the nation's first private, temporary storage site for spent reactor fuel in arid West Texas.

And in New Mexico, Holtec International Inc. has proposed an underground storage facility to store casks of used fuel.

But the industry source also made clear Yucca Mountain must be part of the DOE package.

"The two -- consolidated storage and Yucca -- they can go forward together. And if they go forward, they need to do so together," the source said. "Consolidated storage is not a solution in itself. You need the repository, but the repository isn't going to be open for a couple decades at least."

Legal authority

As DOE inches toward resolving the country's waste issues, it faces constraints.

DOE has been warned by government watchdogs that it lacks clear legislative authority for consolidated interim storage or permanent disposal at a site other than Yucca Mountain. Nor can the department transport spent reactor fuel to temporary sites, the Government Accountability Office has said.

GAO also found the department would need to buy new equipment and fund costly upgrades if it were to pursue moving nuclear waste by rail.

"The federal government's ability to site, license, construct and operate a consolidated interim storage facility not tied to Yucca Mountain depends on new legislative authority," according to a GAO report to a House subcommittee.

A Republican congressional aide agreed DOE faces constraints under the 1982 Nuclear Waste Policy Act, and the department's activities on interim storage could trigger concern on the Hill as GOP lawmakers and the Nuclear Energy Institute have called for a federal thumbs-up or -down on Yucca Mountain before any other option is pursued.

"I think there would be concern about how far and what exactly they're trying to do that goes beyond the limits of the Nuclear Waste Policy Act," the aide said. "It's important DOE maintain a semblance of activity on the used fuel management program, but there are limits to how much generic work can be done in this space until you actually start. Whether it's interim or whether they want to move toward a repository, they need to have legal authority to do that."

But DOE is aiming to align its activities with the Blue Ribbon Commission on America's Nuclear Future, a presidential panel that called on Congress three years ago to develop nuclear storage sites and dumps.

The commission also warned that narrowly focusing on the development of Yucca Mountain would exacerbate a policy impasse that has stranded nuclear waste across the country (*Greenwire*, Feb. 1, 2012).

A DOE spokesman said the team is part of a strategy the department unveiled in March for tackling defense and commercial nuclear waste separately (*E&ENews PM*, March 24).

"Based on this announcement a team has been developing plans and performing technical analysis of various components of an integrated waste management system, as well as evaluating the Department's next steps in the consent-based siting process," Bartlett Jackson said in an email.

"The Department believes that siting of any facility for storage or disposal of nuclear waste should be done in a consent-based fashion consistent with the phased, adaptive, and consent-based approach that has been endorsed by the National Academies and the [Blue Ribbon Commission] and is an essential element of the administration's Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste."

KEYSTONE XL:

Canadian elections make way for pipeline decision

Manuel Quiñones, E&E reporter

Published: Tuesday, October 20, 2015

This story was updated at 6:16 p.m. EDT.

With Canada's contentious elections now in the past, opponents of TransCanada Corp.'s Keystone XL oil pipeline from Alberta to Gulf Coast refineries say President Obama's decision on the project may be imminent.

Advocates on both sides of the KXL debate have said the White House may have put off its decisionmaking so as not to influence politics north of the border.

"I think we will see a rejection of the Keystone XL permit any day now," said Jane Kleeb, director for Bold Nebraska, a major opposition group. "Definitively before the Paris [climate] talks."

In a clear victory last night, the Liberal Party and its leader Justin Trudeau unseated the Conservative Party and current Prime Minister Stephen Harper.

Environmental advocates see the incoming Canadian government as friendlier to their concerns, including paying more attention to greenhouse gas emissions and international climate talks (*ClimateWire*, Oct. 19).

"The new Liberal government in Ottawa has an unprecedented opportunity to move Canada away from the dirty fuels of the past and toward a clean energy future that will bring jobs, prosperity and security for all Canadians," said the Natural Resources Defense Council's Canada project director, Anthony Swift, in a statement.

"We hope our good neighbors' new leaders will take real action on climate change by adopting a plan to meet its international climate commitments, stop the destructive expansion of tar sands and open environmental decision-making to sound science and broad public review," Swift said.

Lena Moffitt, head of the Sierra Club's Dirty Fuels campaign, said in another statement, "Justin Trudeau's victory shows that the Canadian people are no longer willing to rely on 19th century energy ideas to fuel their economy."

While incoming Prime Minister Trudeau has expressed strong opposition to Enbridge Inc.'s Northern Gateway project from Alberta to Canada's Pacific Coast because of environmental concerns, he has supported KXL.

"My support for Keystone is steadfast," Trudeau told the Canadian Broadcasting Corp. in a 2013 interview during a visit to Washington, D.C.

The nuance in Trudeau's argument against Harper is that the Conservative Party leader was too focused on KXL and willing to fray relations with the United States over the project.

"Canadians are sitting around worried about their jobs because we have a prime minister that doesn't like Barack Obama," Trudeau said during a debate. "We need to do much better than that."

'Soft support'

Adam Scott, climate and energy program manager at Environmental Defence Canada, described Trudeau's backing of KXL as "soft support" stemming at least in part from the oil industry's influence and the need to turn out voters in energy-producing regions.

"That support is very different from the kind of support we have seen from the Canadian government," which Scott described at "single-minded" in KXL's favor.

Environmentalists would have likelier been happy with the New Democratic Party and its candidate for prime minister, Thomas Mulcair. The New Democrats' goal was to establish a cap-and-trade system, and Mulcair has spoken out against KXL.

They cheered earlier this year when Alberta voters also threw out the staunchly pro-KXL ruling Conservatives in favor of the New Democratic Party and its leader Rachel Notley.

While Notley expressed commitment to stronger oversight of oil sands development, she did not oppose all pipelines. However, she dismissed making pro-KXL lobbying trips to Washington, D.C.

Still, Scott said Trudeau's election spells a "dramatic change" for Canadian environmental policy. He expects "very strong action on climate change."

And if Obama rejects KXL, as environmentalists think he will, Scott said, "It's likely Trudeau will take no for an answer on Keystone XL. I don't think anybody will be surprised or react too negatively ... if Keystone is rejected."

Scott and other advocates pointed to a poll showing that roughly half of Canadians are not too keen on KXL, even as a majority of Americans back the pipeline (*ClimateWire*, Oct. 7).

They also spoke about a top Trudeau loyalist stepping down from campaign efforts after news leaked about his aid to TransCanada.

In response to last night's political developments, TransCanada said the company would "work with the new government and all federal and provincial legislators in a respectful and positive manner" and touted its views on KXL's benefits.

"We can't think of a project that better embodies what has been one of the closest energy trading partnerships in the world," said TransCanada about U.S.-Canada relations.

During remarks on climate issues today, Secretary of State John Kerry pointed to the "very exhaustive review" underway within his agency. The 7-year-old scrutiny is meant to help the president decide whether to allow KXL to cross the U.S.-Canada border.

"I've said again and again that I want to get it done as fast as possible," said Kerry without providing a timeline. "It'll get done at its appropriate moment, but I'd like to see it get done as fast as possible."

This afternoon, White House spokesman Josh Earnest said the president congratulated Trudeau and also spoke about productive U.S. work with Canada under Harper, despite disagreements over KXL.

But Earnest, echoing Kerry, said the elections would have no impact on U.S. decisionmaking on KXL. He said the review remained at State.

Obama is meeting with Kerry and Vice President Joe Biden at the White House this afternoon. The White House has not said whether KXL will be a topic of discussion.

Beyond action at the federal level, TransCanada is still seeking a permit renewal to cross South Dakota. And it recently decided to seek Nebraska Public Service Commission approval for KXL's crossing through that state, a process that could take months.

TransCanada decided to give up its existing permit issued by the governor under a 2012 law the company pushed for and is moving to dismiss litigation by landowners against it.

But plaintiffs want to move forward with the case in an effort to undo the contested statute (*Greenwire*, Sept. 30). They tried to persuade a state judge to keep the litigation alive during a hearing yesterday.

"The public, and the landowners, and the Public Service Commission need and want the Court's decision on the merits," said landowner attorney Dave Domina. "Enough of duck and run behind lobbyists and money. The merits deserve a decision."

BIOFUELS:

Climate change fuels arguments on both sides in ethanol war

Amanda Reilly, E&E reporter

Published: Tuesday, October 20, 2015

As the Obama administration approaches a deadline next month to finalize multiyear renewable fuel targets, climate change is furthering arguments both for and against adding more ethanol to U.S. transportation fuels.

Ethanol foes have doubled down on their contention that the corn-based fuel increases U.S. greenhouse gas emissions. They've used that assertion to question ethanol's environmental benefits and argue against government support for the industry.

But biofuel producers are warning that the administration would undermine gains in reducing carbon from transportation fuels if it goes through with the proposed lowering of renewable fuel mandates. A reduced ethanol mandate, they say, would hurt investment in advanced biofuels.

The announcement last week that U.S. EPA's internal watchdog will study life-cycle greenhouse gas analyses of biofuels has fired up both sides in the ethanol battle, with each saying it will validate its claims about biofuels' carbon dioxide emissions.

"We welcome this review," ethanol trade group Renewable Fuels Association said in a statement, "as it will give the public a clearer picture of the climate benefits that ethanol is producing today."

Congress enacted the current renewable fuel standard in 2007 to promote the use of both corn ethanol and next-generation biofuels. Through the policy, EPA sets annual refining mandates for blending biofuels into gasoline and diesel.

EPA proposed earlier this year to set long-delayed targets for 2014 and 2015, as well as renewable fuel mandates for 2016 and the biodiesel requirement for 2017. While the agency proposed year-by-year increases in the use of biofuels, EPA's targets fall short of the levels that Congress wrote into the 2007 law.

EPA received more than 600,000 comments on the proposal and is working toward a Nov. 30 deadline to issue a final rule. A broad coalition of stakeholders, including environmental groups, the oil industry and small-engine users, have called on EPA to set even lower targets. Biofuel producers have pushed for more robust mandates.

The renewed focus on ethanol's climate change impact to further those arguments comes as President Obama is preparing for international climate change negotiations in Paris starting this December. The negotiations kick off the same day that the administration is poised to make a final decision on the RFS targets.

Last week, an industry coalition opposed to increasing RFS mandates launched an eight-week ad campaign called "Inconvenient Fact" to question ethanol's benefits. The ad claims that mandating corn for ethanol nearly doubles greenhouse gas emissions.

Opponents last week also highlighted a study by University of Tennessee researchers that questioned the environmental and economic track record of the renewable fuel standard (*Greenwire*, Oct. 15).

"Our analysis shows that the RFS has created more problems than solutions, particularly with regard to hampering advancements in biofuels," said UT researcher Daniel De La Torre Ugarte. "Corn ethanol was presented as a 'bridge' to advanced biofuels and a means of reducing GHG emissions. However, the reality is clear that this policy has been a bridge to nowhere."

Biofuel producers have pushed back against the questions about ethanol's environmental benefits and cast EPA's proposal as a step backward for Obama's domestic climate agenda even as it aims to negotiate an international agreement to address climate change.

They call the RFS the nation's only successful policy aimed at reducing greenhouse gases.

This summer, biofuel advocates followed Obama around the country as he pitched his climate change plan with ads that promoted the RFS (*Greenwire*, Aug. 31). A new RFS group formed by former Sen. Jim Talent (R-Mo.) has also recently hammered the same point (*E&E Daily*, Oct. 1).

"Why are they [the Obama administration] going to be proposing things and working for things that are aspirational that require cooperation from foreign countries that are going to be costing a lot of money," Talent told reporters recently, "and backing away from policies that reduce greenhouse gases today?"

IG to weigh life-cycle analyses

As debate intensifies, EPA's internal watchdog last week announced that it will take up its own study of how the agency has conducted life-cycle analyses of biofuels' carbon dioxide footprints (*Greenwire*, Oct. 16).

The Office of Inspector General said that it would examine how EPA has incorporated new emissions data from studies required by law. Among those studies is a 2011 report by the National Academy of Sciences that questioned whether the RFS was an effective policy for achieving greenhouse gas reductions.

Ethanol opponents cast the study as a way of updating life-cycle analyses that they don't believe capture all ethanol emissions.

"The federal renewable fuel standard is supposed to promote fuels that emit less global warming pollution than gasoline. But it's done just the opposite, stimulating a boom in ethanol made from corn, which over

its life cycle causes emissions of more climate-wrecking carbon than gasoline," said Emily Cassidy, a research analyst at the Environmental Working Group. "Yet the renewable fuel standard continues to encourage production of ethanol -- and now the EPA's internal watchdog wants to know why."

Four bipartisan lawmakers who have pushed for reform of the policy also said they were "pleased" the inspector general was taking up the RFS.

Reps. Jim Costa (D-Calif.), Bob Goodlatte (R-Va.), Peter Welch (D-Vt.) and Steve Womack (R-Ark.) have introduced legislation that would, in part, strike corn ethanol from refiners' RFS requirements.

"The negative impacts of the RFS are known," the four said in a joint statement, "and it is our hope that the IG's report provides much-needed clarity to the conflicting information the EPA has shared regarding the benefits of the RFS."

But biofuel groups are hoping for vindication with the OIG study.

"The RFS is the only meaningful policy to help break Big Oil's stranglehold on the liquid fuels marketplace," Tom Buis, co-chairman of ethanol group Growth Energy, said last week. "This is an energy policy that is working. It is doing exactly what it was intended to do, with great success."

Dueling studies

Whether the RFS -- and the expanded ethanol production that comes from it -- is an effective policy for addressing climate change remains an active area of debate among academics.

Several studies, including the University of Tennessee research, have cast doubt over whether ethanol and other biofuels lead to CO2 reductions compared with gasoline.

Others have come to opposite conclusions. The Argonne National Laboratory, for example, has found that ethanol reduces greenhouse gas emissions 34 percent compared with a gasoline baseline.

At a Brookings Institution event Friday in Washington, D.C., a pair of well-known RFS critics slammed the policy as being the least efficient means of reducing carbon dioxide emissions.

World Resources Institute fellow Tim Searchinger and Massachusetts Institute of Technology economist Christopher Knittel said policies such as cap and trade and a carbon tax are less expensive and risky than the RFS.

"Because we don't know very well what the land-use implications are, that's a riskier policy from a greenhouse gas perspective than a carbon tax," Knittel said.

Knittel suggested that the RFS was actually economically worse than doing nothing to address climate change. According to his research, abating 1 ton of carbon dioxide through the RFS will cost $90 -- much higher than the social cost of carbon, which is below $40 a ton.

But it's unlikely a more general climate policy would force change in the transportation fuel market the way the RFS has done, said Bruce Babcock, an energy economics professor at Iowa State University.

Babcock, an ethanol supporter, noted that practitioners of life-cycle greenhouse gas analyses haven't "bought into" research that's questioned the benefits of ethanol and other biofuels. He said U.S. biofuel production hasn't driven indirect land-use changes that contribute to global warming -- the key tenet of climate arguments against the RFS -- when land-use data over the last 10 years is taken into account.

Americans United for Change, a pro-RFS group, also pushed back against Knittel and Searchinger, charging that their research has been influenced by oil industry funding.

"There is a mountain of independent academic research," the group said, "showing that ethanol use significantly cuts down carbon emissions compared to gasoline made from dirty fossil fuels."

NEWSMAKER:

From energy developer to climate philanthropist

Anne C. Mulkern, E&E reporter

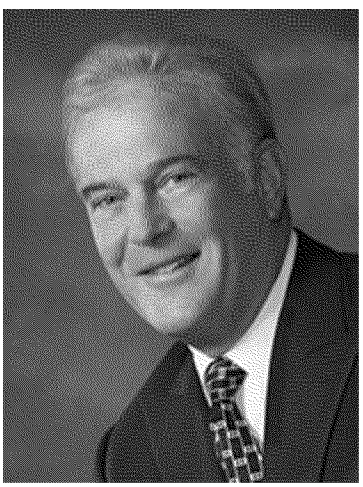
Published: Tuesday, October 20, 2015

DEL MAR, Calif. -- Richard Hertzberg worked on getting crude from the Canadian oil sands decades before the current debate about the Keystone XL pipeline.

He headed the Department of Energy's fossil fuel extraction division in 1978 and pledged support for a Canada-to-U.S. pipeline. Around the same time, he signed a contract funding investigation into horizontal drilling, a precursor to the technique now called fracking.

Hertzberg eventually launched his own company focused on unconventional oil development and utility-scale power generation.

Now he's using part of the wealth he accumulated on a cause some might see as a sharp turn: climate change. He and his wife, Carol, have given $5 million to Scripps Institution of Oceanography in San Diego for a center to research climate adaptation.



Richard Hertzberg. Photo courtesy of Richard Hertzberg.

It's needed to prevent international conflict as the effects of warming unfold, Hertzberg said. Statistics show 10 percent of the world's population lives at a sea level of 30 feet or less and is imperiled by rising waters, he said.

"That's an enormous number of people who are impacted by one of the effects of climate change,"

Hertzberg said. A lot can be done to deal with warming's impacts, he said, but they first must be understood correctly.

"Forward planning, forward thinking about it allows mankind over time to resolve its issues in a peaceful way."

The path from energy entrepreneur to climate patron isn't as much of a detour as it sounds, said Hertzberg, 69. He's always considered energy and the environment part of a "continuum," he said, arguing that it's wrong to treat fossil-fuel-based energy sources as the villain and the environment as the victim.

"This isn't payback time, and I don't feel any guilt for the good work that we've done for the last 40 years," he said. "Energy is something that man needs to go forward and procreate and multiply, and to feed itself."

Famine and war exist "when you don't have the energy to grow an economy, to provide for vital elements of life, to provide for life with dignity for people, to provide clean water," he said. "That's all available because of the development of energy."

Scripps, which is part of the University of California, San Diego, plans to use the $5 million from the Hertzbergs to build a center using experts from the school. They'll seek to address the most urgent questions of planners dealing with climate impacts, said Margaret Leinen, Scripps director and UC San Diego's vice chancellor for marine sciences.

"Certainly, we want to keep making the argument for reducing greenhouse gas emissions and other human impacts," Leinen said. "But we've got to start looking at what's going to be the results of those impacts and how can we adapt.

"It's absolutely critical that we start talking about helping people understand what they'll have to adapt to, and what kinds of strategies they have to adapt," she added.

Scripps last year held a workshop on sea-level-rise adaptation. The institution learned that while people might already know, for example, that waters could rise 30 centimeters in 40 or 50 years, she said, they wanted to understand what that means when combined with a storm surge. UC San Diego economists and other experts could present options for dealing with impacts and their costs.

"What the center allows us to do is partner with all of these other disciplines to look at these problems in a holistic way," Leinen said.

Clean energy 'panacea' not enough

Clad in a cream polo shirt, khaki shorts and flip-flops, Hertzberg ate a bowl of cauliflower soup at a beach cafe near his Del Mar home as he talked about his background and new focus on climate adaptation.

He's more or less retired from the energy development field and has been researching possibly investing in hydroponic farming, where food is grown without soil, often indoors. He's also dedicating time to help Scripps.

Of the $5 million, Scripps must find matching funds for $2.5 million. Hertzberg said he's working to find additional new donors for the climate adaptation center. He also envisions Scripps earning money through contract work it can do on adaptation.

"Our money was definitely meant to be a catalyst to help the university grow a center," Hertzberg said.

The donation comes as Hertzberg in recent years has moved to go green in his personal life. He drives a Toyota Rav4 plug-in electric vehicle. His wife has an Audi A3 TDI diesel they use for longer trips. (Hertzberg noted they bought it because it had low emissions, but that car now is caught up in parent Volkswagen's fraud in which it hid true pollution levels.)

Besides their home, they own a second property in northeast San Diego County, a 6-acre site with a 4,000-square-foot home, stables and its own water system. A dozen years ago, Hertzberg put a 10-kilowatt solar system -- about 60 panels -- on the site. Solar then cost at least triple its current price. California at the time gave half the amount back. He said he did it to support solar and because he believed the state's incentive would help push prices down.

The solar now fully powers all the buildings, along with water conveyance and purification, he said. The home also has a Tesla-made battery storage system, which was installed about 18 months ago. He was among a group of early testers for utility San Diego Gas & Electric.

A move to clean energy isn't enough, however, making climate adaptation essential, Hertzberg said.

"As much as we see renewable resources as a way out of the puzzle, their cost, the time to position them and their ultimate impacts will come later than some of the impacts that are already on the board from climate change," Hertzberg said.

"The panacea of clean energy, maybe it comes," he added. "But if it doesn't, there's going to be a whole lot of issues to deal with. Even if it comes, there's going to be a whole lot of issues to deal with."

During the 2011 Fukushima earthquake in Japan, he said, the nuclear reactor withstood the shaking. But the auxiliary cooling systems were not located high enough to withstand the resulting tsunami.

"How many power plants, refineries, other coastal resources are in areas where with sea-level rise they become impacted?" Hertzberg said. "To me, it's a lot better to begin to harden those assets."

Adaptation could involve everything from moving people and valuable infrastructure "to building dykes, to helping out species migration," he said. "If you're dealing with sea-level rise, what do you do in coastal zones to fortify yourself and to create the least havoc over time? How do you on a global basis support what will be the necessary migration of people?"

Same problems span decades

Questions about how to deal with climate change stretch back decades, Hertzberg said. He recalls it being an issue before he worked in the Carter administration, although he said people at the time also were debating whether global cooling was a possibility.

Hertzberg arrived in D.C. in the 1970s, during the energy crisis that hit when OPEC embargoed oil to the United States in response to the U.S. support of Israel.

He worked at the Energy Research and Development Administration (ERDA), the forerunner to the Department of Energy. After President Carter was elected, Hertzberg moved to the Office of Management and Budget, then to the newly created DOE, where he headed the Division of Fossil Fuel Extraction.

While there, Hertzberg said, he signed a contract to develop the technology for horizontal drilling. He looks at how unconventional drilling now has helped energy production and sees that as an event with roots in his work in the late 1970s.

"It's really fun to know, hey, we might have done something that might have had an impact," Hertzberg said.

Asked if he supports hydraulic fracturing and the Keystone XL pipeline, given his desire to address climate change, Hertzberg said the answers aren't simple yeses or nos.

Fracking and other unconventional oil drilling have provided natural gas, which has helped cut coal use and lowered carbon emissions, he said. That's needed as the world attempts to move toward zero greenhouse gas pollution.

But the transition will take decades, and until then "this substitution of cleaner fuels has been and will be one of the major sources of greenhouse emissions reductions that are economically feasible," he said in an email. In the meantime, he said, science-based regulations are needed to protect aquifers and the environment.

KXL, Hertzberg said, has become a "figurehead" in the debate over how to move from fossil fuels to green power. Alberta's production is about 2 million barrels daily, making it "still only a small part of what is a world market of some 90 million barrels per day." The market ultimately will determine whether it's needed, "based upon the cost of production as well as decreasing demand over time," he said.

"What is really important in this discussion is finding a way to ensure that all fossil fuels are priced to include a fair cost for the environmental impact of their production and use," Hertzberg said, "and to ensure that funds obtained through these pricing mechanisms are applied in ways that truly mitigate the impacts on the environment."

Ben Schlesinger, a Maryland resident who met Hertzberg in 1976 when both were at ERDA and has remained friends with him since, said it's not unexpected that someone who spent decades in fossil fuel development would now concentrate on climate work. Schlesinger is a consultant who earlier spent years working on natural gas.

"A lot of us in this industry ... we all understand the importance of fossils of all respects," Schlesinger said. "At the same time," he added, "we read. We understand. We study. A lot of us have kind of gone beyond being strictly focused on fossil fuels in our lives."

Political donor, mostly to Democrats

Hertzberg is on the board of directors of the NPR Foundation and the Center For Sustainable Energy, which has helped roll out California incentives for solar and clean cars.

He's been a political patron, too. Since 1996, he's given $63,200 to Democratic candidates, the Democratic National Committee and its House and senatorial campaign committees. In 2008, he gave $4,600 to Barack Obama.

He's given $2,000 to Republican candidates and political action committees, including $1,500 in 2002 to Americans for Prosperity, the PAC tied at the time to former San Diego-area Rep. Randy "Duke" Cunningham (R-Calif.), who resigned and went to prison for accepting bribes and tax-reporting violations. Hertzberg said the PAC solicited him to donate the money for a golf tournament, and he saw it as a way to meet lawmakers who could support his bid at the time to build a power plant in San Diego.

Hertzberg's wife, Carol, has given $79,500 to Democratic candidates and the national party. Even with all that money the household has given to Democrats, Hertzberg said he's still registered Republican. He said that's how he originally registered in New York, and he's never changed it.

"Both parties are owned by certain interest groups," he said. "On some of the social issues, the ones that are more impactful in terms of Democratic parties ... resonate with me."

Asked whether he's helped Democrats financially because of the climate issue, Hertzberg said that "environment is important. But I also think that, frankly, that too much of the politics of environment is politics, not necessarily sometimes good policy."

"How do you come up with the number 50 percent on petroleum use?" he said, on a day when California's S.B. 350, the legislation that proposed cutting petroleum use in half by 2040, was in the news. Democratic leaders ultimately stripped that provision from the bill because of a lack of support. "Can you really show me the net benefit of that?"

Hertzberg said he's not opposed to cutting oil use in half but would want to know why that amount was chosen.

"I really like to look at what the tradeoffs are," he said. As societies are working to cut greenhouse gas emissions, "there have been limitations put on that sometimes have unintended consequences."

APPROPRIATIONS:

Democrats, greens circle wagons against 'poison pill riders'

Geof Koss, E&E reporter

Published: Tuesday, October 20, 2015

Top Senate Democrats and environmentalists are drawing a line in the sand over the inclusion of policy riders in budget negotiations aimed at averting a government shutdown in December.

Senate Majority Leader Mitch McConnell (R-Ky.) continues to consider budget talks as a venue for pushing back against U.S. EPA policies (*E&ENews PM*, Oct. 13), but Sen. Chuck Schumer (D-N.Y.) said any agreement must replace looming sequestration cuts, provide balance between domestic priorities and military spending, and be free of "ideological poison pill riders."

"That's kindergarten politics," he told reporters on a conference call of the risk of another shutdown after Dec. 11, when the current continuing resolution expires.

League of Conservation Voters President Gene Karpinski cited the ongoing Volkswagen emissions scandal to highlight the risks of budget cuts to federal regulators. "Keeping environmental cops on the beat" is a top priority for green groups, he said on the call.

LCV and other environmental groups today issued a letter to President Obama and congressional leaders calling for higher funding levels and the omission of policy riders.

"The harmful funding cuts and short-sighted policy provisions in the House and Senate spending bills -- in particular the Interior, Environment and Related Agencies Appropriations bills -- would further undermine the ability of environmental, environmental justice, land management and wildlife agencies to perform their basic duties and are completely out of touch with the public interest," the groups wrote.

Schumer said Republicans should offer riders as amendments on the floor, rather than to front-load them into the spending bills.

"We'll have a debate over environmental rules," he said. "They know the public is on our side, and they'll lose."

After months of prodding by Democrats, top Republicans are in the early stages of discussing an agreement they hope will lead to an omnibus appropriations bill in December.

But Sen. Debbie Stabenow (D-Mich.) said she was concerned by the slow pace of the discussions, which she said is being hampered by uncertainty in the House over who will replace John Boehner (R-Ohio) as speaker.

"Without a leader in place, we don't know who we're negotiating with," she said on the call. "Everything has been thrown in turmoil."

As Capitol Hill awaits news of whether Rep. Paul Ryan (R-Wis.) will acquiesce to GOP calls to jump into the speaker race, Stabenow said she wants to see another deal such as the one the current House Ways and Means chairman negotiated with Sen. Patty Murray (D-Wash.) in 2013.

"Now what we need is a Murray-Ryan 2.0," she said.

POLITICS:

French foreign minister confident U.S. will keep climate vows

Lisa Friedman, E&E reporter

Published: Tuesday, October 20, 2015

BONN, Germany -- French Foreign Minister Laurent Fabius expressed confidence today that the United States won't abandon its international climate change promises, despite Republicans' insistence that they plan to do exactly that.

Speaking at a U.N. negotiating session ahead of landmark talks in Paris in December, Fabius said an agreement without the United States "would be without great sense."

All countries, he said, want to see the world's second-largest greenhouse gas emitter be part of a global agreement.

"Obviously, the political situation has to be taken into consideration, but I have no doubt about the will of President Obama," Fabius said.

"Up until now, he has been able to take a series of decisions which are going in the right direction, and I have no doubt it would be possible to move forward on the same line," he said.

Fabius' remarks come as U.S. special envoy for climate change Todd Stern prepares to testify in Washington, D.C., before the Senate Foreign Relations Committee on the Paris agreement. Stern has been pressing for a global deal that is not a full-blown treaty and would not have to go before the Senate for approval.

Foreign Relations Chairman Bob Corker (R-Tenn.) and many other Republicans have questioned whether the Obama administration has the constitutional authority to so, arguing that anything more than a nonbinding political document must come before them for approval (*E&E Daily*, Oct. 8).

Meanwhile, the U.S. Clean Power Plan to curb emissions from coal-fired power plants -- the backbone of the administration's international climate efforts -- is under attack in both the courts and Congress. Most Republican candidates for president have indicated they will scrap the regulations if they win the White House in 2016.

Fabius acknowledged the administration's need to avoid bringing a Paris agreement before the Senate, where it would surely be rejected.

"Obviously, we have to find the proper way from a purely legal viewpoint to make it possible, but I'm pretty confident that the sense of responsibility will prevail," he said.

NUCLEAR WASTE:

Fire at radioactive dump prompts air quality testing

Published: Tuesday, October 20, 2015

Nevada officials are testing air quality after a fire at a closed-down radioactive waste site in a rural southern area of the state.

The cause of the fire remains unknown, but Nye County sheriff's Sgt. David Boruchowitz reported no injuries or air quality risks after crews extinguished the blaze that ignited Sunday.

Division of Emergency Management and Homeland Security Regional Supervisor Bud Marshall said air testing was conducted, but no results were yet available.

The site, which took in low-level radioactive waste for three decades before closing in 1992, is located 10 miles from the small town of Beatty, Nev., about 100 miles northwest of Las Vegas.

Gov. Brian Sandoval (R) called in the Nevada National Guard and activated the state Emergency Operations Center in Carson City to coordinate the government response to the accident at the facility run by the state Department of Health and Human Services.

The department and governor's office did not immediately respond to requests for comment.

Several schools were shut down because of the fire.

According to the nonprofit Nuclear Resource and Information Service, based in Takoma Park, Md., the U.S. Geological Survey found high concentrations of radionuclides underground near the site during surveys in 1994 and 1998 (Ho/Ritter, AP/*Salt Lake Tribune*, Oct. 19). **-- DTB**

FEDERAL WORKFORCE:

Agencies repay student loans to attract, retain employees

Published: Tuesday, October 20, 2015

Student loan repayments are becoming a common incentive for federal agencies to recruit and retain employees, according to a new report from the Office of Personnel Management.

Last year, 33 departments and agencies gave more than $58.7 million in student loan repayment benefits to nearly 8,500 employees -- an average of $6,900 per person. Compared with 2013, that was 15 percent more employees and 11 percent more money given.

The payments last peaked in 2010, when about $85.7 million was given to nearly 11,400 employees, before declining in 2011, 2012 and 2013. Worries about recruiting skilled employees in STEM (science, technical, engineering and math) fields like cybersecurity are likely driving the benefit's increase. The Defense, Justice, State and Veterans Affairs departments and the Securities and Exchange Commission used four-fifths of the benefits last year.

"Employees in STEM career fields are vital to the federal government's mission," read the report, "and OPM is committed to continue working with agencies to help them attract and retain talented professionals using student loan repayments and other human resources management flexibilities."

Agencies are allowed to pay employees up to $10,000 annually to a total of $60,000 for some educational loans (Eric Yoder, *Washington Post*, Oct. 20). **-- BTP**

AIR POLLUTION:

Volkswagen may have to buy back cars with rigged software

Published: Tuesday, October 20, 2015

Volkswagen will likely owe compensation to the owners of its diesel cars that were fitted with emissions-rigging software and could have to buy back the vehicles.

More than 200 lawsuits have been filed against Volkswagen in the past few weeks, with many of them accusing the company of marketing its diesel Golfs, Jettas, Beetles and Passats as cleaner alternatives to gas engines while knowing they actually emitted illegal amounts of pollution.

Earlier this month, Volkswagen's head of American operations told a congressional panel that the company may compensate owners for the depreciated value of their cars but that it could take one to two years to fix all the cars (*Greenwire*, Oct. 8).

"Our clients don't want to wait a year. They don't want to be driving a dirty car," said Steve Berman, a Seattle lawyer who filed a lawsuit on behalf of nearly 70,000 Volkswagen owners in California. Other class-action lawsuits could eventually cover all U.S. owners, said University of Southern California law professor Greg Keating, who noted that plaintiffs are making the case that their cars are technically illegal to drive.

A buyback of the 482,000 affected Volkswagen cars in the United States would likely cost about $6.9 billion.

"It's really enormous for VW to have to buy these things back," Keating said. "But maybe they will have to" (Tom Krisher, AP/*Charleston* [W.Va.] *Gazette*, Oct. 19). **-- BTP**

JAPAN:

Worker's cancer may be from Fukushima radiation

Published: Tuesday, October 20, 2015

A worker at Japan's Fukushima Daiichi nuclear power plant that melted down in 2011 was diagnosed with cancer, potentially marking the first case of cancer stemming from the accident, according to the Japanese government.

The acknowledgment of radiation as a possible cause of the worker's leukemia undercuts the narrative that Japan's government and nuclear industry have promoted that radiation from Fukushima has had minimal health impacts (*Greenwire*, Oct. 8).

The worker, a man in his 30s, was a construction contractor at the Fukushima Daiichi plant and other nuclear sites, a Japanese health ministry official said. Though his radiation exposure was well below the annual limit for nuclear workers, the government conceded it could not rule out the radiation as a cause of his leukemia (Kiyoshi Takenaka, Reuters, Oct. 20). **-- BTP**

INTERNATIONAL:

Climate Policy Initiative's Buchner says innovative approach needed for public, private climate finance

Published: Tuesday, October 20, 2015

Climate finance has emerged as a key issue ahead of December's Paris climate meeting. What are the main barriers that stand in the way to scaling up financing? During today's OnPoint, Barbara Buchner, senior director of the Climate Policy Initiative and the head of the secretariat for the Global Innovation Lab for Climate Finance, discusses the lab's work to find innovative approaches to spurring public- and private-sector financing for climate change adaptation.

Click here to watch today's OnPoint.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Wed., October 21, 2015

READ FULL EDITION

1.NATIONS:

Hellish fire season in Indonesia poses regional health and emission problems

This year, more than 94,000 fires, most in carbon-rich peat lands, have engulfed the island nation of Indonesia, sending thick, acrid smoke into the air. The haze is affecting the health of millions of people there and in Malaysia and Singapore. It is also creating a diplomatic nightmare and enforcement problem for government officials.

2.REGULATION:

EPA's final climate rule made compliance easier for some state regulators, harder for others

Whether they plan on embracing or fighting the rule, Virginia, Kansas, Pennsylvania and Missouri are all planning on writing state plans to submit to U.S. EPA proposing how they aim to comply with the Obama administration's recently released Clean Power Plan that seeks to curb greenhouse gas emissions from power plants.

TODAY'S STORIES

3.ADAPTATION:

New greenhouse fights drought and grows food at the same time

4.NEGOTIATIONS:

Stern defends emerging climate accord as diplomats work on final changes

5.ENERGY EFFICIENCY:

Xcel Energy unveils ambitious LED lighting plan

6.FORESTS:

USDA looks to 'tall wood' buildings to curb GHG emissions

7.POLITICS:

Sanders seeks criminal probe into oil giant for fraud on climate change

8.RESEARCH:

Methane leaking into ocean near Ore., Wash. because of melting sediment

9.CALIFORNIA:

Hundreds of millions of trees at risk from state's drought

10.NATIONS:

Climate change expected to worsen food, flooding challenges in Pakistan

11.AGRICULTURE:

Increasing CO2 creating bigger, water-hungry plants in Australia

E&ETV'S ONPOINT

12.CLIMATE:

Former DOE official McConnell says power plan a forced renewable portfolio standard

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Wed., October 21, 2015

READ FULL EDITION

1.ELECTRICITY:

Can a bankruptcy court cut coal pollution in Texas? Green groups say yes

DALLAS -- Environmentalists started a long-shot campaign yesterday to steer a Texas power company's massive bankruptcy away from coal-fired generation.

TOP STORIES

2.HYDRAULIC FRACTURING:

'Frack hits' provide pathways for methane migration -- study

3.LAW:

Tribe's lawsuit over fracking rule closed as negotiations continue

4.CONGRESS:

Senators spar over cybersecurity legislation as vote looms

ELECTRICITY

5.ELECTRICITY:

Texas complaints drop to lowest level in deregulated era -- report

6.GRID:

Microgrids bring reliability to Calif. tribes

OIL AND GAS

7.PIPELINES:
'Healthy demand' continues despite oil downturn -- S&P

8.NATURAL GAS:
Safety is top concern for industry, followed by infrastructure

9.OIL:
Public universities hit hard in price slump

10.PENNSYLVANIA:
Townspeople blame dirty water on fracking, DEP

11.WORKFORCE:
Oil field group helping out their own in Colo.

E&ETV'S ONPOINT

12.CLIMATE:
Former DOE official McConnell says power plan a forced renewable portfolio standard

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Giles, Michael (EEO)[michael.giles@vw.com]
Cc: Rodgers, William (EEO)[William.Rodgers@vw.com]; Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Snyder, Jim[Snyder.Jim@epa.gov]
From: Wright, DavidA
Sent: Wed 10/21/2015 3:33:42 PM
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Mike,

I just rejected your certificate request. The plan for updating you describes sounds fine. Let me know if you have any other questions or need anything else.

Regards,

David

From: Giles, Michael (EEO) [mailto:michael.giles@vw.com]
Sent: Wednesday, October 21, 2015 11:17 AM
To: Wright, DavidA <Wright.DavidA@epa.gov>
Cc: Rodgers, William (EEO) <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Hello David,

Can you reject our current certificate request? We will then correct the CSI with this and also battery specific energy.

Please let us know if the CSI contains sufficient battery details as you mentioned earlier. If so, we will reference this from section 10.

In addition, we plan to add a detailed technical document with charging and other information.

Regards,

Mike

From: Wright, DavidA [mailto:Wright.DavidA@epa.gov]
Sent: Wednesday, October 21, 2015 11:05 AM
To: Giles, Michael (EEO) <michael.giles@vw.com>
Cc: Rodgers, William (EEO) <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Mike,

As I was getting ready to approve your certificate I noticed that the certificate lists the evaporative useful life as 120,000 miles. I believe this needs to be changed to 150,000 miles. The useful life requirement for Tier 3 evap is 150,000 when the vehicle is also certifying to a 150,000 mile exhaust emission standard. This useful life requirement is defined in 86.1813-17(a)(5).

Let me know if you have any questions regarding the information in this e-mail, or, if you think that I have erred in my reading of the regulations.

Regards,

David

David A. Wright

Light-Duty Vehicle Center, Compliance Division

National Vehicle and Fuel Emissions Laboratory

Phone: (734) 214-4467

E-mail: wright.davida@epa.gov

From: Giles, Michael (EEO) [mailto:michael.giles@vw.com]
Sent: Wednesday, October 21, 2015 8:12 AM
To: Wright, DavidA <Wright.DavidA@epa.gov>
Cc: Rodgers, William (EEO) <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: FW: VW Group - MY16 Audi A3 e-tron updated application

Hello David,

In response to your voice mail, we submitted a revised application (R02) for the e-tron yesterday which includes the OBD approval letter.

I will follow up to provide a description of charging methods.

Regards,

Mike

From: Giles, Michael (EEO)
Sent: Tuesday, October 20, 2015 4:39 PM
To: Snyder, Jim <snyder.jim@epa.gov>

Cc: Rodgers, William <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Hello Jim,

I have submitted revision 2 application for MY16 test group GVGAV1.4V3B, for the Audi e-tron. This revisions is only to include a missing page for the OBD approval. No other changes were made.

Please let us know if you have any questions in processing the certificate for this application.

Regards,

Mike

From: Giles, Michael (EEO)
Sent: Tuesday, October 06, 2015 2:21 PM
To: Snyder, Jim <snyder.jim@epa.gov>
Cc: Rodgers, William <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: VW Group - MY16 Audi A3 e-tron updated application

Hello Jim,

I have submitted a correction to the application for the MY 2016 Audi A3 e-tron: Test Group GVGAV01.4V3B. I corrected the DF for Cold CO as well as evap standards in section 17. The changes are highlighted in yellow.

We also re-processed the CSI through Verify for the same corrections.

A new cert request was submitted. Please let us know if you have any questions during your review.

Thanks,

Mike

Michael Giles

Certification Engineer

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4229

Fax: 248 754 4207

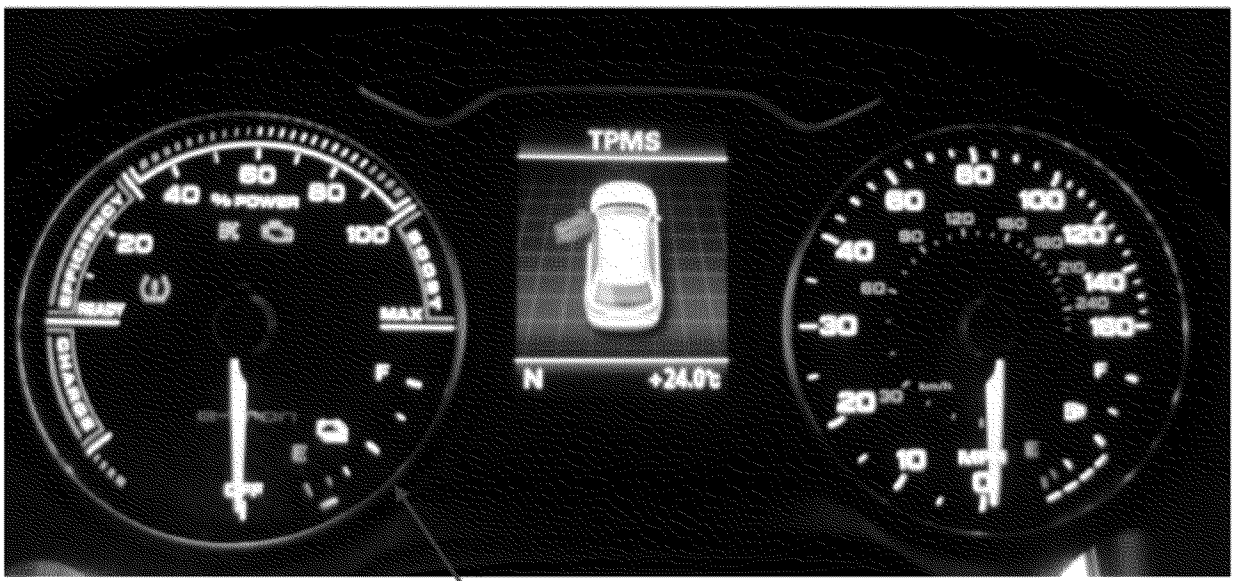
mailto: Michael.Giles@VW.com

To: Wright, DavidA[Wright.DavidA@epa.gov]
Cc: Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Snyder, Jim[Snyder.Jim@epa.gov]; Giles, Michael (EEO)[michael.giles@vw.com]
From: Rodgers, William (EEO)
Sent: Wed 10/21/2015 4:48:59 PM
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

David,

Thanks for your input. We have made the discussed Application changes and submitted a new Certificate Request for your approval. Please check Verify for the latest Application version 4. You will find in Section 16 a training document which contains extensive technical specs/descriptions and battery charging procedures.

As a side note you will see that the battery state of charge is indicated to the driver in the lower left of the instrument cluster as seen below.



Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Wright, DavidA [mailto:Wright.DavidA@epa.gov]
Sent: Wednesday, October 21, 2015 11:34 AM
To: Giles, Michael (EEO)
Cc: Rodgers, William (EEO); Allen, Gregory (EEO); Snyder, Jim
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Mike,

I just rejected your certificate request. The plan for updating you describes sounds fine. Let me know if you have any other questions or need anything else.

Regards,

David

From: Giles, Michael (EEO) [mailto:michael.giles@vw.com]
Sent: Wednesday, October 21, 2015 11:17 AM
To: Wright, DavidA <Wright.DavidA@epa.gov>
Cc: Rodgers, William (EEO) <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Hello David,

Can you reject our current certificate request? We will then correct the CSI with this and also battery specific energy.

Please let us know if the CSI contains sufficient battery details as you mentioned earlier. If so, we will reference this from section 10.

In addition, we plan to add a detailed technical document with charging and other information.

Regards,

Mike

From: Wright, DavidA [mailto:Wright.DavidA@epa.gov]
Sent: Wednesday, October 21, 2015 11:05 AM
To: Giles, Michael (EEO) <michael.giles@vw.com>
Cc: Rodgers, William (EEO) <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Mike,

As I was getting ready to approve your certificate I noticed that the certificate lists the evaporative useful life as 120,000 miles. I believe this needs to be changed to 150,000 miles. The useful life requirement for Tier 3 evap is 150,000 when the vehicle is also certifying to a 150,000 mile exhaust emission standard. This useful life requirement is defined in 86.1813-17(a)(5).

Let me know if you have any questions regarding the information in this e-mail, or, if you think that I have erred in my reading of the regulations.

Regards,

David

David A. Wright

Light-Duty Vehicle Center, Compliance Division

National Vehicle and Fuel Emissions Laboratory

Phone: (734) 214-4467

E-mail: wright.davida@epa.gov

From: Giles, Michael (EEO) [mailto:michael.giles@vw.com]
Sent: Wednesday, October 21, 2015 8:12 AM
To: Wright, DavidA <Wright.DavidA@epa.gov>
Cc: Rodgers, William (EEO) <William.Rodgers@vw.com>; Allen, Gregory (EEO)

<Gregory.Allen@vw.com>
Subject: FW: VW Group - MY16 Audi A3 e-tron updated application

Hello David,

In response to your voice mail, we submitted a revised application (R02) for the e-tron yesterday which includes the OBD approval letter.

I will follow up to provide a description of charging methods.

Regards,

Mike

From: Giles, Michael (EEO)
Sent: Tuesday, October 20, 2015 4:39 PM
To: Snyder, Jim <snyder.jim@epa.gov>
Cc: Rodgers, William <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: RE: VW Group - MY16 Audi A3 e-tron updated application

Hello Jim,

I have submitted revision 2 application for MY16 test group GVGAV1.4V3B, for the Audi e-tron. This revisions is only to include a missing page for the OBD approval. No other changes were made.

Please let us know if you have any questions in processing the certificate for this application.

Regards,

Mike

From: Giles, Michael (EEO)
Sent: Tuesday, October 06, 2015 2:21 PM
To: Snyder, Jim <snyder.jim@epa.gov>
Cc: Rodgers, William <William.Rodgers@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: VW Group - MY16 Audi A3 e-tron updated application

Hello Jim,

I have submitted a correction to the application for the MY 2016 Audi A3 e-tron: Test Group GVGAV01.4V3B. I corrected the DF for Cold CO as well as evap standards in section 17. The changes are highlighted in yellow.

We also re-processed the CSI through Verify for the same corrections.

A new cert request was submitted. Please let us know if you have any questions during your review.

Thanks,

Mike

Michael Giles

Certification Engineer

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4229

Fax: 248 754 4207

mailto: Michael.Giles@VW.com

FILED

2015 OCT 16 P 3:29

CLERK US DISTRICT COURT
ALEXANDRIA, VIRGINIA

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

THE CENTER FOR AUTO SAFETY Plaintiff, v. VOLKSWAGEN AG, VOLKSWAGEN OF AMERICA GROUP, INC., VOLKSWAGEN OF AMERICA, INC., AUDI OF AMERICA, LLC, and AUDI AG, Defendants.	Case No. 1:15 cv 1356 (LO/MSN) JURY TRIAL DEMANDED

COMPLAINT

Plaintiff The Center for Auto Safety ("CAS") brings this action on its own behalf and on behalf of its members against Volkswagen AG ("VWAG"), Volkswagen of America Group, Inc. and Volkswagen of America, Inc. (collectively, "VWoA"), and Audi of America, LLC and Audi AG (collectively, "Audi").[1] Plaintiff seeks injunctive and declaratory relief for Volkswagen's violations of the the California Unfair Competition Law, the California Consumer Legal Remedies Act, the Michgan Consumer Protection Act, Massachusetts General Law chapter 93A, and the District of Columbia Unlawful Trade Practices Act. Plaintiffs make the following allegations upon information and belief.

I. NATURE OF THE ACTION.

1. Four years ago, Martin Winterkorn ("Winterkorn"), Volkswagen's former Chief Executive Officer ("CEO"), announced Volkswagen's goal to become the world's largest

[1] Unless otherwise indicated herein, all of these defendants will be referred to collectively as "Volkswagen."

VW FOIA, EPA 06/20/2017 2017-FFP_034668

automaker. "By 2018," he told U.S. politicians gathered for the opening of a Volkswagen plant in Chattanooga, Tennessee, "we want to take our group to the very top of the global car industry."[2] With only a relatively small share of the gigantic United States market, Winterkorn's ambitious plan required a dramatic increase in sales in that market. And the way to increase sales here, Volkswagen decided, was to convince American consumers that its diesel-powered cars were a superior alternative, with better fuel efficiency, lower emissions, and uncompromised performance.

2. Between 2009 and September 18, 2015, Volkswagen aggressively marketed its so-called Clean Diesel Turbocharged Direct Injection ("TDI") light passenger vehicles in the United States, spending millions of dollars on print, television, internet and point-of-sale advertising aimed at convincing American consumers that its cars were environmentally-friendly, fuel-efficient, powerful, and reasonably priced. In order to increase its market share, Volkswagen's cars needed all those attributes to win over a skeptical American public. Compared with Europe, with its higher fuel costs, expensive cars and less stringent tailpipe emission standards, the United States market was a tough sell for diesel-powered passenger cars.

3. Until September 18, 2015, it looked as if Winterkorn's ambitious plan had succeeded. In July of 2015, Volkswagen surpassed Toyota Corporation ("Toyota") as the world's largest automaker, selling 5.04 million vehicles in the first six months of this year, compared to Toyota's 5.02 million.[3]

4. As noted above, the United States was a key part of this global strategy. As reported in *Automotive News*:

> Back in 2007, the automaker vowed to crank up U.S. sales of its VW brand to 800,000 vehicles a year by 2018. It was a dizzying

[2] http://www.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?_r=0.

[3] http://www.usatoday.com/story/money/2015/07/28/volkswagen-surpasses-toyota-worlds-largest-automaker-first-half-2015/30772509/.

VW FOIA, EPA 06/20/2017 2017-FFP_034669

> sum, requiring more than a tripling of its volume at that time. Many in the industry scoffed.
>
> But with steady precision, VW got the skeptics to take a second look. It launched a lower-priced, Mexico-made Jetta and built a plant in Chattanooga that began churning out a new Passat that better fit American tastes and budgets. VW sales doubled between 2009 and 2012, to nearly 440,000, lifting hopes that 800,000 was doable.[4]

By October 1, 2015, VWoA had reported sales of 264,215 passenger vehicles in the United States through September 15, indicating that before the scandal that is the subject of this Complaint surfaced, it was expecting another excellent sales year.[5]

5. Indeed, Volkswagen was so successful in achieving brand loyalty in the clean diesel market, consumers are now left with few options for purchasing comparable vehicles and are left with the dilemma of remaining loyal to Volkswagen or looking for a different type of vehicle. As the New York Times recently reported:[6]

> "There's a bit of a hole in the marketplace," Ms. Caldwell said. "Other vehicles certainly could be substituted, but there aren't a lot of affordable fun-to-drive diesels out there."
>
> Other fuel-efficient and earth-friendly options are also significantly more expensive. VW's diesel technology has been the market's most affordable, adding as little as $700 to the price of a conventional gasoline model.

6. Unfortunately for American consumers, Volkswagen's success in capturing market share was based on a lie. On September 18, 2015, the United States Environmental Protection Agency ("EPA") and the California Air Resources Board ("CARB") both notified Volkswagen that it had violated federal and state laws and regulations by using a "defeat device"--software

---

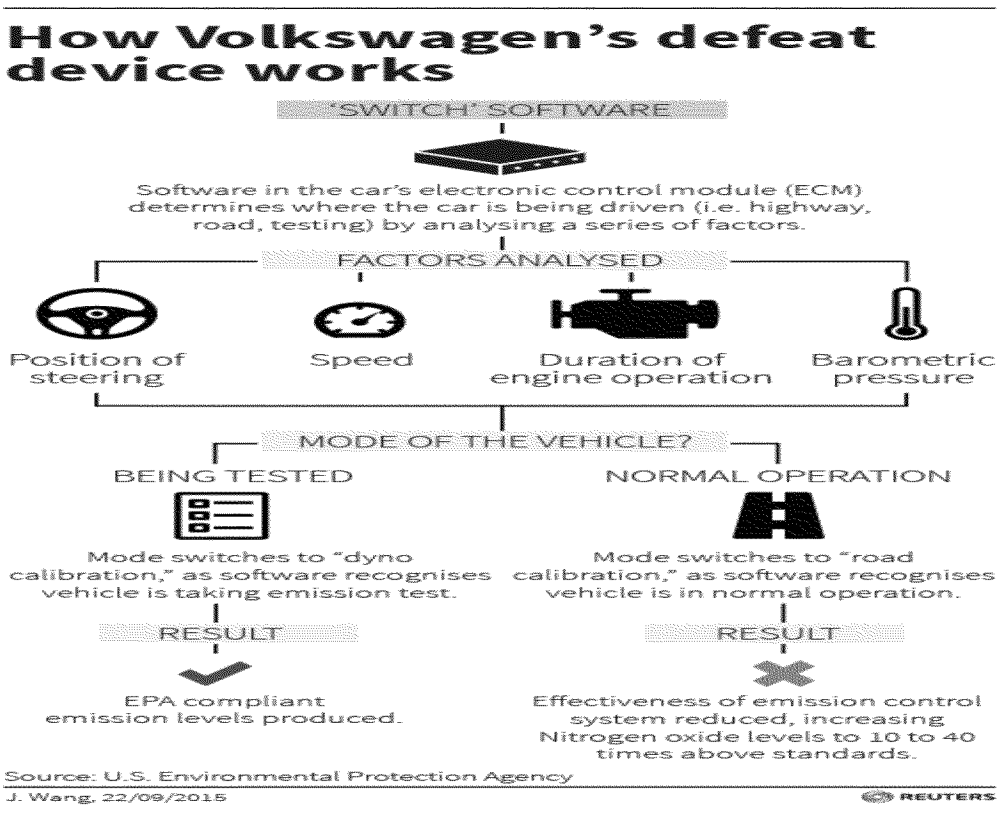
[4] http://www.autonews.com/article/20150126/RETAIL01/301269949/how-vw-veered--off-target.

[5] http://media.vw.com/release/1080/.

[6] http://www.nytimes.com/2015/10/09/automobiles/with-vw-no-longer-an-option-diesel-buyers-have-few-choices.html?smprod=nytcore-iphone&smid=nytcore-iphone-share&_r=0

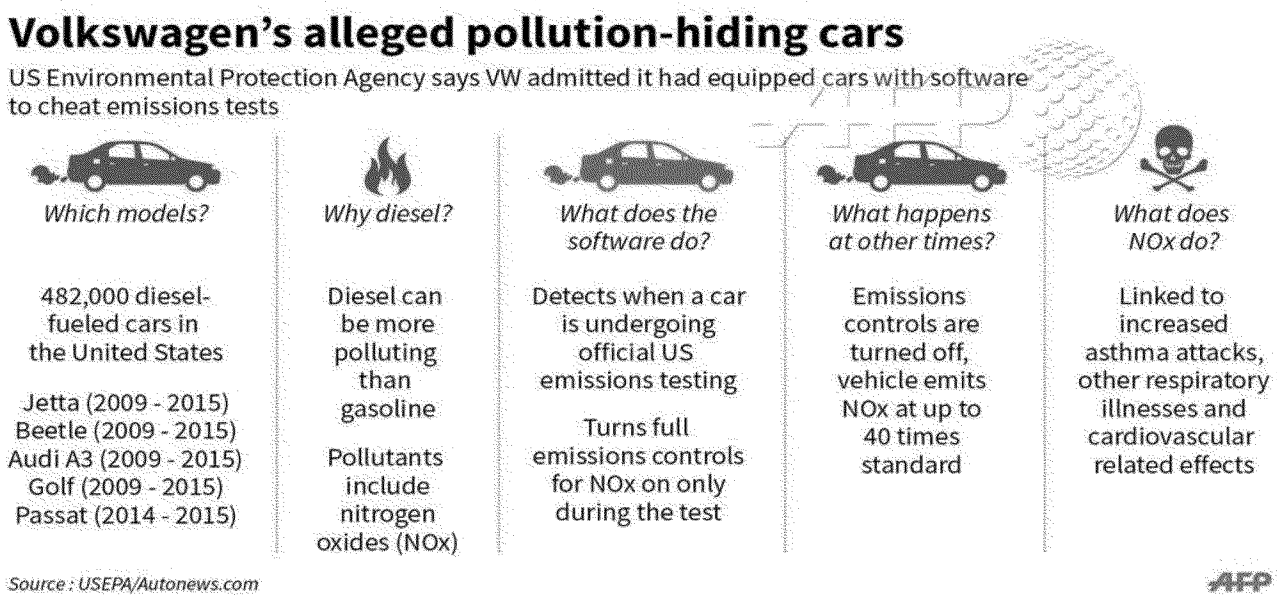
specifically intended to circumvent emission test procedures established by the EPA and by CARB. Those notices are attached as Exhibits 1 and 2 to this complaint.

7. Volkswagen's "defeat device" is a "sophisticated software algorithm"[7] that detects when the car is undergoing emissions testing. Under such laboratory test conditions, Volkswagen's vehicles pass the EPA and CARB emissions tests with flying colors. Under normal driving situations, however, the software algorithm ***turns off*** the emissions control systems, allowing the cars to spew as much as 40 times the allowable amount of pollutants--specifically nitrogen oxides ("NOx")--into the air. Elevated NOx contributes to the creation of ozone and smog, and is linked to asthma attacks, other respiratory diseases such as emphysema and bronchitis, and causes premature death. A diagram published in Reuters depicts its operation:



[7] http://www.theguardian.com/business/2015/sep/18/epa-california-investigate-volkswagen-clean-air-violations.

8. The chart below, published by *Agence France Press*, provides a useful and concise primer on the known facts:



9. As noted below, dozens of fatalities in the United States over the last seven years have been attributed to the illegal use of this "defeat device." The scandal has been popularly referred to as "Dieselgate."

10. Volkswagen has admitted to installing these "defeat devices" in 11 million diesel vehicles that have been sold around the world, including 525,000 in the United States. As Michael Horn ("Horn"), the President and CEO of VWoA, candidly admitted: "[l]et's be clear about this. **Our company was dishonest**. **With the EPA, and the California Air Resources Board, and with all of you. And in my German words, we have totally screwed up**."[8] (Emphases added). Horn further stated in a video on VWAG's website that **"[o]ur company betrayed the trust of you, our customers, our employees, our dealers and the public.**"[9] (Emphases added). And as

[8] http://www.roadandtrack.com/new-cars/car-technology/news/a26774/volkswagen-ceo-we-screwed-up/. A YouTube video of this extraordinary concession can be found here: www.youtube.com/watch?v=Q6z8uUJE-jE.

[9] https://www.vwdieselinfo.com/.

VWAG has posted on its website: "[g]overnment regulations limit the use of engine software that reduces the effectiveness of a vehicle's emissions control systems. **Those are the 'defeat device' regulations, and regrettably, VW violated those regulations. We take full responsibility** – and deeply regret that this happened."[10] (Emphases added). In a September 23, 2015 press release available on VWAG's website, the Executive Committee of VWAG's Supervisory Board stated: "[t]he Executive Committee takes this matter extremely seriously. **The Executive Committee recognizes not only the economic damage caused, but also the loss of trust among many customers worldwide.**"[11] (Emphases added). Or, as Berthold Huber ("Huber"), Deputy Chairman of the Supervisory Board, was quoted as saying in a September 25 press release, **"[t]he test manipulations are a moral and political disaster for Volkswagen. The unlawful behavior of engineers and technicians involved in engine development shocked Volkswagen just as much as it shocked the public.**" [12] (Emphases added).

11. In light of the scandal, VWAG's Management Board forced Winterkorn to resign as CEO of VWAG on September 23.[13] In doing so, he stated that "**I accept responsibility for the irregularities that have been found in diesel engines.**" (Emphases added). [14] He further observed that "**[m]illions of people across the world trust our brands, our cars and our**

[10] http://www.vwdieselinfo.com/faqs/.

[11] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2015/09/AR_Erklaerung.html.

[12] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2015/09/Erklaerung.html.

[13] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html

[14] http://www.nytimes.com/2015/09/24/business/international/volkswagen-chief-martin-winterkorn-resigns-amid-emissions-scandal.html. Notably, however, Winterkorn plans to stay as the Chairman of the Board of Directors of Porsche Automobil Holding SE, which owns a 52% controlling stake in VWAG; he is also still demanding payment of the ten million Euros owed to him under his employment contract, which does not expire until 2016. http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

technologies. I am endlessly sorry that we have disappointed this trust. I apologize in every way to our customers, to authorities and the whole public for the wrongdoing." [15] (Emphases added). He professed surprise that "**misconduct on such a scale**" (emphases added) occurred within the Volkswagen group, suggesting that he had no knowledge of it.[16] It has been reported that Winterkorn was being investigated for fraud in connection with the conduct at issue here by prosecutors in Lower Saxony; however, more recently, those prosecutors have stated that any prosecution will await further factual information.[17]

12. Volkswagen has ordered its authorized dealers ("Volkswagen Authorized Dealers") to cease selling the vehicles in which the defeat devices are installed. These include at least the VW Jetta TDI (Model Years 2009-15), the VW Jetta SportWagen TDI (Model Years 2009-14), the VW Golf TDI (Model Years 2010-15), the VW Golf SportWagen TDI (Model Year 2015), the VW Beetle TDI and VW Beetle Convertible TDI (Model Years 2012-15), the VW Passat TDI (Model Years 2012-15) and the Audi A3 TDI (Model Years 2010-15).[18] These affected vehicles will be referred to in this Complaint as the "Affected Vehicles."

13. Volkswagen's internal investigation has resulted so far in the suspension of four executives: (a) Heinz-Jakob Neusser ("Neusser"); (b) Ulrich Hackenberg ("Hackenberg"); (c) Wolfgang Hatz ("Hatz") and (d) Falko Rudolph (Rudolph).[19] Spiegel Online described

---

[15] http://www.chicagotribune.com/business/ct-volkswagen-emissions-scandal-20150922-story.html.

[16] http://www.salon.com/2015/09/24/i_am_stunned_that_misconduct_on_such_a_scale_was_possible_what_you_need_to_know_about_the_volkswagen_mega_scandal/.

[17] http://www.autonews.com/article/20151001/COPY01/310019972/german-prosecutors-backtrack-on-winterkorns-role-in-vw-probe.

[18] http://www.thetruthaboutcars.com/2015/09/vw-audi-canada-halting-sales-tdi-cars-following-us-inquiry/; http://www.vwdieselinfo.com/faqs/.

[19] http://uk.reuters.com/article/2015/09/29/uk-volkswagen-emissions-idUKKCN0RS0U620150929.

VW FOIA, EPA 06/20/2017 2017-FFP_034674

Hackenberg's departure, which was also typical of the others: "[h]e received news of his immediate suspension from the personnel department and was asked to turn in his company phone and leave his office. He has also been told not to set foot on company premises."[20]

14. None of these people are mere obscure midlevel engineers. Hackenberg is a VWAG Board member for Technical Development.[21] The same Spiegel Online article described Hackenberg as "a long-time confidant of Winterkorn and, up until just a few days ago, one of the most powerful men at VW." Hatz is a Porsche AG ("Porsche") Board of Management member in charge of Research and Development and is additionally Head of Engines and Transmissions Development for the Volkswagen Group.[22] Neusser was responsible for engine development at Porsche commencing in 1998 and drivetrain development commencing in 2011; in October of 2012, he succeeded Hatz as Head of Powertrain Development at the Volkswagen Group.[23]

15. The same Spiegel Online article notes that Hans-Dieter Pötsch ("Pötsch"), the VWAG Finance Chief and Board Chairman of VWAG, may also be under investigation by regulatory authorities. As discussed below, Volkswagen told the EPA about the use of a defeat device on September 3 (if not earlier), but disclosed it to investors only on September 20. "[T]he finance chief remained silent for 17 days. During these 17 days, hundreds of thousands of investors bought VW stock. When the scandal was finally made public on Sept. 20, the price of VW shares plunged by 40 percent, costing stockholders €35 billion."[24] VWAG's shares have been on a steady

[20] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

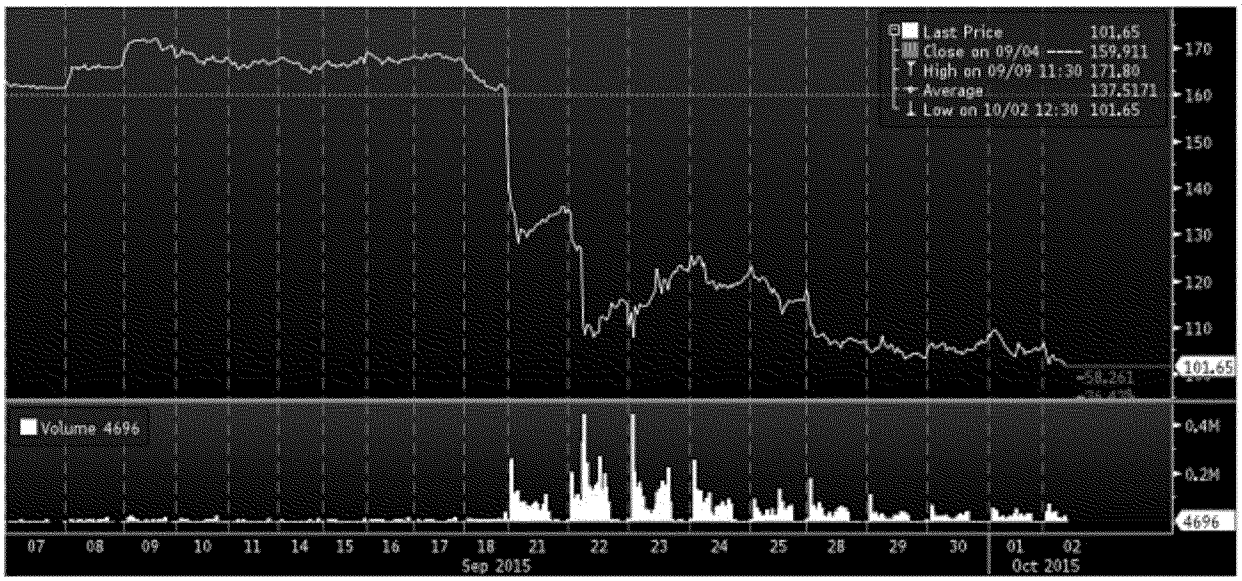
[21] http://www.audi.com/corporate/en/company/corporate-management/members-of-the-board/ulrich-hackenberg.html.

[22] http://press.porsche.com/more_about/executives/pag/hatz.php.

[23] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2012/09/Dr_Heinz_Jakob_Neusser.html.

[24] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

decline ever since, as reflected in this graphic from the *Telegraph* in the United Kingdom:



16. According to an October 3 article from Reuters, "[a]t an internal company meeting this week at the VW headquarters in Wolfsburg, Pötsch described the situation as an 'existence-threatening crisis for the company', Germany's *Welt am Sonntag* reported in a release ahead of Sunday's publication."[25]

17. As explained below, and contrary to the suggestions of some of Volkswagen's spokespersons, the unlawful conduct here was not the action of renegade lower-level employees. It was instead the product of a concerted scheme by top executives at Volkswagen to save costs through use of the TDI technology, break into the United States diesel passenger car market by

[25] http://mobile.reuters.com/article/idUSKCN0RX0GQ20151004. Pötsch's accession to the VWAG Board has been criticized. Hans-Christoph Hirt, a director of Hermes Equity Ownership Services, an adviser to pension fund investors in companies including Volkswagen, said the appointment created a "serious conflict of interest": "[Pötsch] was a key VW executive for more than a decade and under German law the management board has a collective responsibility . . . The lawyers will surely demand that he recuse himself from any supervisory board meetings when management's role is discussed." http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034676

concealing from regulators and the public the inability of cars using that technology to meet federal and state emissions standards, market the TDI cars through an elaborate seven-year long campaign of false advertising and lying to state and federal officials, and thereby obtain a monopoly share of the United States Clean Diesel passenger car market.

18. The German periodical *Bild am Sonntag* revealed that Robert Bosch GmbH ("Bosch"), the supplier of some components of the emissions control system, used by Volkswagen in TDI diesel vehicles, also supplied Volkswagen with diesel software for test purposes. Bosch reportedly told VWAG in 2007 that using that software in vehicles on the road would be illegal.[26] Similarly, *Süddeutsche Zeitung* has reported that Neusser had ignored least one Volkswagen engineer's warnings over "possibly illegal" practices in 2011.[27] Spiegel Online reported that groups within Volkswagen knew of potential issues as far back as 2005 or 2006.[28] OlafLies,a VWAG Board member, has stated publicly that **"[t]hose people who allowed this to happen, or who made the decision to install this software--they acted criminally. They must take personal responsibility**."[29] (Emphases added).

19. As discussed in further detail below, Volkswagen has set aside the inadequate sum of 6.5 billion Euros (approximately $7.2 billion) to deal with the fallout from this fraud. Numerous countries across the world are investigating the matter and here, in the United States, probes are being conducted by the United States Department of Justice ("DOJ"), a coalition of state attorneys general ("AGs"), and members of the United States House of Representatives. The EPA has ordered a recall.

---

[26] http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says.

[27] http://www.sueddeutsche.de/politik/abgas-affaere-vw-topmanager-schwer-belastet-1.2669920.

[28] http://www.spiegel.de/wirtschaft/unternehmen/volkswagen-aufsichtsrat-lies-macht-managern-vorwuerfe-a-1055381.html.

[29] http://www.bbc.com/news/business-3439.7426.

II. THE PARTIES.

A. Plaintiff

20. CAS is a non-profit, Section 501(c)(3) public interest organization headquartered in Washington, DC. It was founded by consumer advocate Ralph Nader and Consumers Union in 1970 to provide consumers with a voice for auto safety and to provide information to consumers on how to purchase the best motor vehicle for their needs. CAS has over 15,000 members nationwide. CAS is dedicated to promoting automobile and highway safety, ensuring that defective and unsafe automobiles and automobile equipment are removed from the road, helping make roads safer for motor vehicles through safer designs and traffic, and working for improved fuel efficiency and lower emissions from motor vehicles.

21. As part of its commitment to improved fuel efficiency, in 2008, the CAS integrated into its programs the Safe Climate Campaign which aims to fight global warming by promoting laws and regulations that require strict emissions standards. The Safe Climate Campaign also pushes automakers to make clean, energy efficient vehicles, and urges consumers to make energy-efficient choices in transportation.

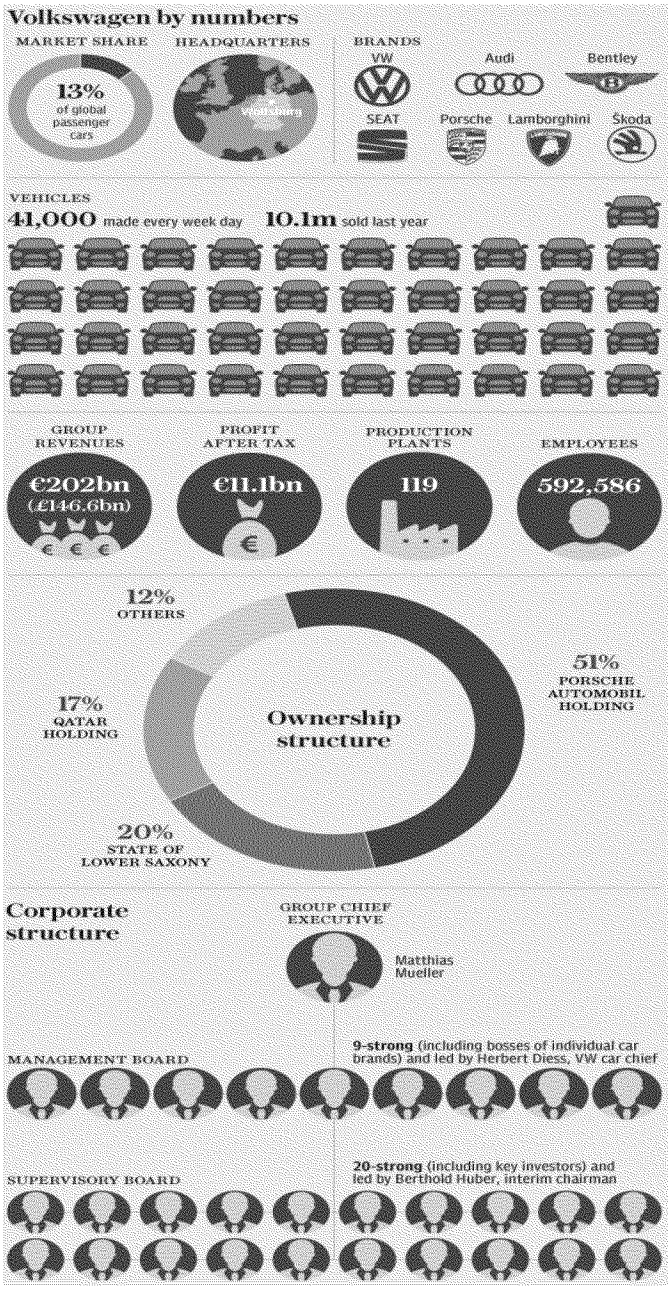
22. CAS has individual standing as an organization because it has been harmed by Defendants' wrongful conduct as alleged herein. CAS had devoted considerable time and resources encouraging automakers to sell energy-efficient vehicles and encouraging members to purchase clean, energy-efficient vehicles. As a result of Defendants' unlawful conduct, CAS has had to redirect staff time and financial resources away from its planned activities.

23. CAS also has associational standing on behalf of its members who have claims against Defendants for the violations alleged in this complaint. In addition to the redress it seeks for its own injury, and where its members are entitled to so and the claims for relief otherwise permit, CAS seeks declaratory and injunctive relief.

VW FOIA, EPA 06/20/2017 2017-FFP_034678

B. Defendants

24. Defendant VWAG is a car corporation organized and existing under German law, with its principal place of business in Wolfsburg, Germany. VWAG is the parent company of Defendants VWoA and Audi. The structure of VWAG is set forth in the following chart:



25. Defendant Audi AG is a car corporation organized and existing under German law, with its principal place of business in Ingolstadt, Germany. It is owned by VWAG. Audi was

created when VWAG merged two of its companies, Auto Union and NSU Motorenwerke AG. Audi is a 99.55%-owned subsidiary of the Volkswagen Group. Audi is now Volkswagen's luxury vehicle brand, and uses the slogan "Truth in Engineering".

26. Defendant the Volkswagen Group of America, Inc. is a corporation organized and existing under New Jersey law. Its headquarters are in Herndon, Virginia. The Volkswagen Group of America, Inc. is a wholly-owned subsidiary of VWAG. It is one of the world's largest producers of passenger cars. Through Volkswagen of America, Inc., it sells the Beetle, Beetle Convertible, CC, Eos, e-Golf, Golf, Golf GTI, Golf SportWagen, Jetta, Passat, Tiguan, and Touareg vehicles through Volkswagen Authorized Dealers located in the United States. Volkswagen Group of America, Inc.'s operations in the United States include research and development; parts and vehicle processing; parts distribution; sales, marketing and service offices; financial service centers; and manufacturing.

27. Defendant Volkswagen of America, Inc. is owned and operated by the Volkswagen Group of America, Inc. and sells Volkswagen vehicles in the United States. Its United States headquarters are at the same address as Volkswagen Group of America, Inc. in Herndon, Virginia.

28. Defendant Audi of America, LLC is a subsidiary of Audi AG that sells Audi vehicles in the United States. Its United States headquarters are at the same address as Volkswagen Group of America, Inc. in Herndon, Virginia.

III. JURISDICTION AND VENUE.

29. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1332(a) and 1367. The cost of compliance with the requested injunctive relief exceeds $75,000.

30. Venue is proper in this judicial district and in the Alexandria Division thereof pursuant to 28 U.S.C. § 1391(b) and (c), in that at least one of the Defendants resides in this judicial district, is licensed to do business or is doing business in this judicial district.

IV. TRADE AND COMMERCE.

31. Approximately 482,000 Affected Vehicles have been sold or leased in the United

VW FOIA, EPA 06/20/2017 2017-FFP_034680

States in a continuous and uninterrupted flow of interstate commerce and foreign commerce during the last seven years, including through and into this judicial district. The business activities of the Defendants substantially affected interstate trade and commerce in the United States and caused antitrust injury in the United States.

V. FACTUAL ALLEGATIONS.

A. Automobile Emissions Regulations in the United States.

32. Congress enacted the first major Clean Air Act ("CAA") and established the EPA in 1970. The CAA, amended in 1975 and 1990, requires vehicle manufacturers to certify to the EPA that their cars and trucks will meet applicable federal emission standards.[30] The EPA administers a certification program to ensure that every vehicle complies with its emission standards. EPA-issued certificates of conformity are required for every vehicle sold in the United States, and the EPA must approve every vehicle entering United States commerce. In these certification efforts, the EPA relies on test data submitted by automobile manufacturers, which submit the vehicles to the agency's testing procedures in their own laboratories. The EPA audits a small fraction of the new vehicles each year to ensure compliance in a process known as "confirmatory testing."[31]

33. The Affected Vehicles, like any other car sold in the United States, were required to satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. §86.1811-4; Clean Air Act §101(b)(1) – (2), 42 U.S.C. §7401(b)(1)(2).

34. Section 203(a)(3)(b) of the CAA prohibits the manufacture, selling, or installation

---

[30] http://www2.epa.gov/laws-regulations/summary-clean-air-act.

[31] http://www.autonews.com/article/20151004/OEM11/310059955/vw-emissions-violations-put-self-certification-under-new-scrutiny. The EPA has a webpage describing that process in detail. http://www3.epa.gov/otaq/cert/eng-cert/confirmatory/overviewconfirmatorytesting/overviewconfirmatorytestingscript_updated.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034681

of any device that bypasses, defeats or renders inoperative a required element of a vehicle's emissions control system. 42 U.S.C. §7522(a)(3)(b). Section 203(a)(10 of the same statute also prohibits the sale of motor vehicles or engines that are not covered by valid certificates of conformity with applicable emissions standards. 42 U.S.C. §7522(a)(1). The regulatory requirements for defeat devices are set forth in 40 C.F.R. Part 86.

35. The EPA has been rigorous in punishing automobile manufacturers or engine makers that utilize defeat devices. For example, in late 1995, it entered into a $45 million dollar settlement with General Motors Corporation regarding the use of defeat devices on 470,000 Cadillac cars.[32] Likewise, in August of 1998, it fined Honda $267 million and Ford $7.8 million for selling vehicles equipped with defeat devices that prevented emission control systems from working properly.[33] Similarly, in October of that year, it and the DOJ fined seven truck and heavy duty equipment manufacturers $83.4 million for engaging in similar conduct.[34]

36. Volkswagen was or should have been aware of these precedents. Indeed, the company itself is a recidivist violator of the CAA. In July of 1973, the EPA referred to DOJ for legal action a claim that defeat devices were installed on 1973 Volkswagens. A copy of that referral is attached as Exhibit 3 to this complaint. The matter was settled for $120,000 in March of 1974.[35] Similarly, in June of 2005, Volkswagen entered into a consent decree with DOJ whereby it paid a $1.1 million penalty concerning its failure to notify the EPA of emissions defects

[32] http://www.autosafety.org/sites/default/files/imce_staff_uploads/Cadillac%20%2445%20Million%20Defeat%20Device%20Penalty%2011-31-95.pdf.

[33] http://www.autosafety.org/sites/default/files/imce_staff_uploads/defeat.pdf

[34] http://www2.epa.gov/enforcement/cummins-engine-company-diesel-engine-clean-air-act-settlement.

[35] http://www.autosafety.org/sites/default/files/imce_staff_uploads/VW%20Defeat%20Device%20%24120%2C00%20fine%203-12-74%20Pr.pdf.

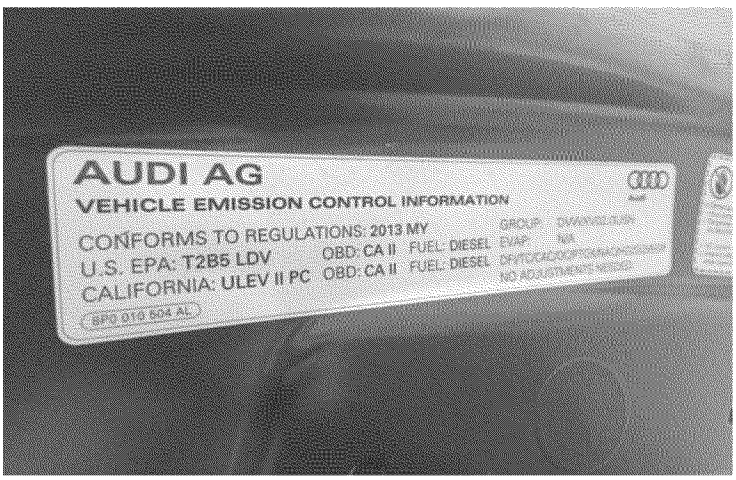
VW FOIA, EPA 06/20/2017 2017-FFP_034682

in certain vehicles manufactured at its facility in Mexico.[36] A copy of that decree is attached as Exhibit 4 to this Complaint.

37. CARB is a department of the California Environmental Protection Agency. It was created in 1967. California is the only state permitted to have such a regulatory agency, because it was created prior to the enactment of the CAA. CARB's mission is to "[t]o promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state."[37]

38. The EPA introduced phased in Tier 2 emissions standards from 2004 to 2009. California has similar standards in its CA LEV II standard. The Tier 2 Bin rating system applied to all passenger vehicles regardless of fuel type. Tier 2 Bin 5 standards—the ones applicable to the Affected Vehicles—imposed an emission rate for NOx of 0.07 grams per mile.[38]

39. New cars that are sold bear stickers indicating that they are EPA-and/or CARB compliant. Here is a photograph of such a sticker on the inside of the hood of a TDI Audi A3, one of the Affected Vehicles.

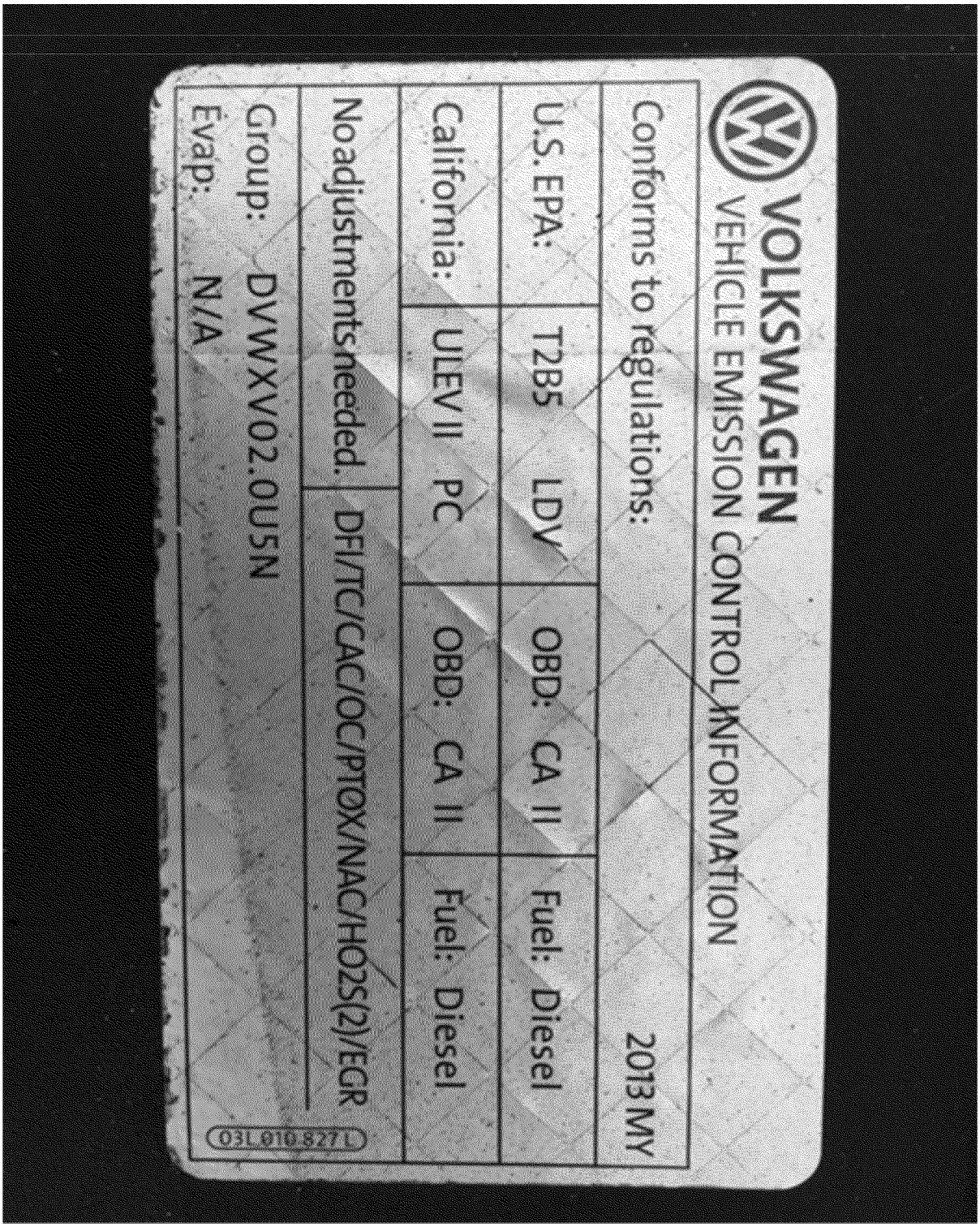


[36] http://www.autosafety.org/sites/default/files/imce_staff_uploads/volkswagen-cd.pdf.

[37] http://www.arb.ca.gov/html/mission.htm.

[38] http://www.nctcog.org/TRANS/air/vehicles/tech/compliance/index.asp.

And here is a similar sticker for a 2013 TDI Volkswagen Golf:



Through these types of notice, Volkswagen was representing to customers that the Affected Vehicles complied with federal and state emissions laws. This was an outright lie.

B. Diesel Cars and Control of NOx Emissions.

40. Diesel-powered cars, like gasoline-powered cars, must also meet the emissions standards established by the EPA and CARB. With diesel-powered engines, car manufacturers must use different--and more expensive--emission control systems than are used in gasoline-powered cars.

41. Diesel fuel has a greater energy density than gasoline. It converts heat into energy more efficiently than gasoline, sending less heat out of the tailpipe than gas-powered vehicles. Because it has greater energy density, diesel also is more efficient: diesel vehicles can get up to 30% more miles per gallon than similar gasoline-powered cars. In addition, because of their higher compression, diesel engines can generate a lot of torque, providing strong acceleration and additional power needed for towing.

42. While diesel vehicles have certain advantages over gasoline, they also have some disadvantages. Because diesel fuel is heavier and oilier than gasoline, it can generate more pollution. While diesel engines emit lower amounts of carbon monoxide than gasoline-powered engines, they emit more NOx.

43. Diesel fuel exhaust has been recognized by the World Health Organization to be a carcinogen for humans.[39]

44. Automakers have faced significant challenges in controlling NOx emissions sufficiently to meet environmental standards, particularly with smaller vehicles, and particularly in the United States, which has some of the strictest emission controls in the world. The website of greencongress.com explains the two types of approaches diesel automobile manufacturers have

[39] http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034685

used to deal with NOx emissions:

> Broadly, there have been two catalytic approaches used to reduce exhaust NO_x: urea-based selective catalytic reduction (SCR) and lean NO_x trap (LNT) catalysts.
>
> --The urea-SCR (urea=AdBlue) approach requires on-board storage of the reductant fluid which is introduced into the exhaust upstream of the SCR catalyst. It is then converted to ammonia which interacts with NO_x on the SCR catalyst to form water and nitrogen.
>
> --LNT technology utilizes fuel from the vehicle and advanced engine controls to enable periodic operation of the engine at rich air-to-fuel ratios to produce oxygen-depleted exhaust suitable for reducing NO_x stored on the LNT catalyst surface.[40]

45. The article indicates that Volkswagen had planned to use both technologies as of 2007, but elected to go with the LNT approach (which it referred to as TDI). As explained below, the deciding factor was apparently cost. Because of the extra equipment (including a urea tank) and technology required to clean the NOx emissions from the diesel exhaust, SCRs can add significantly to the cost of producing the engine. They also make diesel cars heavier than they otherwise would be, thus potentially decreasing fuel efficiency, torque and power.

46. Honda, which sells diesel cars in markets other than the United States, never tried to sell them here. That is because, according to Honda's research, "[t]he market would not bear the costs of doing diesel correctly." In order to meet the stringent United States emissions standards, Honda would have had to add costly emissions controls to every diesel model, which would make them more expensive than gasoline-powered competitors. "At such a high premium, customers simply wouldn't buy them."[41]

C. Volkswagen's Decision To Use TDI Technology.

47. Volkswagen has been selling cars in the United States since 1949, when it introduced the iconic Volkswagen Beetle. Although it was for many years the top-selling imported

[40] http://www.greencarcongress.com/2015/09/20150921-vw2l.html.

[41] http://mashable.com/2015/09/27/vw-dieselgate/#2VosDbcL7iqT.

VW FOIA, EPA 06/20/2017 2017-FFP_034686

car in the United States, Japanese imports overtook Volkswagen and other European imports in the 1990s.

48. The decisive factor in the decision to use TDI technology in 2007-08 was the appointment of Winterkorn as CEO of VWAG in January of 2007. Winterkorn was involved in overseeing research and development and had that responsibility at the time he resigned as CEO. In 1995, he took over as the head of Volkswagen Group Product management and a year later, he assumed the role of Member of the Board of Management for "Technical Development" at the Volkswagen brand. He assumed a similar role when he became Chairman of the Board of Management at Audi.[42]

49. Before Winterkorn took over as VWAG's CEO on January in 2007, Volkswagen had partnered with Bosch and Daimler to explore the use of a diesel emissions control system called BlueTec.[43] BlueTec was a technology developed by the latter two companies and championed by Wolfgang Bernhard ("Bernhard"), former head of the Volkswagen brand and a former Daimler executive. BlueTec was an SCR technology; it required the use of a liquid urea tank, so that urea could be sprayed onto the emissions in order to neutralize the NOx. The urea tank not only takes up space and adds weight (disadvantages that are especially acute in the market for small, fuel-efficient cars), but also requires the owner to refill the tank, making the diesel engine more inconvenient than a traditional gasoline-powered car. When Bernhard left the company after Winterkorn took control, the BlueTec technology was scrapped for smaller vehicles. Volkswagen only began using a form of SCR technology on a few of its smaller vehicles in 2012.

50. *Automotive News* describes the sequence of events:

> *Bild am Sonntag* said the roots of the crisis were planted in 2005 when then-VW brand Chief Wolfgang Bernhard wanted VW to

[42] *See* http://www.volkswagenag.com/content/vwcorp/content/en/the_group/senior_management/winterkorn.html.

[43] For the source of this information, *see* http://www.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?_r=0.

VW FOIA, EPA 06/20/2017 2017-FFP_034687

> develop a new diesel engine for the U.S. market. Bernhard recruited Audi engineer Rudolf Krebs who developed a prototype that performed well in tests in South Africa in 2006, the paper said.
>
> Bernhard and Krebs argued that the only way to make the engine meet U.S. emission standards was to employ in the engine system an AdBlue urea solution used on larger diesel models such as the Passat and Touareg, according to the report.
>
> This would have added a cost of 300 euros ($335 in today's U.S. dollars) per vehicle -- a sum that VW finance officials said was too much at a time when a companywide cost-cutting exercise was under way.
>
> Bernhard left VW in January 2007 before the diesel engine went into production. Krebs was moved to another role when Martin Winterkorn became VW Group and brand CEO in 2007.
>
> Winterkorn, Audi's former CEO, asked Audi development boss Ulrich Hackenberg and Audi engine boss Wolfgang Hatz to move to VW's Wolfsburg headquarters and continue development work on the engine, *Bild am Sonntag* said.
>
> The engine then ended up in VW Group diesels with its engine software manipulated to fool diesel emissions tests in the U.S.[44]

Hatz and Hackenberg, as noted above, were two of the executives whom VWAG recently suspended.

51. Engineers at Volkswagen had been looking at an alternative to BlueTec technology, an alternative that ultimately evolved into the TDI "Common Rail" system. In 2006, Richard Dorenkamp, head of Volkswagen's diesel engine development, gave a presentation in Detroit. He described the TDI system Volkswagen engineers developed and how it could be used in small cars and meet increasing US demands for fewer emissions.[45] Volkswagen's TDI Clean Diesel pollution

---

[44] http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says. Winterkorn was generally very concerned about the costs associated with developing eco-friendly automotive engines. As he said at the 2014 Paris auto show, "[c]limate protection is not available free of charge. Every gram of reduction in [tailpipe] C02 costs us 100 million euros. Every gram!" http://blog.caranddriver.com/vws-winterkorn-to-greens-so-get-off-our-backs-already/.

[45] http://www1.eere.energy.gov/vehiclesandfuels/pdfs/deer_2006/session7/2006_deer_dorenkamp.pdf.

control technology differed from the SCR technology used by other manufacturers to control NOx emissions. The greencarcongress.com article cited earlier describes it in detail. Instead of having a urea tank, the TDI Clean Diesel cars technology used a trap to collect NOx. While saving the space, weight and cost required by the urea tank in the SCRs, Volkswagen's TDI Clean Diesel technology--when it was operational--required additional use of fuel, thus degrading both gas mileage and performance. The trap was controlled by a computer module that could save fuel by allowing more pollutants to pass through the exhaust system.

52. In June of 2007, six months after Winterkorn took over as CEO of VWAG, Volkswagen issued a report entitled "Power Train and Fuel Strategy--The Path To The Future."[46] It stated:

> In the first stage on the path to this independence, it will be important to utilize existing fossil fuels as efficiently as technically possible. Volkswagen is putting its stamp on this phase with vehicles such as the BlueMotion models, a universally fuel-efficient fleet of TDI engines, highly efficient and unique TSI engines, successful natural gas vehicles (EcoFuel) and a lineup of models that still leaves room for automotive dreams. Very soon these fundamental technologies will be further refined. **New powertrains, including an engine concept developed for use in the USA, under the working title "BlueTDI", are already in the prototype stage. These engines will fulfill the toughest emissions laws in the world – even the so-called "Tier2 Bin5" in California, one of the most stringent emissions standards in the world**. (Emphases added).[47]

53. Volkswagen had planned to introduce the Jetta TDI Clean Diesel in the United States earlier than it eventually did. In November of 2007, it was reported as follows:

> A problem with the emissions system in Volkswagen's new Jetta

[46] It can be found at http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2007/06/powertrain_and_fuel_strategy.html.

[47] In 2008, five VWAG engineers published a two-part article in the May and June issues of *MTZ* magazine saying they had resolved the issue of how to best control emissions and could now meet California standards through the use in part of a new on-board diagnostics system. Similarly, Achim Freitag, a testing engineer in Volkswagen's diesel development department, touted the new engine in a speech given later that year. *See* http://www.pbs.org/wgbh/nova/next/tech/volkswagen-diesel-emissions/.

VW FOIA, EPA 06/20/2017 2017-FFP_034689

> TDI will delay the launch of the diesel sedan for about six months. The car is critical to VW's plans to get back on track in the United States.
>
> VW spokesman Keith Price confirmed that the delay will be announced this week at the Los Angeles auto show. Price would not give specifics about the technical problem, but he said it has been fixed.
>
> The technical changes engineers made to solve the problem mean the car must go through emissions testing and validation again, Price said.
>
> VW dealers have been without a new diesel car to sell since last spring. Production of the new model, which will be sold in all 50 states, was scheduled to start in January. The car will be built in Puebla, Mexico.
>
> U.S. sales originally were expected to begin in early spring, Price said. Now sales won't start until later in the summer."
>
> "Sure, they're disappointed," Price said of dealers who have learned of the delay.
>
> Price said there is a lot of pent-up demand from loyal VW diesel buyers for the next- generation Jetta, which has a new engine built in Germany and a new diesel fuel injection system.
>
> "They're disappointed, but they see the point that this car has to be perfect," Price said of the dealers, adding, "They recognize the importance of this not only for their stores, but for the VW brand."
>
> A fleet of about 40 Jetta TDIs is undergoing testing as part of the validation procedure.[48]

54. What apparently happened is that the TDI technology failed initially to withstand United States emissions testing. The decision was made to delay the launch of the vehicle and activate the algorithm that functioned as a defeat device in the software management system. Horn confirmed this scenario orally in testimony given to the Subcommittee of Oversight & Investigations of the Energy & Commerce Committee of the United States House of

[48] http://www.cleanmpg.com/forums/showthread.php?t=7254.

VW FOIA, EPA 06/20/2017 2017-FFP_034690

Representatives on October 8 ("October 8 Hearing").[49] This is consistent with the timing of the letter from Bosch described above that raised the illegality of such a tactic. It is also consistent with recent revelations that appeared in the October 4 issue of *Bild am Sonntag*:

> An internal review at Volkswagen AG shows the decision to install software that reduces diesel emissions in testing was made just before serial production of the company's EA 189 engine [used in many of the Affected Vehicles], German tabloid Bild am Sonntag said.
>
> Bild said the software was first installed in its diesel engines in 2008, shortly before the EA 189 was mass produced. The move was taken because there was no way at the time to reconcile meeting emission standards within the targeted cost of the engine, the tabloid said in an advance release of the article to be published Sunday. Otherwise the company would have had to abandon the introduction of the engine, development of which was begun in 2005, the newspaper said.[50]

55. This was not a course of conduct known to only a select few within Volkswagen. As noted in one article:

> The idea that a small group of relatively junior engineers would have done this on their own is not consistent with how engineers build complex, safety-critical systems.
>
> The basic engine management software was written by component supplier Bosch. The responsibility for configuring the software for the EA189 engine would have involved a substantial, multi-disciplinary team of engineers at Volkswagen, working with engineers at the supplier Bosch.
>
> Before the engines could have gone into production, those engineers and their managers would have reviewed and approved the design and calibration of the engine management systems.
>
> They would have also agreed upon, and employed, a systematic testing schedule. This would have involved testing on an engine-only rig, road testing on private grounds as well as testing on public roads.
>
> The anti-pollution engineers would have been responsible for ensuring that the engine management system was sending

[49] His testimony is on video at http://www.c-span.org/video/?328599-1/hearing-volkswagen-emissions-violations.

[50] http://www.marketwatch.com/story/vw-began-using-emissions-software-in-2008-report-2015-10-04.

VW FOIA, EPA 06/20/2017 2017-FFP_034691

> appropriate commands to their components, and that their hardware was responding appropriately.
>
> This kind of exhaustive testing is one of the reasons why developing new vehicle models costs billions of dollars and takes several years.
>
> One possibility is that a large group of Volkswagen engineers conspired to falsify the written records of of this testing.
>
> An alternative scenario is that accurate written testing records were made, showing that the pollution controls were inoperative in normal driving. These accurate records were reported through normal channels, and the engines went into production anyway.
>
> It is very hard to imagine how either event could have occurred without the influence of senior managers.[51]

Horn virtually conceded as much at the October 8 hearing.

56. The 2009 Model Year TDI Jetta was introduced and passed the Tier 2 Bin 5 emissions test with flying colors. A Reuters article describes its successful launch:

> Volkswagen had heavily marketed what it called "clean diesel" engines starting in 2008 with the 2009-model Jetta TDI. It appeared to have found a sweet spot between high-performance and fuel-efficiency with a zippy, fun-to-drive car that topped 40 miles per gallon in highway driving. Named "Green Car of the Year" at the Los Angeles auto show in 2008, the Jetta TDI was seen as a breakthrough in a country where diesel passenger cars occupy a tiny niche compared with Europe, where they are about half of the market.
>
> "It's not your grandfather's diesel," Krause said in a September 2008 presentation to U.S. regulators, according to a video of the remarks.
>
> [Norbert] Krause [head of VWoA's environmental office until 2009] and other VW officials promised a diesel that would meet pollution laws in all states, including California where diesel engines had long been associated with smog and cancer-causing soot.
>
> By that point, VW and other automakers had lobbied for almost a decade for regulators to give diesel another chance. In 2000, VW and other companies with an interest in promoting diesel, including Mazda, formed the Diesel Technology Forum to lobby for increased use in the United States as a way to reduce reliance on imported oil. In 2005, an energy bill signed by President George

[51] http://theconversation.com/where-were-the-whistleblowers-in-the-volkswagen-emissions-scandal-48249.

> W. Bush offered tax credits for diesel buyers. That gave the first wave of diesel Jetta buyers an income tax credit of $1,300 each.
>
> In 2009, after the new Jetta went on sale, VW dealers initially sold out, including in California where regulations had effectively shut the market to diesels earlier in the decade.[52]

57. As noted in the article, *Green Car Journal* gave it the 2009 Green Car of the Year award and gave the TDI Audi A3 the 2010 Green Car of the Year Award.[53] Those awards have been rescinded in light of the present scandal.[54] The TDI Clean Diesels were a resounding success and VWoA sold many units.[55] As recently as its 2014 sustainability report, VWAG crowed about how "[t]he Volkswagen Group has a long tradition of resolute commitment to environmental protection" and how it intended to "put our creative powers to good use for the benefit of the people and the environment."[56]

58. At conferences and in published papers, Volkswagen extolled the efficiency and low emissions of its Clean Diesel technology.[57] And commentators agreed. One stated that Volkswagen was "the only company to have mastered the new emissions regulations using a compact, inexpensive treatment system. It allowed them to roll out diesel engines in one small car

---

[52] http://uk.reuters.com/article/2015/09/24/uk-usa-volkswagen-deception-insight-idUKKCN0RO2J720150924.

[53] https://en.m.wikipedia.org/wiki/Green_Car_of_the_Year.

[54] http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/.

[55] The chronicle of its United States sales is found here: http://www.ibtimes.com/volkswagen-diesel-scandal-heres-how-bad-volkswagen-sales-were-company-was-caught-2114603.

[56] http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/.

[57] *See, e.g.*, http://www.sae.org/events/gim/presentations/2009/norbertkrause.pdf; http://dls.virginia.gov/GROUPS/transaccount/meetings/092010/CleanDiesel.pdf; http://cleandieseldelivers.com/media/Douglas-Skorupski-VWoA_DTF_March2015.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034693

after another at relatively low prices."[58] Volkswagen's competitors had long wondered how Volkswagen could produce a clean diesel engine at such an affordable price. As Robert Lutz, former vice chairman of General Motors Corporation, recounted: "I kept asking our engineers: 'What's wrong with you guys? VW seems able to do it.' I said, 'Are they magicians or something?' The engineers said they couldn't answer that question."[59] Now, they have their answer. Volkswagen cheated.

59. The competitive advantages of cheating on emissions have now become clear. "Manipulating emissions results allowed Volkswagen to keep down engine costs in a 'clean diesel' strategy that was popular in Europe and at the heart of a drive to improve U.S. results."[60] As an article in the *New York Times* put it, "[d]isabling the emissions controls brought major advantages, including much better mileage--a big selling point in Volkswagen's push to dominate in America."[61] These sales were part of the reason VWAG was able to surpass Toyota as the world's biggest automaker in 2015, as noted above. And they were sales built upon lies.

60. This systemic attitude of winning at all costs in spite of noncompliance with national environmental regulations is part of the corporate culture of Volkswagen, as explained at length in a September 24, 2015 *New York Times* article:[62]

> There is a long tradition of scandal and skulduggery in the auto industry, but few schemes appear as premeditated as Volkswagen's

---

[58] http://www.pbs.org/wgbh/nova/next/tech/volkswagen-diesel-emissions.

[59] http://www.freep.com/story/money/cars/2015/09/26/vw-cheat-emissions-diesel- engine-fallout/72612616/.

[60] http://www.reuters.com/article/2015/09/30/us-volkswagen-emissions-plan-idUSKCN0RT0OL20150930.

[61] http://mobile.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?referer.

[62] http://www.nytimes.com/2015/09/25/business/international/problems-at-volkswagen-start-in-the-boardroom.html?_r=1.

VW FOIA, EPA 06/20/2017 2017-FFP_034694

brazen move to use sophisticated software to circumvent United States emissions standards.

That such a thing could happen at Volkswagen, Germany's largest company and the world's largest automaker by sales — 202.5 billion euros last year — has mystified consumers and regulators around the world. But given Volkswagen's history, culture and corporate structure, the real mystery may be why something like this didn't happen sooner.

"The governance of Volkswagen was a breeding ground for scandal," said Charles M. Elson, professor of finance and director of the John L. Weinberg Center for Corporate Governance at the University of Delaware. "It was an accident waiting to happen." The company, founded by the Nazis before World War II, is governed through an unusual hybrid of family control, government ownership and labor influence. Even by German standards, "Volkswagen stands apart," said Markus Roth, a professor at Philipps-University Marburg and an expert in European corporate governance. "It's been a soap opera ever since it started."

****

I spoke this week to a longtime former senior Volkswagen executive, who agreed that a scandal, especially one involving emissions, was all but inevitable at Volkswagen. He cited the company's isolation, its clannish board and a deep-rooted hostility to environmental regulations among its engineers.

The former executive, who spoke on the condition of anonymity because he now works at a competing global automaker, said that Wolfsburg, where Volkswagen is based in Lower Saxony and the city with the highest per capita income in Germany, is even more remote and isolated than Detroit was in its heyday. "The entire economy is automotive," he said. "People have a completely uncritical view of cars and their impact on the environment because they all make a living from the industry."

****

The Volkswagen board has been especially slow to move on environmental issues, investing less in electric and hybrid engine technology than industry leaders.

"There's an attitude among the German public that it's very unfair for the U.S. to target the auto industry over emissions," Professor Roth said. "If you have electric cars and a coal-fired plant producing the electricity, you gain nothing."

The former Volkswagen executive said Volkswagen's engineer-driven culture takes the notion even further. He said the engineers felt that the politicians were guilty of rank hypocrisy, especially in

> the United States, also grumbling that electric cars make no sense as long as power plants are burning fossil fuels.
>
> "There's an attitude of moral superiority there," he said. "The engineers think they know best."
>
> That Volkswagen is nonetheless obliged to obey applicable environmental laws, he said, is a notion likely to fall on deaf ears in Wolfsburg, especially compared to demands to be No. 1 in sales. (The motive for the software evasion is widely believed to have been to increase sales of diesel-powered cars in the United States.)

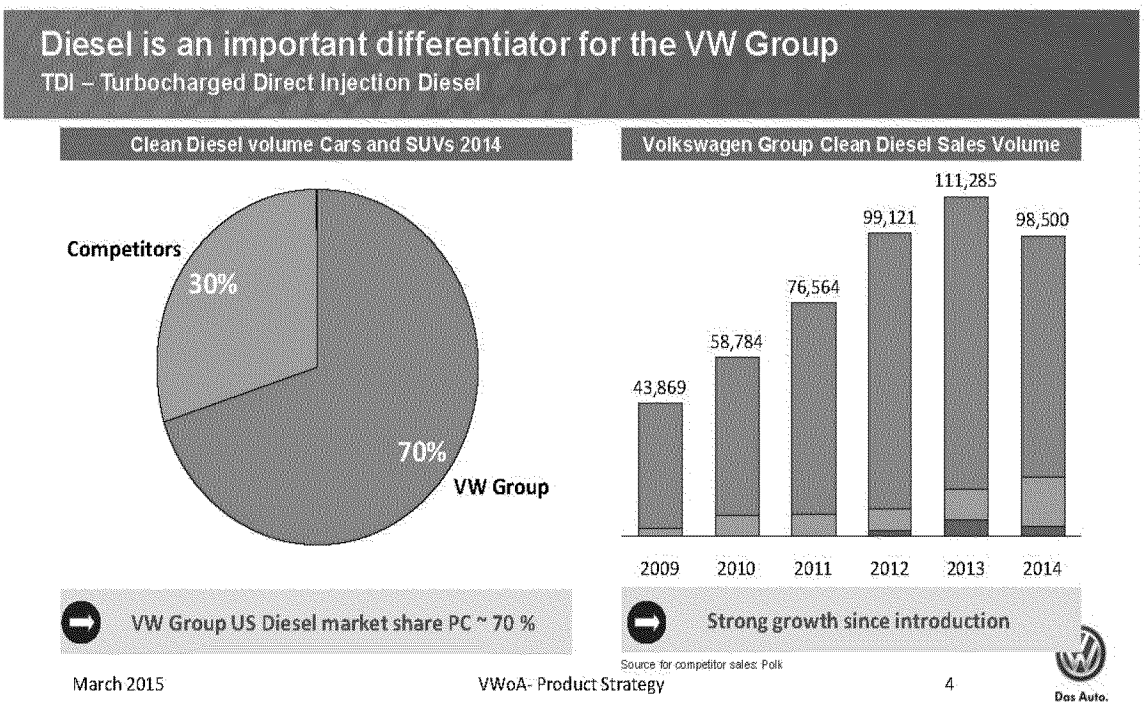
Thus, executives and engineers at Volkswagen were clearly unhappy with United States automotive emissions standards and were all too willing to sacrifice those standards (and their obligations under United States antitrust laws) in order to ensure that their company became the number one automaker in the world. The current scandal involving Volkswagen Clean Diesel TDI vehicles is a direct result of that arrogant intention to flout United States environmental laws. It is also a direct result of what has been described by one German executive as Volkswagen's "uniquely awful" corporate governance.[63]

D. The Clean Diesel Car Market.

61. Volkswagen's illegal conduct in this country occurred in the Clean Diesel passenger car market in the United States (the "Clean Diesel Car Market"), which can be viewed as a market of its own or as a submarket of passenger cars sold in this country. This fact was confirmed in a presentation by Douglas Skorupski ("Skorupski"), Manager of Power Train Strategy for VWoA, given to the Diesel Technology Forum ("DTF") in March of 2015:

[63] http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034696



62. Thus, VWoA clearly views clean diesel cars as a distinct market and Volkswagen's TDI technology as a factor that allowed it to obtain a monopoly share of that market.[64] It distinguished Clean Diesel cars from gasoline/electric hybrid cars based on superior performance:

[64] The presentation can be found at http://cleandieseldelivers.com/media/Douglas-Skorupski-VWoA_DTF_March2015.pdf. Bosch has similarly identified a distinct Clean Diesel car category: http://www.low-carbonfuels.com/pdfs/acte2011presentations/Day1/Breakout1/LightDuty/ACT2011-Breakout1-FreitagAlexPresentation150.pdf. And the EPA has noted that "Clean diesel" refers to a three-part emissions control system that combines cleaner diesel fuel, advanced engines and effective emissions control technology.

"[o]ne way Volkswagen aimed to achieve its lofty goal was by betting on diesel-powered cars — instead of hybrid-electric vehicles like the Toyota Prius--promising high mileage and low emissions without sacrificing performance."[65] Similarly, a survey conducted by Strategic Vision for Volkswagen found that customers of diesel and hybrid vehicles are very different and there is "very little crossover from one to the other."[66] The same article noted that Clean Diesel TDI and hybrid buyers differed demographically; the latter were "were just 51 percent male, 78 percent of them were married, 89 percent had no kids in the household, and their average age was 61", while the former "included far more men than women[,] [f]ewer of them were married, but more of them had children in the house, and they were fully 17 years younger, with an average age of 44." Likewise, a Volkswagen Clean Diesel IQ survey found that diesel car customers are highly aware of the benefits of clean diesel technology in contrast to hybrid and gasoline car customers. Furthermore, 94% of diesel customers will purchase clean diesel cars again while only 26% of hybrid and gasoline car customers will consider clean diesel cars for their next purchase.[67] All of this indicates little cross-elasticity of demand between hybrid vehicles and Clean Diesel vehicles.

63. Indeed, the major European competitors of Volkswagen in the Clean Diesel Car Market belong, along with Volkswagen, to an organization that is devoted to extolling the benefits of Clean Diesel cars.[68]

64. Bloomberg Business noted that consumers are willing to pay a substantial premium

---

[65] http://mobile.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?referer.

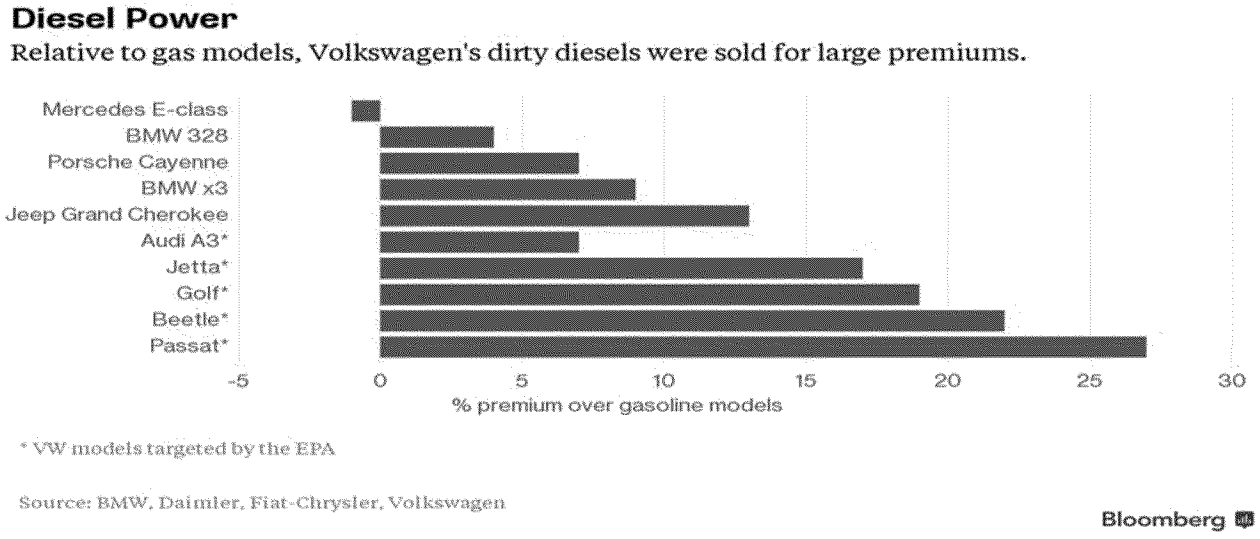
[66] http://www.greencarreports.com/news/1080201_vw-diesel-buyers-hybrid-buyers-both-want-fuel-economy-but-beyond-that.

[67] http://www.autosphere.ca/fleetdigest/2013/04/01/volkswagen-surveys-diesel-drivers/. *See also* http://www.cmu.edu/gdi/docs/diesel-and.pdf (noting many key differences between diesel and hybrid car customers).

[68] http://www.clearlybetterdiesel.org/index.html#cleanDiesel.

VW FOIA, EPA 06/20/2017 2017-FFP_034698

for Clean Diesel vehicles over those of its competitors.[69]



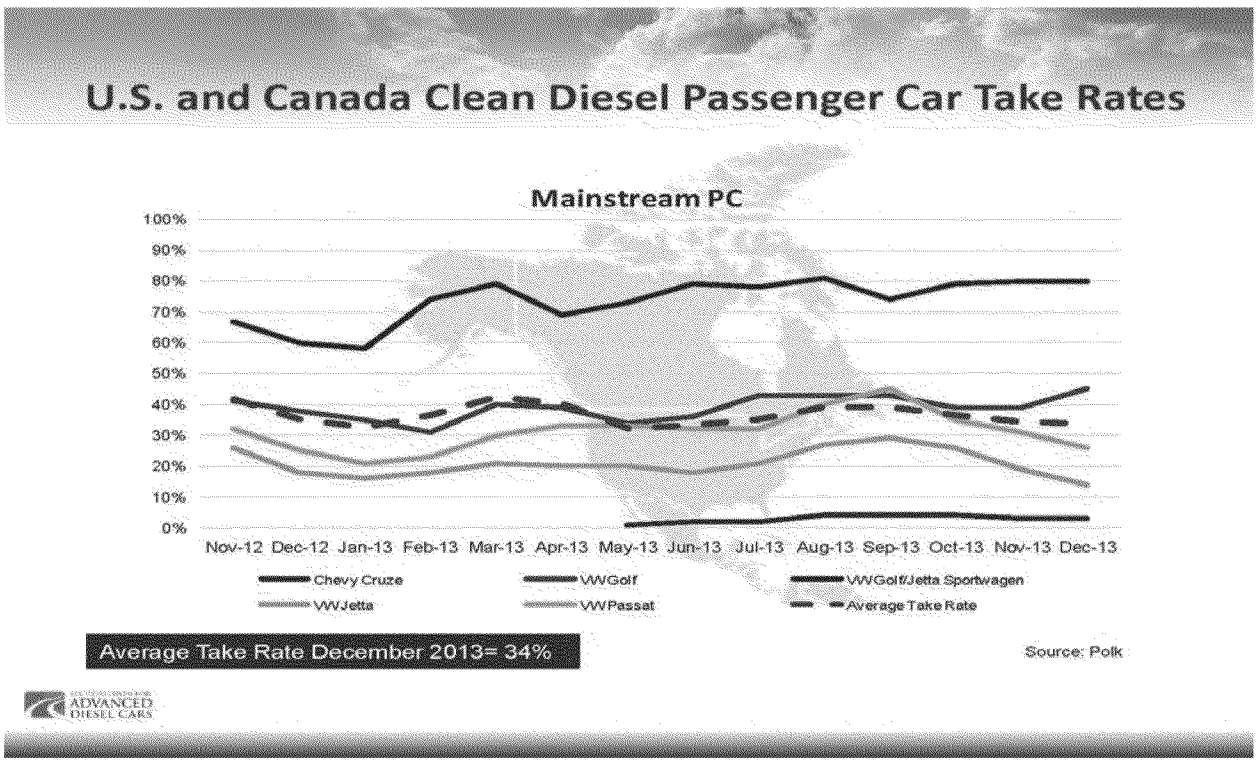
65. As the BloombergBusiness article goes on to explain:

> The math on diesel has never been tidy. The additional mileage is great, but unless one drives a lot, it doesn't really cover the added expense for the engine and for the fuel itself. At current gas prices, the diesel premium on the Passat—some $5,755—would buy enough gas to drive the gas-burning model for about 88,000 miles. **For the majority of diesel drivers, the factor that probably swung the decision was the apparent environmental benefit. The green aspect was the fulcrum**. (Emphases added).

Thus, Volkswagen's false claims about its TDI technology were a driving factor in the premium prices it charged consumers for such technology. As noted above, VWAG has taken full responsibility for the "economic damage" caused by its illegal conduct.

[69] http://www.bloomberg.com/news/articles/2015-09-23/volkswagen-s-other-diesel-ruse-premium-pricing.

66. A chart contained in a presentation made by CMW Research at the March 2015 DTF conference[70] underscores the differences in take rates between Volkswagen Clean Diesel cars and those made by its competitors:



67. The price premium for Clean Diesel vehicles is also reflected in this chart showing the price differentials between gasoline-powered models and Clean Diesel models of Volkswagen's own cars:

Clean Diesel Price Premium				
Mode	**Base**	**Mid-Level**	**Top-Level**	**Average**
VW Jetta	$2,860.00	$1,570.00	$1,030.00	$1,820.00
VW SportWagen	$5,570.00	$1,680.00	$0.00	$2,416.67
VW Golf	$2,400.00	$1,000.00	$1,000.00	$1,466.67
VW Golf	$2,950.00	$1,000.00	$1,000.00	$1,650.00
VW Beetle	$4,635.00	$4,920.00	$0.00	$3,185.00
VW Beetle	$4,080.00	$530.00	$700.00	$1,770.00
VW Passat	$5,755.00	$2,845.00	$2,135.00	$3,578.33

[70] http://cleandieseldelivers.com/media/Take-Rate-Slides-March-2014.pdf.

Audi A3	$2,300.00	$2,300.00	$2,300.00	$2,300.00
Average	$3,818.75	$1,980.63	$1,020.63	$2,273.33

E. Volkswagen's False Advertising.

68. Volkswagen, as part of its plan to increases sales and market share in the United States, increased its emphasis on diesel-powered cars and began marketing these cars heavily to the United States public beginning in 2008. It emphasized the TDI Clean Diesel cars' environment-friendly engine, excellent gas mileage, and high-quality performance. In one advertisement (which, as of this writing, was available on Audi's website after the scandal surfaced and is attached as Exhibit 5 to the Complaint),[71] for example, Volkswagen claimed:

> Getting more from less. Audi pioneered TDI® clean diesel engines to deliver more torque, lower fuel consumption and reduce CO2 emissions, compared to equivalent gasoline engines. The result of this revolutionary engineering delivers remarkable performance, while achieving increased fuel economy.

69. Another advertisement by VWAG for Clean Diesel cars asserts that

> This ain't your daddy's diesel. Stinky, smoky, and sluggish. These old diesel realities no longer apply. Enter TDI Clean diesel. Ultra-low-sulfur fuel, direct injection technology, and extreme efficiency. We've ushered in a new era of diesel.[72]

This internet advertisement is attached as Exhibit 6 to the Complaint.

70. Volkswagen's advertising relentlessly touted the supposed fuel efficiency and environmental features of its Clean Diesel TDI vehicles. In 2009, Volkswagen introduced its "Meet the Volkswagens" campaign, which promoted "fuel efficiency, green credentials, cost of ownership and safety," and compared Volkswagen's diesel passenger cars to its competitors. According to Tim Ellis, Volkswagen's marketing chief, the goal of this advertising campaign was to "grow the brand in the U.S."[73] This campaign, among other things, included social media links

---

71 https://web.archive.org/web/20150928180733/http://www.audiusa.com/technology/efficiency/tdi

72 https://web.archive.org/web/20150330110301/http://www.vw.com/features/clean-diesel/.

73 http://abcnews.go.com/Business/story?id=7493781.

VW FOIA, EPA 06/20/2017 2017-FFP_034701

to a blog (tdi.vw.com/tdi), which focused on Volkswagen's TDI clean diesel model.

71. Between 2011 and 2013, Volkswagen spent more than $2.9 billion annually on advertising world-wide; many of those advertising dollars were directed at the United States public. Volkswagen issued hugely popular videos featuring the Golden Sisters, who purported to debunk the myths about polluting diesel cars.[74] Other videos that were highly successful included a "Truth or Dare" effort started in 2009 that was about "debunking the myths on clean diesel and fueling the passion of existing diesel owners"; a 2009 Audi video that proclaimed "diesel, no longer a dirty word"; and a Passat "being a Mom" video, all of which can be viewed on the *New York* magazine website.[75] Another well-known video showed German engineers of TDI Clean Diesel vehicles earning their "angel's wings."[76]

72. Volkswagen also used point-of-purchase displays at the showrooms of Volkswagen Authorized Dealers such as the one depicted below:

[74] http://blog.caranddriver.com/vws-hilarious-new-tdi-diesel-ads-return-excellent-viral-mileage/.

[75] http://nymag.com/daily/intelligencer/2015/09/vws-clean-diesel-ads-now-make-us-feel-dirty.html.

[76] https://www.youtube.com/watch?v=fwkPEza9FPw.

73. As VWoA's Mark Barnes put it, the TDI Clean Diesel cars were ''fantastic power train[s]" with "very good fuel economy." Yet "[i]t's also good for the environment because it puts out 25% less greenhouse gas emission than what a gasoline engine would. And thanks to the uniqueness of the TDI motor, it cuts out the particulate emissions by 90% and the emissions of nitrous oxide are cut by 95%. So a very very clean running engine. Clean enough to be certified in all 50 states.''[77]

74. In television and print advertisements and in social media, Volkswagen strived to present its Clean Diesel TDIs as the environmentally-friendly, fuel-efficient, fun-to-drive and reasonably priced passenger car. As noted above, Volkswagen's sham advertising campaign was a success. Unfortunately, all of these accolades were based on a sham perpetrated by Volkswagen for seven years.

F. Volkswagen's Defeat Device.

75. As noted above, Volkswagen's defeat device is described as a "sophisticated software algorithm" that detects when the car is undergoing emissions testing. The algorithm used information about how the car was being steered, how long the engine ran and atmospheric pressure to "precisely track" the conditions that corresponded to a federal emissions test, according to the EPA. During emissions testing, the software "turns on" the car's full emissions control system in order to pass the test. Under normal driving situations, however, these emissions control systems are ***turned off***, allowing the cars to spew as much as 40 times the allowable amount of NOx into the air. As an EPA spokesman noted, the defeat device was "particularly difficult for us to detect."[78] This ruse went undetected for seven years, although as noted above, Bosch and one

[77] http://www.businessinsider.com/volkswagen-preps-for-a-diesel-revolution-2009-10.

[78] http://www.washingtonpost.com/news/wonkblog/wp/2015/09/22/anatomy-of-volkswagons-deception-the-recall-that-never-fixed-any-cars/. A useful timeline of how the scandal came to light is provided on the website of Cars.com: https://www.cars.com/articles/vw-diesel-crisis-timeline-of-events-1420681251993/.

VW FOIA, EPA 06/20/2017 2017-FFP_034703

of VWAG's own engineers complained about it to the company.

76. One technology blog has described Volkswagen's defeat device as follows:

> The method by which Volkswagen diesel cars were able to thwart emissions tests and spew up to 40X the nitrogen oxide levels set by the Environmental Protection Agency was relatively simple. It was more likely no more than a single line of code used to detect when an emissions test was being performed and place the emissions system in an alternate mode — something as simple as a software "on/off" switch. Volkswagen AG CEO Martin Winterkorn, who stepping down as the result of his company's scandal, has said he had no knowledge of the emissions cheat, but software dev/test audit trails are almost certain to pinpoint who embedded the code and who authorized it. You can actually see who asked the developer to write that code," said Nikhil Kaul, a product manager at test/dev software maker SmartBear Software. "Then if you go upstream you can see who that person's boss was...and see if testing happened...and, if testing didn't happen. So you can go from the bottom up to nail everyone."[79]

77. As also noted above, 482,000 vehicles were described as affected, with over 50,000 in the state of California.[80] In testimony at the October 8 Hearing, Horn put the number at approximately 525,000 vehicles.

78. In 2013 and again in 2014, the International Council for Clean Transportation ("ICCT") published studies showing serious discrepancies between laboratory and in-use emissions of certain cars, including VW TDI Diesel cars used in Europe.[81] A decision was made to test American Clean Diesel cars to show that they were success stories; the opposite turned out to be the case. The ICCT, in conjunction with researchers at and West Virginia University's Center for Alternative Fuels, Engines and Emissions ("CAFEE") conducted on-road emissions tests on

---

[79] http://developers.slashdot.org/story/15/09/24/1423225/how-did-volkswagen-cheat-emissions-tests-and-who-authorized-it.

[80] http://www.latimes.com/business/autos/la-fi-hy-california-dmv-vw-diesel-20150921-story.html. This number excludes unregistered vehicles.

[81] http://theicct.org/sites/default/files/publications/ICCT_LabToRoad_20130527.pdf; http://www.theicct.org/sites/default/files/publications/ICCT_LaboratoryToRoad_2014_Report_English.pdf)

three vehicles sold in the United States: a 2013 TDI Passat, a 2012 TDI Jetta, and a BMW X5 SUV. These researchers found that for the Passat and Jetta, emissions were far higher than the emissions generated in the laboratory by CARB. The Jetta exceeded United States NOx emissions standard by 15 to 35 times, and the Passat by five to 20 times. In laboratory testing by CARB, in contrast, these same vehicles complied with United States NOx emissions standards. The CAFEE report is attached as Exhibit 7 to the Complaint. ICCT brought the information to the attention of CARB and the EPA, who commenced their own investigations and contacted Volkswagen. Volkswagen chalked the discrepancies up to "various technical issues and unexpected in-use conditions," but agreed in December of 2014 to recall approximately 500,000 vehicles in order to apply a "software patch."[82]

79. After the remediation, CARB in May of 2015 tested a 2012 TDI Passat on the road and in the laboratory. It found some improvement in in-use NOx emissions, but not enough. An article in the *Philly Voice* describes what happened next.

> On July 8, CARB shared its results with VW, but there was no change in Volkswagen's position. Some officials privately questioned whether Volkswagen was deliberately violating the federal Clean Air Act by installing defeat devices -- software programmed to switch engines to a cleaner mode during official emissions testing, according to a person involved in the process.
>
> During normal driving, the software then shuts off, enabling cars to emit as much as 40 times the legal limit of pollutants.
>
> In early August, Oliver Schmidt, who followed [Norbert] Krause and preceded [Stuart] Johnson in VW's U.S. engineering and environmental office, attended a conference in Traverse City, Michigan and told regulators Volkswagen stood by its conclusions that the problem was technical, people involved said.[83]

80. Then, on August 21, there was a complete reversal. The *Philly Voice* article goes on to describe what happened:

> After more than a year of stonewalling investigators, Volkswagen stunned two senior officials with the U.S. Environmental

[82] http://www.cnbc.com/2015/09/24/.

[83] http://www.phillyvoice.com/year-stonewalling-volkswagen-stunned-regulators/.

VW FOIA, EPA 06/20/2017 2017-FFP_034705

> Protective Agency and California's environmental watchdog by admitting the automaker hacked its own cars to deceive U.S. regulators about how much their diesel engines pollute.
>
> That disclosure on Aug. 21, confirmed by two people with knowledge of the exchange, shows Volkswagen buckled to pressure from environmental regulators almost a month earlier than the scandal was made public. The admission to regulators came after a year during which VW officials insisted to regulators that tests on its diesel cars showing a spike in pollution levels on the road were in error.
>
> ****
>
> At first, regulators were surprised that Volkswagen would make its confession at the conference, held in Pacific Grove, California. Minutes before Christopher Grundler, director of the EPA's transportation and air quality office, was to deliver a 9 a.m. speech to the conference, a Volkswagen representative told him about the deception. At the same meeting, representatives of the California Air Resources Board, a state agency that had been pushing VW hard, were also given a verbal notice of the deception, people with knowledge of the events said.
>
> Volkswagen declined to comment on the sequence of events described to Reuters. It isn't clear which VW representative delivered the news of the deception to Grundler and the CARB. Stuart Johnson, head of VW's engineering and environmental office in the United States, was registered to attend the Aug. 21 conference, which was organized by the University of California, Davis. Johnson, who still works for VW in Auburn Hills, Michigan, did not respond immediately to a request for comment.

81. On September 3, Volkswagen officials further laid out the use of the defeat device to regulatory representatives.[84]

82. Volkswagen was faced with the threat that the EPA it would not certify any of its 2016 models for sale in the United States until the questions surrounding the emissions discrepancies were answered. Volkswagen admitted that it relied upon a "second calibration" in the vehicles that was intended to run only during certification testing. This second calibration was triggered when a highly sophisticated software algorithm determined – after measuring factors like the position of the steering wheel, the vehicle's speed, pedal movement, and even barometric

[84] http://docs.house.gov/meetings/IF/IF02/20151008/104046/HHRG-114-IF02-Wstate-HornM-20151008.pdf.

pressure – that the car was being tested. Then it would configure the engine to reduce emissions of NOx. As David Clegern of CARB explained, "[w]e met with VW on several occasions and they continued to dispute our data, so we'd return to the lab. Over time, VW had no other explanations left, and it was our lab staff who actually got VW to admit that there was, in fact, a defeat device."[85] As another CARB spokesperson told the *Washington Post*, "[t]hey basically ran out of excuses."[86]

83. The scandal surfaced on September 18, 2015, when CARB and the EPA announced that VWAG, Audi and VWoA had illegally installed emissions testing "defeat devices" in the aforementioned vehicles. *See* Exhibits 1 and 2. The EPA found violations of 42 U.S.C. §§7522(a), 7522(a)(1) and 7522(a)(3)(B), as well as 40 C.F.R. §§86.1854-12(a)(3)(ii) and 86.1854-12(a). The EPA identified the following affected vehicles:

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGAV02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

84. As noted above, Horn of VWoA admitted that Volkswagen was dishonest with both

[85] http://www.foxnews.com/leisure/2015/09/22/for-7-years-vw-software-thwarted-pollution-regulations/.

[86] http://www.washingtonpost.com/news/wonkblog/wp/2015/09/22/anatomy-of-volkswagonsdeception-the-recall-that-never-fixed-any-cars/.

customers and regulators and Huber of VWAG called the matter a "moral and political disaster."

85. Volkswagen has ordered its dealers to cease selling the Affected Vehicles[87] and has set aside a minimum of 6.5 billion Euros ($7.2 billion) to deal with the fallout from this catastrophe, which it now concedes involved 11 million vehicles worldwide. An internal memorandum issued on September 22 details this:

Wolfsburg, 22 September 2015

Volkswagen AG has issued the following information:

Volkswagen is working at full speed to clarify irregularities concerning a particular software used in diesel engines. New vehicles from the Volkswagen Group with EU 6 diesel engines currently available in the European Union comply with legal requirements and environmental standards. The software in question does not affect handling, consumption or emissions. This gives clarity to customers and dealers.

Further internal investigations conducted to date have established that the relevant engine management software is also installed in other Volkswagen Group vehicles with diesel engines. For the majority of these engines the software does not have any effect.

Discrepancies relate to vehicles with Type EA 189 engines, involving some eleven million vehicles worldwide. A noticeable deviation between bench test results and actual road use was established solely for this type of engine. Volkswagen is working intensely to eliminate these deviations through technical measures. The company is therefore in contact with the relevant authorities and the German Federal Motor Transport Authority (KBA – Kraftfahrtbundesamt).

To cover the necessary service measures and other efforts to win back the trust of our customers, Volkswagen plans to set aside a provision of some 6.5 billion EUR recognized in the profit and loss statement in the third quarter of the current fiscal year. Due to the ongoing investigations the amounts estimated may be subject to revaluation.
Earnings targets for the Group for 2015 will be adjusted accordingly.

Volkswagen does not tolerate any kind of violation of laws whatsoever. It is and remains the top priority of the Board of Management to win back lost trust and to avert damage to our customers. The Group will inform the public on the further progress of the investigations constantly and transparently.

86. Volkswagen has indicated it will initiate a recall and remediation of the Affected Vehicles, but there is no "fix" that can be achieved that would not result in lesser mileage per gallon or degraded performance, two of the key attributes on which TDI Clean Diesel cars were

[87] *See* http://pics3.tdiclub.com/data/3209/stop-sale-note3.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034708

sold.

> Experts Reuters spoke to indicate that two potential fixes could be needed for the two types of emissions control systems featured on 482,000 cars in the U.S., complicating the recall and refit process. Some experts opined that just a software solution could make the affected vehicles compliant with EPA regulations, reducing the performance characteristics of the engines in the process, while others suspect that a hardware solution may be needed for older vehicles without the urea injection system.
>
> A couple of experts warned that the potential solution could involve significantly increased consumption of urea, necessitating fill-ups at more frequent intervals such as every 5,000 miles, in addition to reducing the performance of the engines.[88]

The same point was made by the West Virginia AG in a complaint filed on October 2 against Volkswagen for civil penalties. It is attached as Exhibit 8.[89] In that complaint, the West Virginia AG notes that "Volkswagen will not be able to comply with the EPA [recall] order to make the Affected Vehicles comply with emissions standards without substantially degrading their performance and fuel efficiency to a level below that advertised by Volkswagen, and below that experienced by consumers prior to, or when they purchased their vehicles." Thus, there is no valid "cure" for Volkswagen's conduct.

87. At the October 8 Hearing, Horn testified that the "software solution" might apply to only 95,000 vehicles. Another 430,000 would have to be retrofiired with new hardware, a pricess that could take at least one to two years. Horn also indicated that Volkswagen would not seek certification by environental regulators of its 2016 Model Year diesel cars, due to nondisclosure of an "auxiliary emissions control device."[90]

88. Nor can any recall cure the tarnished reputation of Volkswagen's TDI Clean Diesel

---

[88] http://autoweek.com/article/car-news/vw-diesel-emissions-fix-may-require-2-solutions.

[89] The AG of Texas has also sued Volkswagen. https://www.texasattorneygeneral.gov/files/epress/01_Plaintiffs_Original_Petition_10.8.15.pdf.

[90] http://www.nytimes.com/2015/10/09/business/international/vw-diesel-emissions-scandal-congressional-hearing.html?_r=0.

vehicles and the substantial diminution of their resale value. The Kelley Bluebook has reported that prices for used Volkswagen diesel cars have declined by 21% in the last few weeks, reflecting the aftermath of Dieselgate.[91] Thus, customers not only overpaid when they bought the Affected Vehicles, but have suffered a significant diminution of the resale value of their vehicles. Indeed, a survey of 460 fleet buyers in the United Kingdom revealed that 49% of them were reconsidering their contracts with Volkswagen in the aftermath of the Dieselgate revelations.[92]

89. As noted above, the Executive Committee of the Board that accepted his retirement said that it "recognizes the economic damage caused" as well as the "loss of trust" among customers. No recall and supposed remediation can correct that.

90. A survey of vehicle owners conducted by AutoPacific[93] further reveals consumer disgust with Volkswagen. Only one in four have a positive opinion of Volkswagen, compared to three in four before the scandal. The corresponding figures for Audi were 29%, as opposed to 69%. Sixty-four percent of the survey respondents say they do not trust Volkswagen.

91. Steven Kalafer, a Volkswagen dealer, summed up the public thinking:

> "This fraud makes Madoff look like the minor leagues," Kalafer said from his dealership in Flemington, New Jersey. "It is the biggest fraud I have ever seen in all of business. Over $300 billion of these products have been sold in Europe, $15 billion [in] the United States. That dwarfs Ponzi and Madoff combined."
>
> ****
>
> "Customers are upset. They are upset that the brand they invested in, the brand they counted on, failed them," he said.
>
> ****
>
> "In all of the years that I have been in business, all of the frauds

[91] http://www.latimes.com/business/autos/la-fi-hy-auto-sales-20151001-story.html.

[92] http://www.dailymail.co.uk/money/news/article-3258793/VW-scandal-deepens-revealed-half-company-car-buyers-ditch-embattled-firm.html.

[93] http://www.autopacific.com/news-app/story.248/title.volkswagen-s-reputation-takes-big-hit-with-vehicle-owners-autopacific-predicts-tough-road-ahead.

VW FOIA, EPA 06/20/2017 2017-FFP_034710

that I have seen, this one just takes the cake," he said.[94]

92. But the illegal conduct by Volkswagen has not just resulted in economic damage and loss of consumer trust. It has caused **the death of dozens of people in the United States over the last seven years and degraded the health of many more**. On October 3, Associated Press ("AP") laid out the facts.[95] AP calculated exhaust pollution year by year, starting with the ten to 40 times emissions level estimate by the EPA and then factored in mileage and car number totals from the Kelley Blue Book. It came up with a range of NOx pollution caused by the Affected Vehicles and then took it to scientists who modeled mortality rates, which were confirmed by a dozen experts in emissions, risk and public health, none of whom were environmental advocates or representatives of automobile manufacturers. The results are depicted in the chart that follows.

//

//

//

//

//

//

//

//

//

//

//

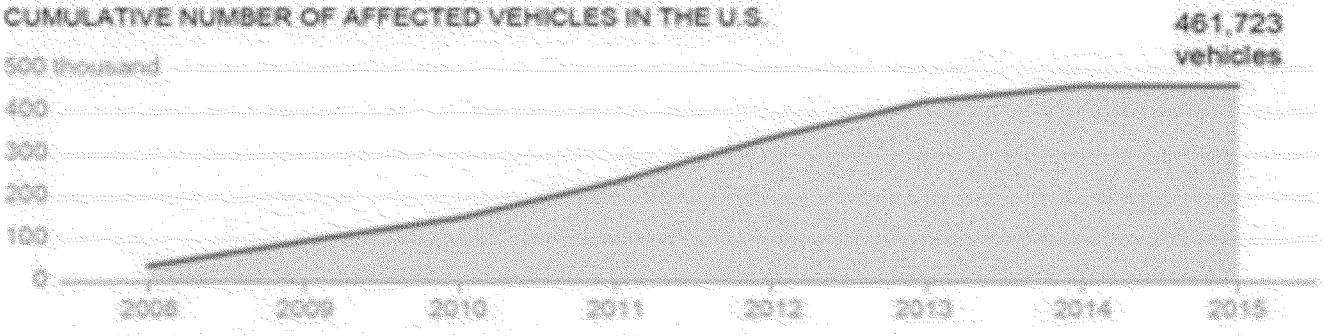
[94] http://www.cnbc.com/2015/10/07/vw-dealers-customers-feel-betrayed-by-emissions-cheating-scandal.html.

[95] http://bigstory.ap.org/article/a6925f0af82e44aaa1a1ed4b55d030f6/ap-analysis-dozens-deaths-likely-vw-pollution-dodge.

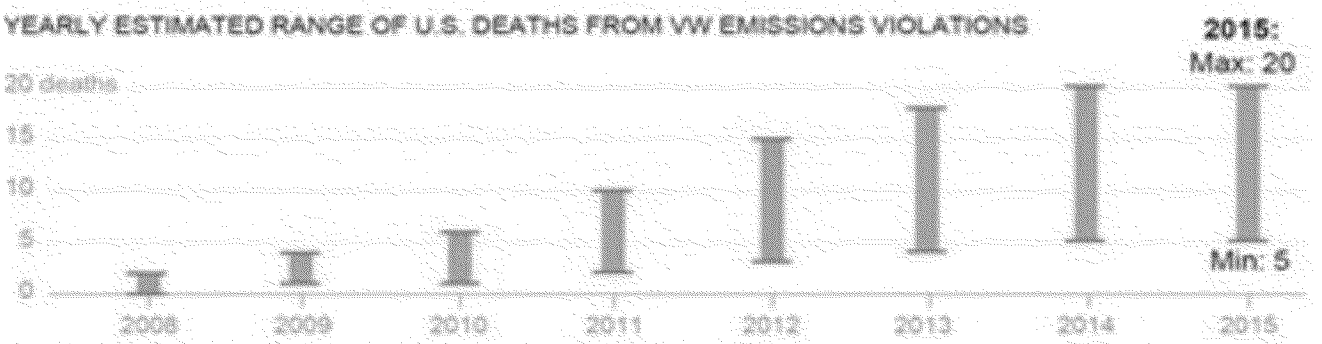
Calculating human toll of VW emissions problems

U.S. pollution resulting from Volkswagen's dodging of emissions tests is enough to have caused dozens of deaths since 2008. An AP analysis calculated upper and lower limits of pollution using the number of affected vehicles each year and average mileage. Scientists used that data in epidemiological computer models to estimate a range of deaths.

CUMULATIVE NUMBER OF AFFECTED VEHICLES IN THE U.S.

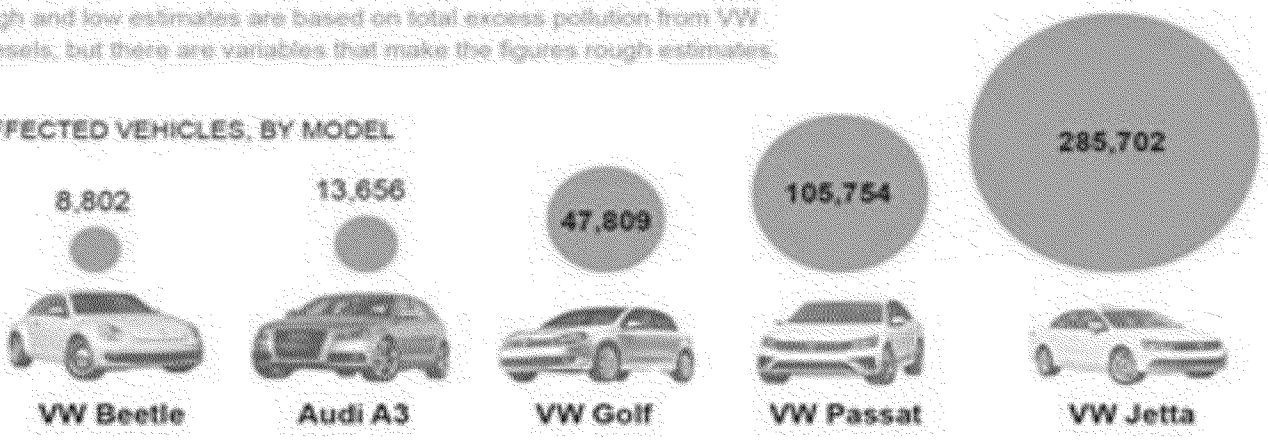


YEARLY ESTIMATED RANGE OF U.S. DEATHS FROM VW EMISSIONS VIOLATIONS



High and low estimates are based on total excess pollution from VW diesels, but there are variables that make the figures rough estimates.

AFFECTED VEHICLES, BY MODEL



NOTE: The total of 47,809 for VW Golf includes 3,530 VW Golf Sportswagen vehicles. The total figure of 461,723 is derived from Kelley Blue Book vehicle registration data. The Environmental Protection Agency estimates the total number of affected vehicles in the U.S. to be about 482,000.

SOURCES: AP analysis of data from the U.S. Environmental Protection Agency and Kelley Blue Book; Professor Peter Adams, Carnegie Mellon; Volkswagen; Audi AP

93. As the AP article notes, the Affected Vehicles spewed enough NOx over the course of seven years to significantly degrade the environment in urban areas. Eric Schneiderman, the New York AG has said that "[t]he stakes could not be higher for the health and safety of our communities who, if Volkswagen's own admissions are true, have for years been breathing air containing excess pollution from their vehicles."[96] Harris County Texas (where the City of Houston is located) has already sued Volkswagen for $100 million in harm to air quality.[97]

94. As noted in the *Minneapolis Star-Tribune* in a follow-up piece on the AP story:

> Computer software allowed VW diesel cars to spew between 10 to 40 times more nitrogen oxides (NOx) than allowed by regulation, making this "clearly a concern for air quality and public health," said Janet McCabe, acting air quality chief for the U.S. Environmental Protection Agency.
>
> Nitrogen oxides mostly form smog — that murky, dirty air that makes it hard to see and for some people to breathe — but also amplify a deadlier, larger problem: tiny particles of soot. Numerous medical studies show those tiny particles cause about 50,000 deaths a year in the United States, mostly from heart problems.
>
> Nitrogen oxides can travel hundreds of miles, so pollution spewed in Pittsburgh can be felt on the East Coast, [Carnegie Mellon environmental engineer Professor Peter] Adams said.
>
> Experts calculate how much pollution costs society by looking at the value of lost lives. In this case, Adams and other said the lost lives — valued at $8.6 million apiece — overwhelm other costs such as lost work days or hospital costs. The overall annual cost of the extra pollutants from the VW diesels ranged from $40 million to $170 million, environmental engineering professors calculated. "Even the small increase in NOx from VW diesel emissions is likely to have worsened pollution along the roadways where they have traveled, and affected the lives of hundreds of thousands of people," said Dan Greenbaum, president of the Health Effects Institute in Boston.

---

[96] http://mobile.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html?_r=0&referer=https://www.google.com/.

[97] http://www.wsj.com/articles/u-s-justice-department-conducts-criminal-probe-of-volkswagen-sources-say-1442869059.

> "To say millions of people of people are breathing poor air as the result of that is not off the mark," said Greenbaum, who runs the institute that is funded by both the EPA and the auto industry to serve as an independent arbiter of the science.[98]

95. The revelation of the scandal has led to numerous consequences in the United States. The DOJ is conducting a criminal probe of Volkswagen.[99] AGs in 30 states have initiated their own investigation.[100] A Texas judge has issued a temporary restraining order preventing the Affected Vehicles from being sold within the state. *See* Exhibit 9 to the Complaint. The Subcommittee of Oversight & Investigations of the Energy & Commerce Committee of the United States House of Representatives has initiated an investigation and sent letters to Volkswagen and the EPA.[101] The Federal Trade Commission launched an investigation after Senator Bill Nelson (D-Fl) urged the agency to look into Volkswagen's marketing of supposedly "clean diesel" vehicles.[102] Leaders of the Senate Finance Committee are also calling for VW to repay over $200 million worth of clean energy tax-credits buyers received as an incentive to purchase clean vehicles.[103] Fred Upton, the chairman of the full committee, has stated that "[t]he very notion of a carmaker intentionally violating our environmental laws is beyond belief….[R]eports of Volkswagen selling cars with devices aimed at skirting the law cannot, and will not be tolerated.

---

[98] http://www.startribune.com/ap-analysis-dozens-of-deaths-likely-from-vw-pollution-dodge/330512421/.

[99] http://www.wsj.com/articles/u-s-justice-department-conducts-criminal-probe-of-volkswagen-sources-say-1442869059.

[100] http://www.law360.com/articles/707229/volkswagen-faces-multistate-probe-over-emissions-fraud.

[101] http://energycommerce.house.gov/press-release/committee-leaders-request-documents-volkswagen-investigation-continues.

[102] http://adage.com/article/cmo-strategy/ftc-joins-vw-emissions-probe/300916/

[103] http://www.law360.com/articles/714146/sens-demand-vw-return-200m-in-tax-credits

Attempting to deceive regulators and customers is a double whammy of betrayal."[104] Over 200 private lawsuits have been filed, many of them class actions. Among those class actions, most involve class claims for individual statewide classes, as opposed to federal claims for nationwide classes.

96. Outside the United States, several countries are investigating Volkswagen's conduct.[105] Switzerland has banned the sale within its borders of certain Volkswagen TDI Diesel cars sold in Europe.[106] German prosecutors have raided VWAG's headquarters in Wolfsburg.[107] Prosecutors in Paris have launched an investigation for suspected "aggravated" deception of affected vehicles sold in France; French Environment Minister Segolene Royal called Volkswagen's conduct "a form of theft from the taxpayer and the state."[108] The Italian antitrust authority has also commenced an investigation, saying "Volkswagen's claims about emissions and certifications in advertising campaigns and information brochures distributed by dealers might have induced consumers to make an error in their choice."[109]

97. As noted above, Volkswagen has set aside $7.2 billion to deal with the costs of the scandal. That will not be nearly enough. James E. Tierney, a former AG in Maine, has been quoted as saying that the costs to Volkswagen might be "'incalculable,' with each false

---

[104] http://energycommerce.house.gov/press-release/suboversight-schedules-volkswagen-hearing-october-8.

[105] https://en.m.wikipedia.org/wiki/Volkswagen_emissions_violations.

[106] http://www.theguardian.com/business/2015/sep/26/volkswagen-emissions-scandal-switzerland-bans-sale-of-some-models.

[107] http://www.timesfreepress.com/news/business/aroundregion/story/2015/oct/08/breaking-german-prosecutors-conduct-search-raids-vw-emissions-probe/329409/.

[108] http://www.dailymail.co.uk/news/article-3257720/Paris-prosecutors-latest-launch-investigation-potential-fraud-Volkswagen-emissions-cheating-scam.html.

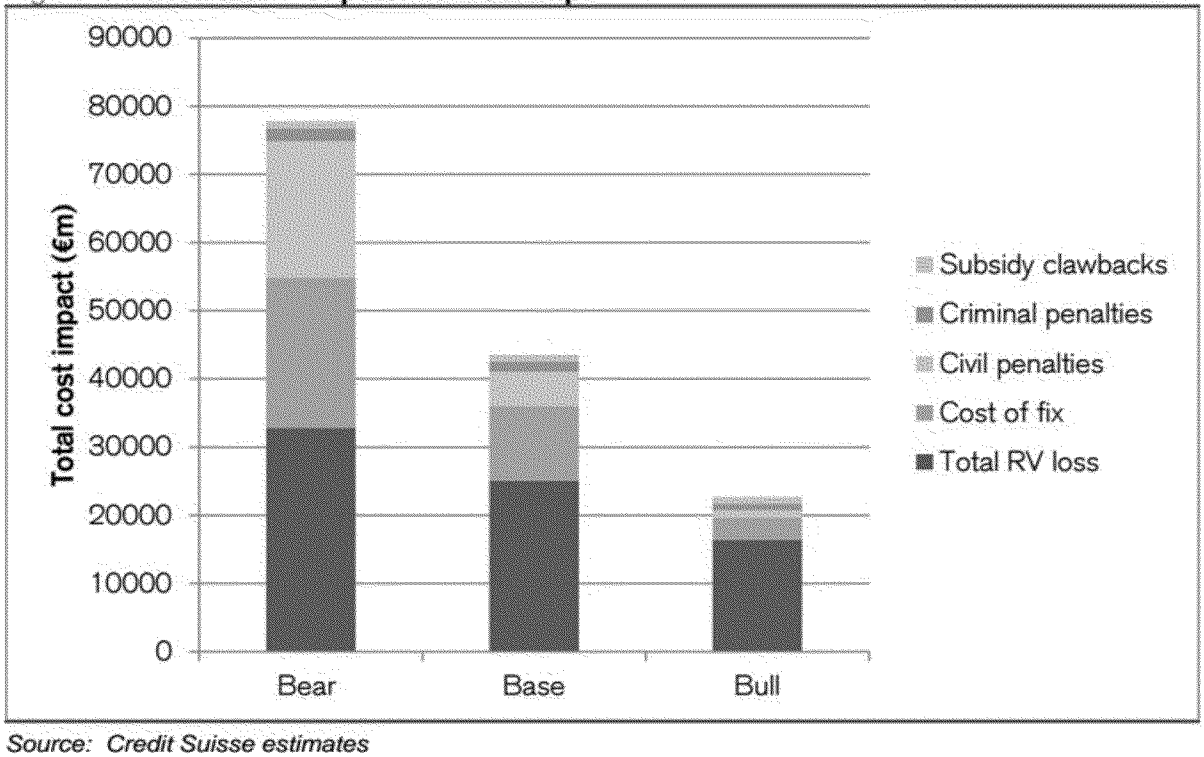
[109] http://www.morningstar.com/news/dow-jones/TDJNDN_201510023140/italy-antitrust-body-opens-case-against-volkswagen-over-emissions.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034715

advertisement to consumers, for example, carrying a potential penalty. 'This product was designed to operate illegally, and that is very serious.'"[110]

98. Nonetheless, some attempts at calculation have been made. On October 2, Credit Suisse disseminated an analysis showing Volkswagen's anticipated costs in a "bull" scenario (where events turned out favorably to it), a "base" scenario, and a "bear" scenario (where events turned out unfavorably).[111] The "bull" scenario was $25.6 billion in costs, while the "bear" scenario was $87.1 billion. The analysis is summarized in the following chart:

Figure 17: **Breakdown of potential cost impact for VW**



Source: Credit Suisse estimates

Societe Generale has also presented dire predictions.[112] Volkswagen itself has since conceded that

[110] http://mobile.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html?_r=0&referer=https://www.google.com/.

[111] http://www.businessinsider.com/credit-suisse-volkswagen-shares-could-fall-another-20-2015-10?r=UK&IR=T.

[112] http://www.cbsnews.com/news/emissions-scandal-could-cost-volkswagen-more-than-35-billion/.

the cost of Dieselgate will be far more than it initially anticipated.[113] As can be seen, costs associated with criminal and civil penalties make up a significant portion of the differing amounts. Credit Suisse also predicts that Volkswagen's stock may decline another 20%.

VI. PLAINTIFF'S STANDING

99. CAS is a non-profit, Section 501(c)(3) organization whose aim is to provide consumers a voice for auto safety and quality. As such, CAS has standing to bring the present action on its own and on behalf of its members.

ASSOCIATIONAL STANDING

100. CAS's membership consists of approximately 15,000 individuals, including at least 200 in the District of Columbia, 450 in Massachusetts, 1500 in California, and 300 in Michigan. CAS members pay for the benefits of membership, which includes receiving a copy of CAS's annual *Car Book*. The *Car Book* makes recommendations on the best vehicles based on CAS's research of various factors, including fuel economy. CAS members rely on the information CAS gathers to make purchasing decisions when buying a new or used vehicle. In 2013 CAS rated the AUDI A4 as one if it's overall "Best Bets," a rating that would not have been given had CAS known of Defendants' fraudulent reporting of the vehicle's fuel economy. In 2015 it recommended the Volkswagen Jetta. CAS members relied on CAS's recommendations in deciding which vehicle to buy. Had CAS known the true nature of Affected Vehicles' efficiency performance, CAS would not have rated them highly and its members would not have purchased the vehicles.

---

[113] http://www.techtimes.com/articles/92854/20151009/volkswagen-emissions-cheating-scandal-costs-five-times-more-than-expected-ceo-warns-employees-of-cutbacks.htm,

VW FOIA, EPA 06/20/2017 2017-FFP_034717

101. Many of CAS's members would have standing in their own right to bring an action in this case. CAS has identified members who purchased Volkswagen's Clean Diesel vehicles. Any member who purchased an Affected Vehicle has suffered a concrete and particularized injury by purchasing or leasing a vehicle that they would not otherwise have purchased or leased; paying more for vehicles than they would have otherwise paid if they had known the true facts concerning the defeat devices; and purchasing vehicles, the value of which has been severely diminished, thus reducing their residual and/or resale value.

102. Defendants' illegal conduct has injured all members of CAS, regardless of whether or not they purchased an Affected Vehicle, due to Volkswagen's fraudulent scheme to deceive consumers as to the non-compliance of its vehicles to applicable emissions standards, and Volkswagen's pollution of the environment by selling vehicles which emitted NOx gasses in levels ten to forty times permitted by the EPA. These injuries are a direct result of Volkswagen's fraudulent activities.

103. CAS's member's injuries will be redressed by a successful result in this matter through declaratory and injunctive relief because such relief will effectively abate Volkswagen's illegal conduct and will prevent recurrence. Specifically—relief in this matter will eliminate Volkswagen's fraud, bring Affected Vehicles into compliance with emissions standards, and thereby reduce air pollution from the 525,000 Affected Vehicles.

104. The interest CAS is seeking protect in this case is germane to its purpose as an organization. CAS aims to lower vehicle emissions and promote fuel efficiency. CAS's Safe Climate Campaign aims to "slash auto emissions" and "hold polluters . . . accountable." In pursuing this case, CAS is working directly within its mission to reduce fuel emissions and educate the public about energy efficient vehicle choices. A successful outcome in this case will deter

VW FOIA, EPA 06/20/2017 2017-FFP_034718

future vehicle manufacturers from fraudulently manipulating their vehicles' emissions performance.

105. CAS's claims do not require the individual participation of each of its members to obtain the relief that it seeks. CAS only seeks injunctive and/or declaratory relief, not damages on behalf of members. Defendants violated and continue to violate various state and federal laws by fraudulently misrepresenting the Affected Vehicles' emissions, environmental standards, fuel efficiency, and performance. These practices affected all CAS members. CAS can establish the illegality of Defendants' practices through evidence of Defendants' conduct that is common to all members.

ORGANIZATIONAL STANDING

106. CAS also has standing to bring these claims on its own behalf because Defendants' conduct has caused a diversion of its resources and has frustrated its mission. Each year, CAS spends considerable time and financial resources researching and compiling reports on the country's best vehicles, working with automakers and governments to improve the efficiency of motor vehicles and the standards that govern them, and advising members on purchasing decisions. Relying on Volkswagen's misrepresentations, CAS gave the Affected Vehicles high ratings and recommended that its members purchase those vehicles. As a result of Defendants' unlawful activities, CAS will have to divert its financial and staff resources from its planned activities.

107. CAS will have to modify its vehicle ratings system to ensure that vehicles are not circumventing emissions testing procedures to obtain better fuel economy ratings. CAS will have to redirect staff time and financial resources to new mechanisms of vehicle rating for its annual *Car Book*.

108. Through its "Safe Climate Campaign", CAS spent time and resources working to

VW FOIA, EPA 06/20/2017 2017-FFP_034719

increase emissions standards that Defendants' violated. As a result of Defendants' fraud, CAS will now have to divert its time and resources to detect possible future fraudulent actions to subvert emissions standards. CAS will have to divert resources and staff time from current programs to help members of Congress conduct oversight investigations, to develop policy solutions to solve the VW problems, and prevent future frauds. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

109. As a result of defendants' fraud, hundreds of thousands of vehicles have been polluting the atmosphere by circumventing emissions standards. This pollution has undermined CAS's activities to reduce overall air emissions. CAS must work even harder, and devote additional time and resources to its emissions reduction campaigns to reduce overall air emissions as a means of compensating for the excess pollutants the Affected Vehicles continue to spew into the atmosphere.

110. In the absence of Volkswagen's misrepresentations about their vehicles' environmental impact, fuel efficiency, and performance, CAS would not have suffered these injuries.

CAUSES OF ACTION

FIRST CLAIM

Fraudulent Business Acts and Practices in Violation of California Business & Professions Code §§ 17200, *et seq.*

111. Plaintiff incorporates by reference each preceding and succeeding paragraph.

112. Plaintiff brings this cause of action individually and on behalf of its members.

113. California Business and Professions Code §§ 17200, *et seq.* prohibits acts of unfair competition, which mean and include any "fraudulent . . . business practices."

VW FOIA, EPA 06/20/2017 2017-FFP_034720

114. As more fully described above, Defendants' acts and practices with respect to the fuel efficiency, and performance of Affected Vehicles have a tendency to deceive, and have deceived, Plaintiff and its members, thus constituting a fraudulent business act or practice.

115. Defendants acted fraudulently for the purpose of section 17200 by misrepresenting and omitting truths regarding the Affected Vehicles' eco-friendly nature, fuel efficiency, and performance in their advertising, public statements, and marketing. These fraudulent statements were a material factor in inducing CAS members to purchase Affected Vehicles. CAS members suffered injury in fact and lost money and/or property as a result of Volkswagen's unlawful business acts and practices. CAS's members suffered harm when each member was required to pay a purchase price for their Affected Vehicles which they never would have purchased if the true facts were known, or paid a price in excess of what they would have paid had Volkswagen accurately disclosed the Affected Vehicles' characteristics. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and will result in lower resale value. CAS members suffered injury in fact as a result.

116. Defendants' fraudulent statements were a material factor in inducing CAS's ratings and recommendations for Affected Vehicles, and in pursuing particular activities in furtherance of its mission and policy goals. Defendants' fraud caused CAS to inaccurately rate and report on Affected Vehicles. CAS would have used staff time and financial resources differently had Volkswagen accurately disclosed the Affected Vehicles' characteristics. As a result of Defendants' fraud, CAS will now have to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging

VW FOIA, EPA 06/20/2017 2017-FFP_034721

consumers to switch to clean cars and to make other clean transportation choices.

117. Defendants either knew, recklessly disregarded, or should have known that Volkswagen's statements were false, misleading, untrue, deceptive, or likely to deceive or mislead the public, Plaintiff and its members.

118. Plaintiff and its members relied upon Defendants' material omissions, nondisclosures and representations to their detriment.

119. Plaintiff's members have suffered injury in fact and have lost money as a result of defendants' unfair competition and violations of law in that they purchased vehicles for prices that were grossly inflated; they would not have purchased these vehicles had they known the true efficiency and nature of the Affected Vehicles; and they would not have been exposed to pollutants from the Affected Vehicles. Defendants' conduct has caused CAS injury in fact, a diversion of resources, and frustration of its mission. Had plaintiff known the true facts plaintiff would not have rated the Affected Vehicles highly, and would have used its staff time and resources differently with respect to its mission and purpose. Plaintiff is therefore entitled to the relief available under Business and Professions Code §§ 17200, *et seq*., as detailed herein.

SECOND CLAIM
Unlawful Business Acts and Practices in Violation of California Business & Professions Code §§ 17200, *et seq*.

120. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

121. Plaintiff brings this cause of action individually and on behalf of its members.

122. California Business and Professions Code §§ 17200, *et seq*. prohibits acts of unfair competition, which mean and include any "unlawful . . . business practices."

123. As alleged herein, Defendants routinely misrepresented Affected Vehicles' emissions, environmental standards, fuel efficiency, and performance in their advertising, public statements, and marketing.

124. As a result, Defendants' uniform policies, acts, omissions, and practices, among

VW FOIA, EPA 06/20/2017 2017-FFP_034722

others, violate numerous provisions of California statutory and common law including, but not limited to the following:

- Violating the CLRA; and
- Violating California's False Advertising Law.

125. Plaintiff and its members relied upon these material omissions and misrepresentations to their detriment.

126. Plaintiff reserves the right to allege other violations of law that constitute unlawful business acts or practices based upon the above-described conduct. Such conduct is ongoing and continues to this date.

127. Plaintiff's members have suffered injury in fact and have lost money as a result of defendants' unfair competition and violations of law in that they purchased vehicles for prices that were grossly inflated; they would not have purchased these vehicles had they known the true efficiency and nature of the Affected Vehicles; and they would not have been exposed to pollutants from the Affected Vehicles. Defendants' conduct has caused CAS injury in fact, a diversion of resources, and frustration of its mission. Had plaintiff known the true facts plaintiff would not have rated the Affected Vehicles highly, and would have used its staff time and resources differently with respect to its mission and purpose. Plaintiff is therefore entitled to the relief available under Business and Professions Code §§ 17200, *et seq*., as detailed herein.

THIRD CLAIM
Unfair Business Acts and Practices in Violation of California Business & Professions Code §§ 17200, *et seq.*

128. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

129. Plaintiff brings this cause of action individually and on behalf of its members.

130. California Business and Professions Code §§ 17200, *et seq*. prohibits acts of unfair competition, which mean and include any "unfair . . . business practices."

131. Defendants' conduct constitutes "unfair" business acts and practices because

VW FOIA, EPA 06/20/2017 2017-FFP_034723

Defendants' practices have caused and are "likely to cause substantial injury" to Plaintiff and its members which injury is not "reasonably avoidable" by Plaintiff and its members and is "not outweighed" by the practices' benefits to Plaintiff and its members.

132. As more fully described above, Defendants' misrepresentations and omissions in their advertising, public statements, and marketing constitute unfair business acts or practices within the meaning of Cal. Bus. & Prof. Code §§ 17200, *et seq.*, in that the justification for Defendants' conduct is outweighed by the gravity of the consequences to the general public.

133. Defendants had reasonably available alternatives to further their business interests other than by misleading Plaintiff and its members about Affected Vehicles' eco-friendly nature, fuel efficiency, and performance. Indeed, the burden and expense of not installing the "defect device" is infinitesimal in comparison to the negative impact and injury to Plaintiff and its members.

134. Plaintiff and its members could not have reasonably avoided injury because, as more fully described above, Defendants' scheme was designed to keep Plaintiff and its members from knowing the truth about the Affected Vehicles' eco-friendly nature, fuel efficiency, and performance.

135. Defendants' failure to disclose these facts, coupled with the defeat device, made it nearly impossible for Plaintiff and its members to know the true nature of Affected Vehicles' eco-friendly nature, fuel efficiency, and performance.

136. Plaintiff and its members were never in a position to avoid injury, due to Defendants' active concealment of material information.

137. The practice of misrepresenting the eco-friendly nature of the Affected Vehicles, fuel efficiency, and performance deceived Plaintiff and its members into paying for services that were never rendered or the value of which was grossly inflated; making inaccurate recommendations on which products to buy; and focusing its staff time and resources working to increase emissions standards which were being flagrantly violated by Defendants. These actions

VW FOIA, EPA 06/20/2017 2017-FFP_034724

are contrary to public policy, immoral, unethical, oppressive, unscrupulous, and/or substantially injurious to consumers.

138. Defendants' conduct has violated statutory and common law, and the policy and spirit of California's statutory law including, but not limited to, California's Consumer Legal Remedies Act, California's Unfair Competition Law, California's False Advertising Law, and California Pollution Control laws and applicable regulations. These violations significantly harmed Plaintiff and its members.

139. Plaintiff and its members relied upon these material omissions and misrepresentations to their detriment.

140. Plaintiff's members have suffered injury in fact and have lost money as a result of defendants' unfair competition and violations of law in that they purchased vehicles for prices that were grossly inflated; they would not have purchased these vehicles had they known the true efficiency and nature of the Affected Vehicles; and they would not have been exposed to pollutants from the Affected Vehicles. Defendants' conduct has caused CAS injury in fact, a diversion of resources, and frustration of its mission. Had plaintiff known the true facts plaintiff would not have rated the Affected Vehicles highly, and would have used its staff time and resources differently with respect to its mission and purpose. Plaintiff is therefore entitled to the relief available under Business and Professions Code §§ 17200, *et seq*., as detailed herein.

FOURTH CLAIM
Violations of the Consumers Legal Remedies Act
(California Civil Code § 1750 *et seq*.)

141. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

142. This cause of action is brought pursuant to the California Consumers Legal Remedies Act ("CLRA"), Civil Code § 1750, *et seq*.

143. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated,

VW FOIA, EPA 06/20/2017 2017-FFP_034725

and continue to violate California Civil Code § 1770, subdivisions (a)(9), (a)(7), (a)(16), and (a)(5) by:

- Representing to consumers purchasing the Affected Vehicles that these vehicles' eco-friendly nature, fuel efficiency, and high performance are as advertised and publicized.
- Representing in their advertising eco-friendly nature, fuel efficiency, and performance characteristics for the Affected Vehicles that are false.

144. Plaintiff and its members have suffered harm as a result of these violations.

145. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning these resources would otherwise have been spent in other ways will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

146. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because it recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS

VW FOIA, EPA 06/20/2017 2017-FFP_034726

having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

147. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

148. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

149. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

FIFTH CLAIM
Violations of the Michigan Consumer Protection Act
(Mich. Comp. Laws § 445.901 *et seq.*)

150. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

151. Michigan Consumer Protection Act, Mich. Comp. Laws § 445.901 *et seq.* prohibits "[u]nfair, unconscionable, or deceptive methods, acts, or practices in the conduct of trade or commerce."

152. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated, and continue to violate Mich. Comp. Laws § 445.903, subsections (a), (e), and (l) by:

VW FOIA, EPA 06/20/2017 2017-FFP_034727

- Representing to consumers purchasing the Affected Vehicles that these vehicles' eco-friendly nature, fuel efficiency, and high performance are as advertised and publicized.
- Representing in their advertising emissions, environmental, fuel efficiency, and performance characteristics for the Affected Vehicles that are false.
- Representing that the Affected Vehicles were compliant with state and federal emissions regulations.

153. Volkswagen concealed from Plaintiff and its members accurate information concerning eco-friendly nature, fuel efficiency, and performance of the Affected Vehicles.

154. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were made knowingly, and with the intent that consumers would purchase vehicles based on those representations.

155. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning the "defeat devices" will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

156. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because it recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made

VW FOIA, EPA 06/20/2017 2017-FFP_034728

them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

157. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

158. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

159. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

SIXTH CLAIM
Violations of the Massachusetts General Statute 93A
(Mass. Gen. Laws ch. 93A § 1 *et seq.*)

160. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

161. Massachusetts General Statute, Mass. Gen. Laws ch. 93A § 1 *et seq.*, prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce."

162. As more fully described above, Defendants' acts and practices with respect to the fuel efficiency, and performance of the Affected Vehicles have a tendency to deceive, and have

VW FOIA, EPA 06/20/2017 2017-FFP_034729

deceived, Plaintiff and its members, thus constituting unfair, immoral, unethical, oppressive, and unscrupulous actions. These actions included:

- Falsely representing to consumers purchasing the Affected Vehicles that these vehicles' emissions, fuel efficiency, and high performance are as advertised and publicized.
- Falsely representing in their advertising emissions, environmental, fuel efficiency, and performance characteristics for Affected Vehicles that are false.
- Falsely representing that the Affected Vehicles were compliant with state and federal emissions regulations.

163. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

164. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were made knowingly, and with the intent that consumers would purchase vehicles based on those representations.

165. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning the "defeat devices" will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

166. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because it recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the

VW FOIA, EPA 06/20/2017 2017-FFP_034730

Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

167. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, Plaintiff and members of the consuming public will be further damaged by Volkswagen's conduct.

SEVENTH CLAIM

Violations of the District of Columbia Consumer Procedures Protection Act (DC Code § 28-3901 *et seq.*)

168. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

169. This cause of action is brought pursuant to the District of Columbia Consumer Procedures Protection Act, DC Code § 28-3901 *et seq.*

170. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated, and continue to violate California Civil Code § 28-3904, subdivisions (a), (b), (e), (f), and (x) by:

- Representing to consumers purchasing the Affected Vehicles that these vehicles'

VW FOIA, EPA 06/20/2017 2017-FFP_034731

emissions, fuel efficiency, and high performance are as advertised and publicized.

- Representing in their advertising emissions, environmental, fuel efficiency, and performance characteristics for the Affected Vehicles that are false.
- Representing that the Affected Vehicles were compliant with federal emissions regulations when they were not.

171. Plaintiff and its members have suffered harm as a result of these violations.

172. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning the "defeat devices" will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

173. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because CAS recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop

VW FOIA, EPA 06/20/2017 2017-FFP_034732

policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

174. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

175. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

176. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray that the Court enter judgment on its behalf and on behalf of its members, and:

A. Order the appointment of an independent organization to be External Compliance Monitor to monitor Volkswagen's compliance with federal and state environmental laws, as well as any other relief granted in the ultimate resolution of this case, and provide reports annually to the Court for a period no less than five years;

B. Order Volkswagen to pay a portion of its annual net profits into an independent fund administered by third parties approved by the Court who can disburse the funds to non-profit organizations that seek to monitor, educate people about, and/or remediate the deleterious environmental effects of vehicular diesel fuel emissions through advanced emissions controls and systems;

C. Adjudge and decree that Volkswagen has violated the California Pollution Control

VW FOIA, EPA 06/20/2017 2017-FFP_034733

Laws, California Business & Professions Code, the California Civil Code, the Michigan Consumer Protection Act, and Massachusetts General Statute 93A and that Plaintiffs and its members have been injured in their business and property as a result of Volkswagen's violations;

D. To the extent provided by law, enjoin and restrain Volkswagen, its subsidiaries, affiliates, successors, transferees, assignees and the respective officers, directors, partners, agents, and employees thereof and all other persons acting or claiming to act on their behalf from continuing to violate the California Pollution Control laws, California Business & Professions Code, the California Civil Code, the Michigan Consumer Protection Act, and Massachusetts General Statute 93A.

E. Award Plaintiffs and its members their costs of this suit, including reasonable attorneys' fees as provided by law; and

F. Order such other or further relief as may be just and proper.

IX. JURY TRIAL DEMAND.

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiffs demand a trial by jury of all of the claims asserted in this Complaint so triable.

DATED: October 16, 2015 Respectfully submitted,

By: _____

Bernard J. DiMuro (VSB No. 18784)
Harvey B. Cohen (VSB No. 06440)
DIMUROGINSBERG, P.C.
1101 King Street, Suite 610
Alexandria, Virginia 23314
Telephone: (703) 684-4333
Facsimile: (703) 548-3181
Email: bdimuro@dimuro.com
Email: hcohen@dimuro.com

Michael D. Hausfeld
Walter D. Kelley, Jr.
James J. Pizzirusso
HAUSFELD LLP

VW FOIA, EPA 06/20/2017 2017-FFP_034734

1700 K Street NW, Suite 650
Washington, DC 20006
Telephone: (202) 540-7200
Facsimile: (202) 540-7201
Email: mhausfeld@hausfeld.com
Email: wkelley@hausfeld.com
Email: jpizzirusso@hausfeld.com

Michael P. Lehmann
Bonny E. Sweeney
Christopher L. Lebsock
HAUSFELD LLP
600 Montgomery Street, Suite 3200
San Francisco, CA 94111
Telephone: 415-633-1908
Facsimile: 415-217-6813
Email: mlehmann@hausfeldllp.com
Email: bsweeney@hausfeldllp.com
Email: clebsock@hausfeldllp.com

Counsel for Plaintiff

VW FOIA, EPA 06/20/2017 2017-FFP_034735

FILED

2015 OCT 16 P 3:29

CLERK US DISTRICT COURT
ALEXANDRIA, VIRGINIA

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

THE CENTER FOR AUTO SAFETY Plaintiff, v. VOLKSWAGEN AG, VOLKSWAGEN OF AMERICA GROUP, INC., VOLKSWAGEN OF AMERICA, INC., AUDI OF AMERICA, LLC, and AUDI AG, Defendants.	Case No. 1:15 cv 1356 (LO/MSN) JURY TRIAL DEMANDED

COMPLAINT

Plaintiff The Center for Auto Safety ("CAS") brings this action on its own behalf and on behalf of its members against Volkswagen AG ("VWAG"), Volkswagen of America Group, Inc. and Volkswagen of America, Inc. (collectively, "VWoA"), and Audi of America, LLC and Audi AG (collectively, "Audi").[1] Plaintiff seeks injunctive and declaratory relief for Volkswagen's violations of the the California Unfair Competition Law, the California Consumer Legal Remedies Act, the Michgan Consumer Protection Act, Massachusetts General Law chapter 93A, and the District of Columbia Unlawful Trade Practices Act. Plaintiffs make the following allegations upon information and belief.

I. NATURE OF THE ACTION.

1. Four years ago, Martin Winterkorn ("Winterkorn"), Volkswagen's former Chief Executive Officer ("CEO"), announced Volkswagen's goal to become the world's largest

[1] Unless otherwise indicated herein, all of these defendants will be referred to collectively as "Volkswagen."

automaker. "By 2018," he told U.S. politicians gathered for the opening of a Volkswagen plant in Chattanooga, Tennessee, "we want to take our group to the very top of the global car industry."[2] With only a relatively small share of the gigantic United States market, Winterkorn's ambitious plan required a dramatic increase in sales in that market. And the way to increase sales here, Volkswagen decided, was to convince American consumers that its diesel-powered cars were a superior alternative, with better fuel efficiency, lower emissions, and uncompromised performance.

2. Between 2009 and September 18, 2015, Volkswagen aggressively marketed its so-called Clean Diesel Turbocharged Direct Injection ("TDI") light passenger vehicles in the United States, spending millions of dollars on print, television, internet and point-of-sale advertising aimed at convincing American consumers that its cars were environmentally-friendly, fuel-efficient, powerful, and reasonably priced. In order to increase its market share, Volkswagen's cars needed all those attributes to win over a skeptical American public. Compared with Europe, with its higher fuel costs, expensive cars and less stringent tailpipe emission standards, the United States market was a tough sell for diesel-powered passenger cars.

3. Until September 18, 2015, it looked as if Winterkorn's ambitious plan had succeeded. In July of 2015, Volkswagen surpassed Toyota Corporation ("Toyota") as the world's largest automaker, selling 5.04 million vehicles in the first six months of this year, compared to Toyota's 5.02 million.[3]

4. As noted above, the United States was a key part of this global strategy. As reported in *Automotive News*:

> Back in 2007, the automaker vowed to crank up U.S. sales of its VW brand to 800,000 vehicles a year by 2018. It was a dizzying

[2] http://www.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?_r=0.

[3] http://www.usatoday.com/story/money/2015/07/28/volkswagen-surpasses-toyota-worlds-largest-automaker-first-half-2015/30772509/.

VW FOIA, EPA 06/20/2017 2017-FFP_034737

> sum, requiring more than a tripling of its volume at that time. Many in the industry scoffed.
>
> But with steady precision, VW got the skeptics to take a second look. It launched a lower-priced, Mexico-made Jetta and built a plant in Chattanooga that began churning out a new Passat that better fit American tastes and budgets. VW sales doubled between 2009 and 2012, to nearly 440,000, lifting hopes that 800,000 was doable.[4]

By October 1, 2015, VWoA had reported sales of 264,215 passenger vehicles in the United States through September 15, indicating that before the scandal that is the subject of this Complaint surfaced, it was expecting another excellent sales year.[5]

5. Indeed, Volkswagen was so successful in achieving brand loyalty in the clean diesel market, consumers are now left with few options for purchasing comparable vehicles and are left with the dilemma of remaining loyal to Volkswagen or looking for a different type of vehicle. As the New York Times recently reported:[6]

> "There's a bit of a hole in the marketplace," Ms. Caldwell said. "Other vehicles certainly could be substituted, but there aren't a lot of affordable fun-to-drive diesels out there."
>
> Other fuel-efficient and earth-friendly options are also significantly more expensive. VW's diesel technology has been the market's most affordable, adding as little as $700 to the price of a conventional gasoline model.

6. Unfortunately for American consumers, Volkswagen's success in capturing market share was based on a lie. On September 18, 2015, the United States Environmental Protection Agency ("EPA") and the California Air Resources Board ("CARB") both notified Volkswagen that it had violated federal and state laws and regulations by using a "defeat device"--software

---

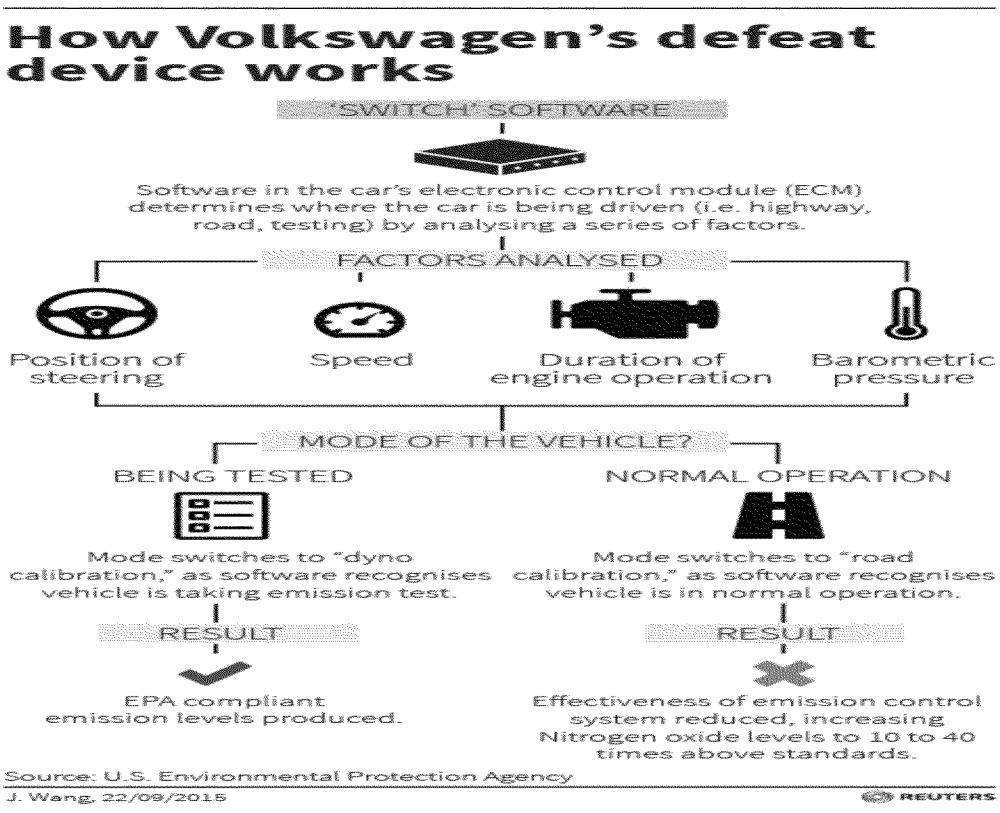
[4] http://www.autonews.com/article/20150126/RETAIL01/301269949/how-vw-veered--off-target.

[5] http://media.vw.com/release/1080/.

[6] http://www.nytimes.com/2015/10/09/automobiles/with-vw-no-longer-an-option-diesel-buyers-have-few-choices.html?smprod=nytcore-iphone&smid=nytcore-iphone-share&_r=0

specifically intended to circumvent emission test procedures established by the EPA and by CARB. Those notices are attached as Exhibits 1 and 2 to this complaint.

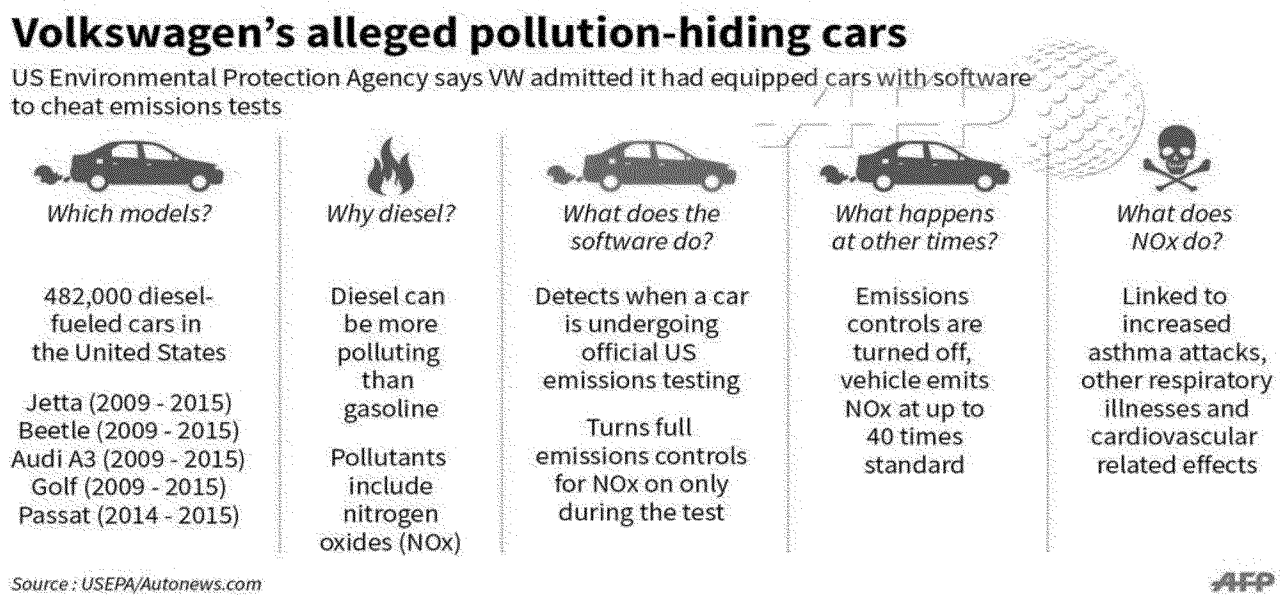
7. Volkswagen's "defeat device" is a "sophisticated software algorithm"[7] that detects when the car is undergoing emissions testing. Under such laboratory test conditions, Volkswagen's vehicles pass the EPA and CARB emissions tests with flying colors. Under normal driving situations, however, the software algorithm ***turns off*** the emissions control systems, allowing the cars to spew as much as 40 times the allowable amount of pollutants--specifically nitrogen oxides ("NOx")--into the air. Elevated NOx contributes to the creation of ozone and smog, and is linked to asthma attacks, other respiratory diseases such as emphysema and bronchitis, and causes premature death. A diagram published in Reuters depicts its operation:



[7] http://www.theguardian.com/business/2015/sep/18/epa-california-investigate-volkswagen-clean-air-violations.

VW FOIA, EPA 06/20/2017 2017-FFP_034739

8. The chart below, published by *Agence France Press*, provides a useful and concise primer on the known facts:



9. As noted below, dozens of fatalities in the United States over the last seven years have been attributed to the illegal use of this "defeat device." The scandal has been popularly referred to as "Dieselgate."

10. Volkswagen has admitted to installing these "defeat devices" in 11 million diesel vehicles that have been sold around the world, including 525,000 in the United States. As Michael Horn ("Horn"), the President and CEO of VWoA, candidly admitted: "[l]et's be clear about this. **Our company was dishonest. With the EPA, and the California Air Resources Board, and with all of you. And in my German words, we have totally screwed up.**"[8] (Emphases added). Horn further stated in a video on VWAG's website that **"[o]ur company betrayed the trust of you, our customers, our employees, our dealers and the public."**[9] (Emphases added). And as

[8] http://www.roadandtrack.com/new-cars/car-technology/news/a26774/volkswagen-ceo-we-screwed-up/. A YouTube video of this extraordinary concession can be found here: www.youtube.com/watch?v=Q6z8uUJE-jE.

[9] https://www.vwdieselinfo.com/.

VWAG has posted on its website: "[g]overnment regulations limit the use of engine software that reduces the effectiveness of a vehicle's emissions control systems. **Those are the 'defeat device' regulations, and regrettably, VW violated those regulations. We take full responsibility** – and deeply regret that this happened."[10] (Emphases added). In a September 23, 2015 press release available on VWAG's website, the Executive Committee of VWAG's Supervisory Board stated: "[t]he Executive Committee takes this matter extremely seriously. **The Executive Committee recognizes not only the economic damage caused, but also the loss of trust among many customers worldwide.**"[11] (Emphases added). Or, as Berthold Huber ("Huber"), Deputy Chairman of the Supervisory Board, was quoted as saying in a September 25 press release, **"[t]he test manipulations are a moral and political disaster for Volkswagen. The unlawful behavior of engineers and technicians involved in engine development shocked Volkswagen just as much as it shocked the public.**" [12] (Emphases added).

11. In light of the scandal, VWAG's Management Board forced Winterkorn to resign as CEO of VWAG on September 23.[13] In doing so, he stated that "**I accept responsibility for the irregularities that have been found in diesel engines.**" (Emphases added). [14] He further observed that "**[m]illions of people across the world trust our brands, our cars and our**

[10] http://www.vwdieselinfo.com/faqs/.

[11] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2015/09/AR_Erklaerung.html.

[12] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2015/09/Erklaerung.html.

[13] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html

[14] http://www.nytimes.com/2015/09/24/business/international/volkswagen-chief-martin-winterkorn-resigns-amid-emissions-scandal.html. Notably, however, Winterkorn plans to stay as the Chairman of the Board of Directors of Porsche Automobil Holding SE, which owns a 52% controlling stake in VWAG; he is also still demanding payment of the ten million Euros owed to him under his employment contract, which does not expire until 2016. http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

technologies. I am endlessly sorry that we have disappointed this trust. I apologize in every way to our customers, to authorities and the whole public for the wrongdoing." [15] (Emphases added). He professed surprise that "**misconduct on such a scale**" (emphases added) occurred within the Volkswagen group, suggesting that he had no knowledge of it.[16] It has been reported that Winterkorn was being investigated for fraud in connection with the conduct at issue here by prosecutors in Lower Saxony; however, more recently, those prosecutors have stated that any prosecution will await further factual information.[17]

12. Volkswagen has ordered its authorized dealers ("Volkswagen Authorized Dealers") to cease selling the vehicles in which the defeat devices are installed. These include at least the VW Jetta TDI (Model Years 2009-15), the VW Jetta SportWagen TDI (Model Years 2009-14), the VW Golf TDI (Model Years 2010-15), the VW Golf SportWagen TDI (Model Year 2015), the VW Beetle TDI and VW Beetle Convertible TDI (Model Years 2012-15), the VW Passat TDI (Model Years 2012-15) and the Audi A3 TDI (Model Years 2010-15).[18] These affected vehicles will be referred to in this Complaint as the "Affected Vehicles."

13. Volkswagen's internal investigation has resulted so far in the suspension of four executives: (a) Heinz-Jakob Neusser ("Neusser"); (b) Ulrich Hackenberg ("Hackenberg"); (c) Wolfgang Hatz ("Hatz") and (d) Falko Rudolph (Rudolph).[19] Spiegel Online described

---

[15] http://www.chicagotribune.com/business/ct-volkswagen-emissions-scandal-20150922-story.html.

[16] http://www.salon.com/2015/09/24/i_am_stunned_that_misconduct_on_such_a_scale_was_possible_what_you_need_to_know_about_the_volkswagen_mega_scandal/.

[17] http://www.autonews.com/article/20151001/COPY01/310019972/german-prosecutors-backtrack-on-winterkorns-role-in-vw-probe.

[18] http://www.thetruthaboutcars.com/2015/09/vw-audi-canada-halting-sales-tdi-cars-following-us-inquiry/; http://www.vwdieselinfo.com/faqs/.

[19] http://uk.reuters.com/article/2015/09/29/uk-volkswagen-emissions-idUKKCN0RS0U620150929.

VW FOIA, EPA 06/20/2017 2017-FFP_034742

Hackenberg's departure, which was also typical of the others: "[h]e received news of his immediate suspension from the personnel department and was asked to turn in his company phone and leave his office. He has also been told not to set foot on company premises."[20]

14. None of these people are mere obscure midlevel engineers. Hackenberg is a VWAG Board member for Technical Development.[21] The same Spiegel Online article described Hackenberg as "a long-time confidant of Winterkorn and, up until just a few days ago, one of the most powerful men at VW." Hatz is a Porsche AG ("Porsche") Board of Management member in charge of Research and Development and is additionally Head of Engines and Transmissions Development for the Volkswagen Group.[22] Neusser was responsible for engine development at Porsche commencing in 1998 and drivetrain development commencing in 2011; in October of 2012, he succeeded Hatz as Head of Powertrain Development at the Volkswagen Group.[23]

15. The same Spiegel Online article notes that Hans-Dieter Pötsch ("Pötsch"), the VWAG Finance Chief and Board Chairman of VWAG, may also be under investigation by regulatory authorities. As discussed below, Volkswagen told the EPA about the use of a defeat device on September 3 (if not earlier), but disclosed it to investors only on September 20. "[T]he finance chief remained silent for 17 days. During these 17 days, hundreds of thousands of investors bought VW stock. When the scandal was finally made public on Sept. 20, the price of VW shares plunged by 40 percent, costing stockholders €35 billion."[24] VWAG's shares have been on a steady

[20] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

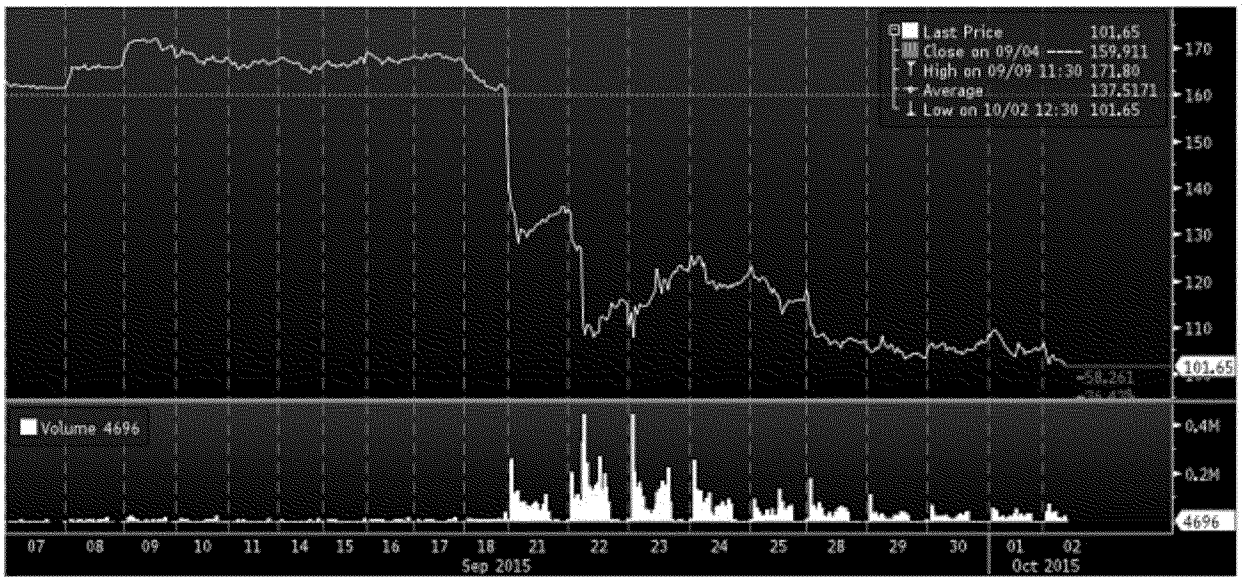
[21] http://www.audi.com/corporate/en/company/corporate-management/members-of-the-board/ulrich-hackenberg.html.

[22] http://press.porsche.com/more_about/executives/pag/hatz.php.

[23] http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2012/09/Dr_Heinz_Jakob_Neusser.html.

[24] http://www.spiegel.de/international/business/falsified-emissions-scandal-push-volkswagen-to-limits-a-1055897.html.

decline ever since, as reflected in this graphic from the *Telegraph* in the United Kingdom:



16. According to an October 3 article from Reuters, "[a]t an internal company meeting this week at the VW headquarters in Wolfsburg, Pötsch described the situation as an 'existence-threatening crisis for the company', Germany's *Welt am Sonntag* reported in a release ahead of Sunday's publication."[25]

17. As explained below, and contrary to the suggestions of some of Volkswagen's spokespersons, the unlawful conduct here was not the action of renegade lower-level employees. It was instead the product of a concerted scheme by top executives at Volkswagen to save costs through use of the TDI technology, break into the United States diesel passenger car market by

[25] http://mobile.reuters.com/article/idUSKCN0RX0GQ20151004. Pötsch's accession to the VWAG Board has been criticized. Hans-Christoph Hirt, a director of Hermes Equity Ownership Services, an adviser to pension fund investors in companies including Volkswagen, said the appointment created a "serious conflict of interest": "[Pötsch] was a key VW executive for more than a decade and under German law the management board has a collective responsibility . . . The lawyers will surely demand that he recuse himself from any supervisory board meetings when management's role is discussed." http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034744

concealing from regulators and the public the inability of cars using that technology to meet federal and state emissions standards, market the TDI cars through an elaborate seven-year long campaign of false advertising and lying to state and federal officials, and thereby obtain a monopoly share of the United States Clean Diesel passenger car market.

18. The German periodical *Bild am Sonntag* revealed that Robert Bosch GmbH ("Bosch"), the supplier of some components of the emissions control system, used by Volkswagen in TDI diesel vehicles, also supplied Volkswagen with diesel software for test purposes. Bosch reportedly told VWAG in 2007 that using that software in vehicles on the road would be illegal.[26] Similarly, *Süddeutsche Zeitung* has reported that Neusser had ignored least one Volkswagen engineer's warnings over "possibly illegal" practices in 2011.[27] Spiegel Online reported that groups within Volkswagen knew of potential issues as far back as 2005 or 2006.[28] OlafLies,a VWAG Board member, has stated publicly that **"[t]hose people who allowed this to happen, or who made the decision to install this software--they acted criminally. They must take personal responsibility**."[29] (Emphases added).

19. As discussed in further detail below, Volkswagen has set aside the inadequate sum of 6.5 billion Euros (approximately $7.2 billion) to deal with the fallout from this fraud. Numerous countries across the world are investigating the matter and here, in the United States, probes are being conducted by the United States Department of Justice ("DOJ"), a coalition of state attorneys general ("AGs"), and members of the United States House of Representatives. The EPA has ordered a recall.

---

[26] http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says.

[27] http://www.sueddeutsche.de/politik/abgas-affaere-vw-topmanager-schwer-belastet-1.2669920.

[28] http://www.spiegel.de/wirtschaft/unternehmen/volkswagen-aufsichtsrat-lies-macht-managern-vorwuerfe-a-1055381.html.

[29] http://www.bbc.com/news/business-3439.7426.

II. THE PARTIES.

A. Plaintiff

20. CAS is a non-profit, Section 501(c)(3) public interest organization headquartered in Washington, DC. It was founded by consumer advocate Ralph Nader and Consumers Union in 1970 to provide consumers with a voice for auto safety and to provide information to consumers on how to purchase the best motor vehicle for their needs. CAS has over 15,000 members nationwide. CAS is dedicated to promoting automobile and highway safety, ensuring that defective and unsafe automobiles and automobile equipment are removed from the road, helping make roads safer for motor vehicles through safer designs and traffic, and working for improved fuel efficiency and lower emissions from motor vehicles.

21. As part of its commitment to improved fuel efficiency, in 2008, the CAS integrated into its programs the Safe Climate Campaign which aims to fight global warming by promoting laws and regulations that require strict emissions standards. The Safe Climate Campaign also pushes automakers to make clean, energy efficient vehicles, and urges consumers to make energy-efficient choices in transportation.

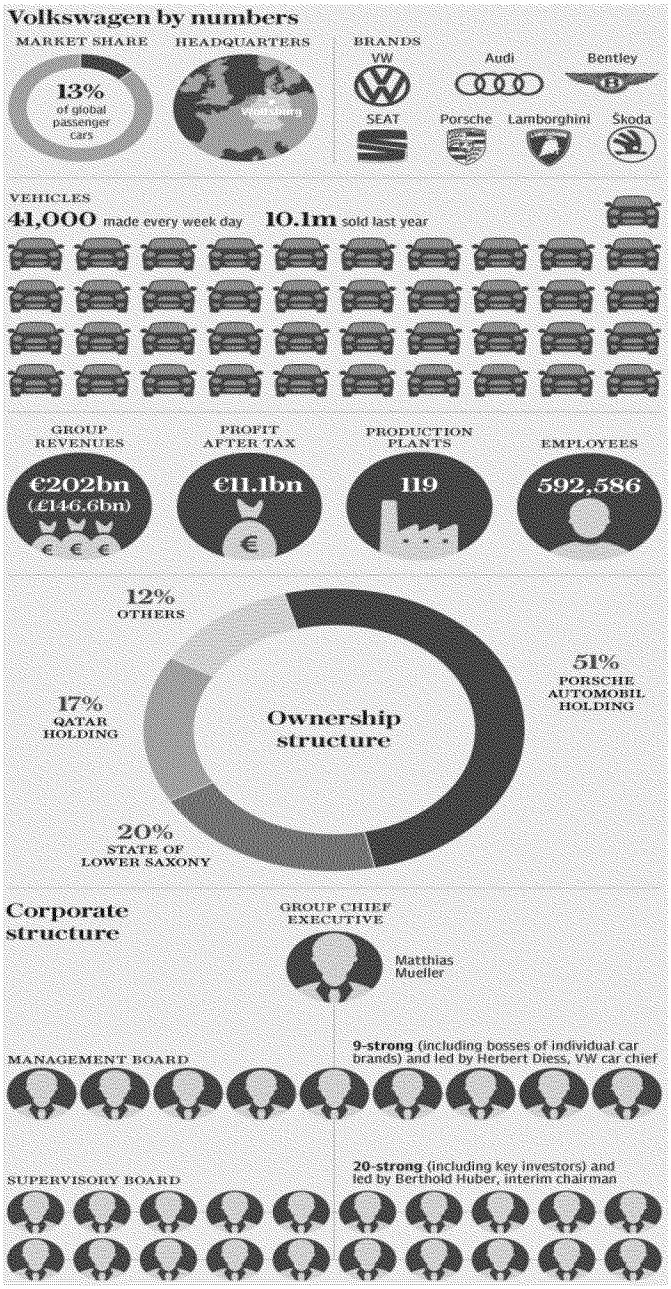
22. CAS has individual standing as an organization because it has been harmed by Defendants' wrongful conduct as alleged herein. CAS had devoted considerable time and resources encouraging automakers to sell energy-efficient vehicles and encouraging members to purchase clean, energy-efficient vehicles. As a result of Defendants' unlawful conduct, CAS has had to redirect staff time and financial resources away from its planned activities.

23. CAS also has associational standing on behalf of its members who have claims against Defendants for the violations alleged in this complaint. In addition to the redress it seeks for its own injury, and where its members are entitled to so and the claims for relief otherwise permit, CAS seeks declaratory and injunctive relief.

VW FOIA, EPA 06/20/2017 2017-FFP_034746

B. Defendants

24. Defendant VWAG is a car corporation organized and existing under German law, with its principal place of business in Wolfsburg, Germany. VWAG is the parent company of Defendants VWoA and Audi. The structure of VWAG is set forth in the following chart:



25. Defendant Audi AG is a car corporation organized and existing under German law, with its principal place of business in Ingolstadt, Germany. It is owned by VWAG. Audi was

created when VWAG merged two of its companies, Auto Union and NSU Motorenwerke AG. Audi is a 99.55%-owned subsidiary of the Volkswagen Group. Audi is now Volkswagen's luxury vehicle brand, and uses the slogan "Truth in Engineering".

26. Defendant the Volkswagen Group of America, Inc. is a corporation organized and existing under New Jersey law. Its headquarters are in Herndon, Virginia. The Volkswagen Group of America, Inc. is a wholly-owned subsidiary of VWAG. It is one of the world's largest producers of passenger cars. Through Volkswagen of America, Inc., it sells the Beetle, Beetle Convertible, CC, Eos, e-Golf, Golf, Golf GTI, Golf SportWagen, Jetta, Passat, Tiguan, and Touareg vehicles through Volkswagen Authorized Dealers located in the United States. Volkswagen Group of America, Inc.'s operations in the United States include research and development; parts and vehicle processing; parts distribution; sales, marketing and service offices; financial service centers; and manufacturing.

27. Defendant Volkswagen of America, Inc. is owned and operated by the Volkswagen Group of America, Inc. and sells Volkswagen vehicles in the United States. Its United States headquarters are at the same address as Volkswagen Group of America, Inc. in Herndon, Virginia.

28. Defendant Audi of America, LLC is a subsidiary of Audi AG that sells Audi vehicles in the United States. Its United States headquarters are at the same address as Volkswagen Group of America, Inc. in Herndon, Virginia.

III. JURISDICTION AND VENUE.

29. This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1332(a) and 1367. The cost of compliance with the requested injunctive relief exceeds $75,000.

30. Venue is proper in this judicial district and in the Alexandria Division thereof pursuant to 28 U.S.C. § 1391(b) and (c), in that at least one of the Defendants resides in this judicial district, is licensed to do business or is doing business in this judicial district.

IV. TRADE AND COMMERCE.

31. Approximately 482,000 Affected Vehicles have been sold or leased in the United

VW FOIA, EPA 06/20/2017 2017-FFP_034748

States in a continuous and uninterrupted flow of interstate commerce and foreign commerce during the last seven years, including through and into this judicial district. The business activities of the Defendants substantially affected interstate trade and commerce in the United States and caused antitrust injury in the United States.

V. FACTUAL ALLEGATIONS.

A. Automobile Emissions Regulations in the United States.

32. Congress enacted the first major Clean Air Act ("CAA") and established the EPA in 1970. The CAA, amended in 1975 and 1990, requires vehicle manufacturers to certify to the EPA that their cars and trucks will meet applicable federal emission standards.[30] The EPA administers a certification program to ensure that every vehicle complies with its emission standards. EPA-issued certificates of conformity are required for every vehicle sold in the United States, and the EPA must approve every vehicle entering United States commerce. In these certification efforts, the EPA relies on test data submitted by automobile manufacturers, which submit the vehicles to the agency's testing procedures in their own laboratories. The EPA audits a small fraction of the new vehicles each year to ensure compliance in a process known as "confirmatory testing."[31]

33. The Affected Vehicles, like any other car sold in the United States, were required to satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. §86.1811-4; Clean Air Act §101(b)(1) – (2), 42 U.S.C. §7401(b)(1)(2).

34. Section 203(a)(3)(b) of the CAA prohibits the manufacture, selling, or installation

---

[30] http://www2.epa.gov/laws-regulations/summary-clean-air-act.

[31] http://www.autonews.com/article/20151004/OEM11/310059955/vw-emissions-violations-put-self-certification-under-new-scrutiny. The EPA has a webpage describing that process in detail. http://www3.epa.gov/otaq/cert/eng-cert/confirmatory/overviewconfirmatorytesting/overviewconfirmatorytestingscript_updated.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034749

of any device that bypasses, defeats or renders inoperative a required element of a vehicle's emissions control system. 42 U.S.C. §7522(a)(3)(b). Section 203(a)(10 of the same statute also prohibits the sale of motor vehicles or engines that are not covered by valid certificates of conformity with applicable emissions standards. 42 U.S.C. §7522(a)(1). The regulatory requirements for defeat devices are set forth in 40 C.F.R. Part 86.

35. The EPA has been rigorous in punishing automobile manufacturers or engine makers that utilize defeat devices. For example, in late 1995, it entered into a $45 million dollar settlement with General Motors Corporation regarding the use of defeat devices on 470,000 Cadillac cars.[32] Likewise, in August of 1998, it fined Honda $267 million and Ford $7.8 million for selling vehicles equipped with defeat devices that prevented emission control systems from working properly.[33] Similarly, in October of that year, it and the DOJ fined seven truck and heavy duty equipment manufacturers $83.4 million for engaging in similar conduct.[34]

36. Volkswagen was or should have been aware of these precedents. Indeed, the company itself is a recidivist violator of the CAA. In July of 1973, the EPA referred to DOJ for legal action a claim that defeat devices were installed on 1973 Volkswagens. A copy of that referral is attached as Exhibit 3 to this complaint. The matter was settled for $120,000 in March of 1974.[35] Similarly, in June of 2005, Volkswagen entered into a consent decree with DOJ whereby it paid a $1.1 million penalty concerning its failure to notify the EPA of emissions defects

[32] http://www.autosafety.org/sites/default/files/imce_staff_uploads/Cadillac%20%2445%20Million%20Defeat%20Device%20Penalty%2011-31-95.pdf.

[33] http://www.autosafety.org/sites/default/files/imce_staff_uploads/defeat.pdf

[34] http://www2.epa.gov/enforcement/cummins-engine-company-diesel-engine-clean-air-act-settlement.

[35] http://www.autosafety.org/sites/default/files/imce_staff_uploads/VW%20Defeat%20Device%20%24120%2C00%20fine%203-12-74%20Pr.pdf.

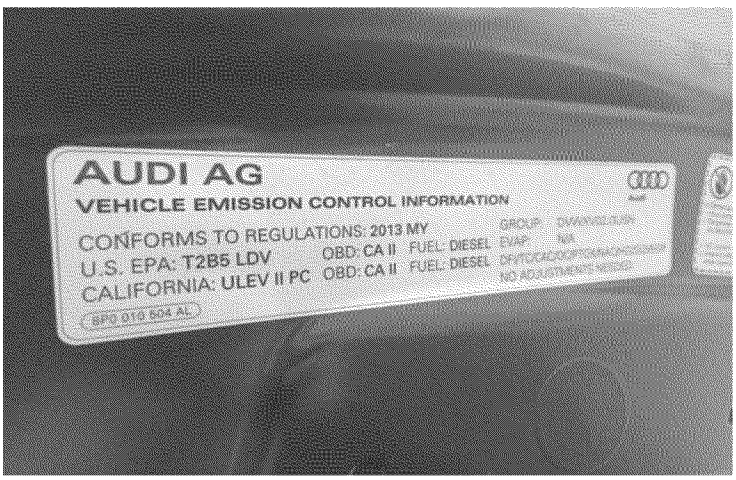
VW FOIA, EPA 06/20/2017 2017-FFP_034750

in certain vehicles manufactured at its facility in Mexico.[36] A copy of that decree is attached as Exhibit 4 to this Complaint.

37. CARB is a department of the California Environmental Protection Agency. It was created in 1967. California is the only state permitted to have such a regulatory agency, because it was created prior to the enactment of the CAA. CARB's mission is to "[t]o promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state."[37]

38. The EPA introduced phased in Tier 2 emissions standards from 2004 to 2009. California has similar standards in its CA LEV II standard. The Tier 2 Bin rating system applied to all passenger vehicles regardless of fuel type. Tier 2 Bin 5 standards—the ones applicable to the Affected Vehicles—imposed an emission rate for NOx of 0.07 grams per mile.[38]

39. New cars that are sold bear stickers indicating that they are EPA-and/or CARB compliant. Here is a photograph of such a sticker on the inside of the hood of a TDI Audi A3, one of the Affected Vehicles.

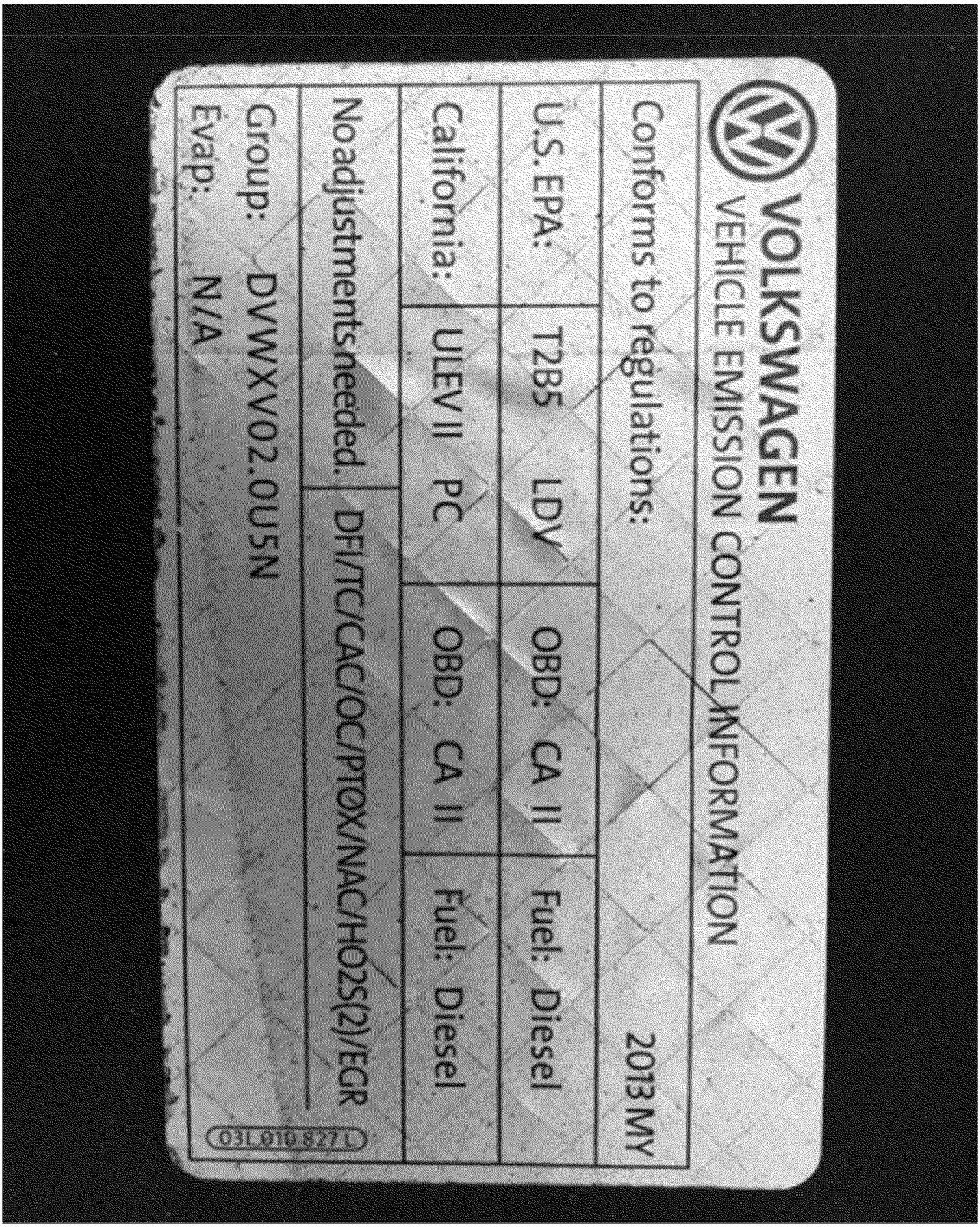


[36] http://www.autosafety.org/sites/default/files/imce_staff_uploads/volkswagen-cd.pdf.

[37] http://www.arb.ca.gov/html/mission.htm.

[38] http://www.nctcog.org/TRANS/air/vehicles/tech/compliance/index.asp.

And here is a similar sticker for a 2013 TDI Volkswagen Golf:



Through these types of notice, Volkswagen was representing to customers that the Affected Vehicles complied with federal and state emissions laws. This was an outright lie.

B. Diesel Cars and Control of NOx Emissions.

40. Diesel-powered cars, like gasoline-powered cars, must also meet the emissions standards established by the EPA and CARB. With diesel-powered engines, car manufacturers must use different--and more expensive--emission control systems than are used in gasoline-powered cars.

41. Diesel fuel has a greater energy density than gasoline. It converts heat into energy more efficiently than gasoline, sending less heat out of the tailpipe than gas-powered vehicles. Because it has greater energy density, diesel also is more efficient: diesel vehicles can get up to 30% more miles per gallon than similar gasoline-powered cars. In addition, because of their higher compression, diesel engines can generate a lot of torque, providing strong acceleration and additional power needed for towing.

42. While diesel vehicles have certain advantages over gasoline, they also have some disadvantages. Because diesel fuel is heavier and oilier than gasoline, it can generate more pollution. While diesel engines emit lower amounts of carbon monoxide than gasoline-powered engines, they emit more NOx.

43. Diesel fuel exhaust has been recognized by the World Health Organization to be a carcinogen for humans.[39]

44. Automakers have faced significant challenges in controlling NOx emissions sufficiently to meet environmental standards, particularly with smaller vehicles, and particularly in the United States, which has some of the strictest emission controls in the world. The website of greencongress.com explains the two types of approaches diesel automobile manufacturers have

[39] http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034753

used to deal with NOx emissions:

> Broadly, there have been two catalytic approaches used to reduce exhaust NO_x: urea-based selective catalytic reduction (SCR) and lean NO_x trap (LNT) catalysts.
>
> --The urea-SCR (urea=AdBlue) approach requires on-board storage of the reductant fluid which is introduced into the exhaust upstream of the SCR catalyst. It is then converted to ammonia which interacts with NO_x on the SCR catalyst to form water and nitrogen.
>
> --LNT technology utilizes fuel from the vehicle and advanced engine controls to enable periodic operation of the engine at rich air-to-fuel ratios to produce oxygen-depleted exhaust suitable for reducing NO_x stored on the LNT catalyst surface.[40]

45. The article indicates that Volkswagen had planned to use both technologies as of 2007, but elected to go with the LNT approach (which it referred to as TDI). As explained below, the deciding factor was apparently cost. Because of the extra equipment (including a urea tank) and technology required to clean the NOx emissions from the diesel exhaust, SCRs can add significantly to the cost of producing the engine. They also make diesel cars heavier than they otherwise would be, thus potentially decreasing fuel efficiency, torque and power.

46. Honda, which sells diesel cars in markets other than the United States, never tried to sell them here. That is because, according to Honda's research, "[t]he market would not bear the costs of doing diesel correctly." In order to meet the stringent United States emissions standards, Honda would have had to add costly emissions controls to every diesel model, which would make them more expensive than gasoline-powered competitors. "At such a high premium, customers simply wouldn't buy them."[41]

C. Volkswagen's Decision To Use TDI Technology.

47. Volkswagen has been selling cars in the United States since 1949, when it introduced the iconic Volkswagen Beetle. Although it was for many years the top-selling imported

[40] http://www.greencarcongress.com/2015/09/20150921-vw2l.html.

[41] http://mashable.com/2015/09/27/vw-dieselgate/#2VosDbcL7iqT.

VW FOIA, EPA 06/20/2017 2017-FFP_034754

car in the United States, Japanese imports overtook Volkswagen and other European imports in the 1990s.

48. The decisive factor in the decision to use TDI technology in 2007-08 was the appointment of Winterkorn as CEO of VWAG in January of 2007. Winterkorn was involved in overseeing research and development and had that responsibility at the time he resigned as CEO. In 1995, he took over as the head of Volkswagen Group Product management and a year later, he assumed the role of Member of the Board of Management for "Technical Development" at the Volkswagen brand. He assumed a similar role when he became Chairman of the Board of Management at Audi.[42]

49. Before Winterkorn took over as VWAG's CEO on January in 2007, Volkswagen had partnered with Bosch and Daimler to explore the use of a diesel emissions control system called BlueTec.[43] BlueTec was a technology developed by the latter two companies and championed by Wolfgang Bernhard ("Bernhard"), former head of the Volkswagen brand and a former Daimler executive. BlueTec was an SCR technology; it required the use of a liquid urea tank, so that urea could be sprayed onto the emissions in order to neutralize the NOx. The urea tank not only takes up space and adds weight (disadvantages that are especially acute in the market for small, fuel-efficient cars), but also requires the owner to refill the tank, making the diesel engine more inconvenient than a traditional gasoline-powered car. When Bernhard left the company after Winterkorn took control, the BlueTec technology was scrapped for smaller vehicles. Volkswagen only began using a form of SCR technology on a few of its smaller vehicles in 2012.

50. *Automotive News* describes the sequence of events:

> *Bild am Sonntag* said the roots of the crisis were planted in 2005 when then-VW brand Chief Wolfgang Bernhard wanted VW to

[42] *See* http://www.volkswagenag.com/content/vwcorp/content/en/the_group/senior_management/winterkorn.html.

[43] For the source of this information, *see* http://www.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?_r=0.

VW FOIA, EPA 06/20/2017 2017-FFP_034755

> develop a new diesel engine for the U.S. market. Bernhard recruited Audi engineer Rudolf Krebs who developed a prototype that performed well in tests in South Africa in 2006, the paper said.
>
> Bernhard and Krebs argued that the only way to make the engine meet U.S. emission standards was to employ in the engine system an AdBlue urea solution used on larger diesel models such as the Passat and Touareg, according to the report.
>
> This would have added a cost of 300 euros ($335 in today's U.S. dollars) per vehicle -- a sum that VW finance officials said was too much at a time when a companywide cost-cutting exercise was under way.
>
> Bernhard left VW in January 2007 before the diesel engine went into production. Krebs was moved to another role when Martin Winterkorn became VW Group and brand CEO in 2007.
>
> Winterkorn, Audi's former CEO, asked Audi development boss Ulrich Hackenberg and Audi engine boss Wolfgang Hatz to move to VW's Wolfsburg headquarters and continue development work on the engine, *Bild am Sonntag* said.
>
> The engine then ended up in VW Group diesels with its engine software manipulated to fool diesel emissions tests in the U.S.[44]

Hatz and Hackenberg, as noted above, were two of the executives whom VWAG recently suspended.

51. Engineers at Volkswagen had been looking at an alternative to BlueTec technology, an alternative that ultimately evolved into the TDI "Common Rail" system. In 2006, Richard Dorenkamp, head of Volkswagen's diesel engine development, gave a presentation in Detroit. He described the TDI system Volkswagen engineers developed and how it could be used in small cars and meet increasing US demands for fewer emissions.[45] Volkswagen's TDI Clean Diesel pollution

---

[44] http://www.autonews.com/article/20150927/COPY01/309279989/bosch-warned-vw-about-illegal-software-use-in-diesel-cars-report-says. Winterkorn was generally very concerned about the costs associated with developing eco-friendly automotive engines. As he said at the 2014 Paris auto show, "[c]limate protection is not available free of charge. Every gram of reduction in [tailpipe] C02 costs us 100 million euros. Every gram!" http://blog.caranddriver.com/vws-winterkorn-to-greens-so-get-off-our-backs-already/.

[45] http://www1.eere.energy.gov/vehiclesandfuels/pdfs/deer_2006/session7/2006_deer_dorenkamp.pdf.

control technology differed from the SCR technology used by other manufacturers to control NOx emissions. The greencarcongress.com article cited earlier describes it in detail. Instead of having a urea tank, the TDI Clean Diesel cars technology used a trap to collect NOx. While saving the space, weight and cost required by the urea tank in the SCRs, Volkswagen's TDI Clean Diesel technology--when it was operational--required additional use of fuel, thus degrading both gas mileage and performance. The trap was controlled by a computer module that could save fuel by allowing more pollutants to pass through the exhaust system.

52. In June of 2007, six months after Winterkorn took over as CEO of VWAG, Volkswagen issued a report entitled "Power Train and Fuel Strategy--The Path To The Future."[46] It stated:

> In the first stage on the path to this independence, it will be important to utilize existing fossil fuels as efficiently as technically possible. Volkswagen is putting its stamp on this phase with vehicles such as the BlueMotion models, a universally fuel-efficient fleet of TDI engines, highly efficient and unique TSI engines, successful natural gas vehicles (EcoFuel) and a lineup of models that still leaves room for automotive dreams. Very soon these fundamental technologies will be further refined. **New powertrains, including an engine concept developed for use in the USA, under the working title "BlueTDI", are already in the prototype stage. These engines will fulfill the toughest emissions laws in the world – even the so-called "Tier2 Bin5" in California, one of the most stringent emissions standards in the world**. (Emphases added).[47]

53. Volkswagen had planned to introduce the Jetta TDI Clean Diesel in the United States earlier than it eventually did. In November of 2007, it was reported as follows:

> A problem with the emissions system in Volkswagen's new Jetta

[46] It can be found at http://www.volkswagenag.com/content/vwcorp/info_center/en/themes/2007/06/powertrain_and_fuel_strategy.html.

[47] In 2008, five VWAG engineers published a two-part article in the May and June issues of *MTZ* magazine saying they had resolved the issue of how to best control emissions and could now meet California standards through the use in part of a new on-board diagnostics system. Similarly, Achim Freitag, a testing engineer in Volkswagen's diesel development department, touted the new engine in a speech given later that year. *See* http://www.pbs.org/wgbh/nova/next/tech/volkswagen-diesel-emissions/.

VW FOIA, EPA 06/20/2017 2017-FFP_034757

> TDI will delay the launch of the diesel sedan for about six months. The car is critical to VW's plans to get back on track in the United States.
>
> VW spokesman Keith Price confirmed that the delay will be announced this week at the Los Angeles auto show. Price would not give specifics about the technical problem, but he said it has been fixed.
>
> The technical changes engineers made to solve the problem mean the car must go through emissions testing and validation again, Price said.
>
> VW dealers have been without a new diesel car to sell since last spring. Production of the new model, which will be sold in all 50 states, was scheduled to start in January. The car will be built in Puebla, Mexico.
>
> U.S. sales originally were expected to begin in early spring, Price said. Now sales won't start until later in the summer."
>
> "Sure, they're disappointed," Price said of dealers who have learned of the delay.
>
> Price said there is a lot of pent-up demand from loyal VW diesel buyers for the next- generation Jetta, which has a new engine built in Germany and a new diesel fuel injection system.
>
> "They're disappointed, but they see the point that this car has to be perfect," Price said of the dealers, adding, "They recognize the importance of this not only for their stores, but for the VW brand."
>
> A fleet of about 40 Jetta TDIs is undergoing testing as part of the validation procedure.[48]

54. What apparently happened is that the TDI technology failed initially to withstand United States emissions testing. The decision was made to delay the launch of the vehicle and activate the algorithm that functioned as a defeat device in the software management system. Horn confirmed this scenario orally in testimony given to the Subcommittee of Oversight & Investigations of the Energy & Commerce Committee of the United States House of

[48] http://www.cleanmpg.com/forums/showthread.php?t=7254.

VW FOIA, EPA 06/20/2017 2017-FFP_034758

Representatives on October 8 ("October 8 Hearing").[49] This is consistent with the timing of the letter from Bosch described above that raised the illegality of such a tactic. It is also consistent with recent revelations that appeared in the October 4 issue of *Bild am Sonntag*:

> An internal review at Volkswagen AG shows the decision to install software that reduces diesel emissions in testing was made just before serial production of the company's EA 189 engine [used in many of the Affected Vehicles], German tabloid Bild am Sonntag said.
>
> Bild said the software was first installed in its diesel engines in 2008, shortly before the EA 189 was mass produced. The move was taken because there was no way at the time to reconcile meeting emission standards within the targeted cost of the engine, the tabloid said in an advance release of the article to be published Sunday. Otherwise the company would have had to abandon the introduction of the engine, development of which was begun in 2005, the newspaper said.[50]

55. This was not a course of conduct known to only a select few within Volkswagen. As noted in one article:

> The idea that a small group of relatively junior engineers would have done this on their own is not consistent with how engineers build complex, safety-critical systems.
>
> The basic engine management software was written by component supplier Bosch. The responsibility for configuring the software for the EA189 engine would have involved a substantial, multi-disciplinary team of engineers at Volkswagen, working with engineers at the supplier Bosch.
>
> Before the engines could have gone into production, those engineers and their managers would have reviewed and approved the design and calibration of the engine management systems.
>
> They would have also agreed upon, and employed, a systematic testing schedule. This would have involved testing on an engine-only rig, road testing on private grounds as well as testing on public roads.
>
> The anti-pollution engineers would have been responsible for ensuring that the engine management system was sending

[49] His testimony is on video at http://www.c-span.org/video/?328599-1/hearing-volkswagen-emissions-violations.

[50] http://www.marketwatch.com/story/vw-began-using-emissions-software-in-2008-report-2015-10-04.

VW FOIA, EPA 06/20/2017 2017-FFP_034759

> appropriate commands to their components, and that their hardware was responding appropriately.
>
> This kind of exhaustive testing is one of the reasons why developing new vehicle models costs billions of dollars and takes several years.
>
> One possibility is that a large group of Volkswagen engineers conspired to falsify the written records of of this testing.
>
> An alternative scenario is that accurate written testing records were made, showing that the pollution controls were inoperative in normal driving. These accurate records were reported through normal channels, and the engines went into production anyway.
>
> It is very hard to imagine how either event could have occurred without the influence of senior managers.[51]

Horn virtually conceded as much at the October 8 hearing.

56. The 2009 Model Year TDI Jetta was introduced and passed the Tier 2 Bin 5 emissions test with flying colors. A Reuters article describes its successful launch:

> Volkswagen had heavily marketed what it called "clean diesel" engines starting in 2008 with the 2009-model Jetta TDI. It appeared to have found a sweet spot between high-performance and fuel-efficiency with a zippy, fun-to-drive car that topped 40 miles per gallon in highway driving. Named "Green Car of the Year" at the Los Angeles auto show in 2008, the Jetta TDI was seen as a breakthrough in a country where diesel passenger cars occupy a tiny niche compared with Europe, where they are about half of the market.
>
> "It's not your grandfather's diesel," Krause said in a September 2008 presentation to U.S. regulators, according to a video of the remarks.
>
> [Norbert] Krause [head of VWoA's environmental office until 2009] and other VW officials promised a diesel that would meet pollution laws in all states, including California where diesel engines had long been associated with smog and cancer-causing soot.
>
> By that point, VW and other automakers had lobbied for almost a decade for regulators to give diesel another chance. In 2000, VW and other companies with an interest in promoting diesel, including Mazda, formed the Diesel Technology Forum to lobby for increased use in the United States as a way to reduce reliance on imported oil. In 2005, an energy bill signed by President George

[51] http://theconversation.com/where-were-the-whistleblowers-in-the-volkswagen-emissions-scandal-48249.

> W. Bush offered tax credits for diesel buyers. That gave the first wave of diesel Jetta buyers an income tax credit of $1,300 each.
>
> In 2009, after the new Jetta went on sale, VW dealers initially sold out, including in California where regulations had effectively shut the market to diesels earlier in the decade.[52]

57. As noted in the article, *Green Car Journal* gave it the 2009 Green Car of the Year award and gave the TDI Audi A3 the 2010 Green Car of the Year Award.[53] Those awards have been rescinded in light of the present scandal.[54] The TDI Clean Diesels were a resounding success and VWoA sold many units.[55] As recently as its 2014 sustainability report, VWAG crowed about how "[t]he Volkswagen Group has a long tradition of resolute commitment to environmental protection" and how it intended to "put our creative powers to good use for the benefit of the people and the environment."[56]

58. At conferences and in published papers, Volkswagen extolled the efficiency and low emissions of its Clean Diesel technology.[57] And commentators agreed. One stated that Volkswagen was "the only company to have mastered the new emissions regulations using a compact, inexpensive treatment system. It allowed them to roll out diesel engines in one small car

---

[52] http://uk.reuters.com/article/2015/09/24/uk-usa-volkswagen-deception-insight-idUKKCN0RO2J720150924.

[53] https://en.m.wikipedia.org/wiki/Green_Car_of_the_Year.

[54] http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/.

[55] The chronicle of its United States sales is found here: http://www.ibtimes.com/volkswagen-diesel-scandal-heres-how-bad-volkswagen-sales-were-company-was-caught-2114603.

[56] http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/.

[57] *See, e.g.*, http://www.sae.org/events/gim/presentations/2009/norbertkrause.pdf; http://dls.virginia.gov/GROUPS/transaccount/meetings/092010/CleanDiesel.pdf; http://cleandieseldelivers.com/media/Douglas-Skorupski-VWoA_DTF_March2015.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034761

after another at relatively low prices."[58] Volkswagen's competitors had long wondered how Volkswagen could produce a clean diesel engine at such an affordable price. As Robert Lutz, former vice chairman of General Motors Corporation, recounted: "I kept asking our engineers: 'What's wrong with you guys? VW seems able to do it.' I said, 'Are they magicians or something?' The engineers said they couldn't answer that question."[59] Now, they have their answer. Volkswagen cheated.

59. The competitive advantages of cheating on emissions have now become clear. "Manipulating emissions results allowed Volkswagen to keep down engine costs in a 'clean diesel' strategy that was popular in Europe and at the heart of a drive to improve U.S. results."[60] As an article in the *New York Times* put it, "[d]isabling the emissions controls brought major advantages, including much better mileage--a big selling point in Volkswagen's push to dominate in America."[61] These sales were part of the reason VWAG was able to surpass Toyota as the world's biggest automaker in 2015, as noted above. And they were sales built upon lies.

60. This systemic attitude of winning at all costs in spite of noncompliance with national environmental regulations is part of the corporate culture of Volkswagen, as explained at length in a September 24, 2015 *New York Times* article:[62]

> There is a long tradition of scandal and skulduggery in the auto industry, but few schemes appear as premeditated as Volkswagen's

---

[58] http://www.pbs.org/wgbh/nova/next/tech/volkswagen-diesel-emissions.

[59] http://www.freep.com/story/money/cars/2015/09/26/vw-cheat-emissions-diesel- engine-fallout/72612616/.

[60] http://www.reuters.com/article/2015/09/30/us-volkswagen-emissions-plan-idUSKCN0RT0OL20150930.

[61] http://mobile.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?referer.

[62] http://www.nytimes.com/2015/09/25/business/international/problems-at-volkswagen-start-in-the-boardroom.html?_r=1.

VW FOIA, EPA 06/20/2017 2017-FFP_034762

brazen move to use sophisticated software to circumvent United States emissions standards.

That such a thing could happen at Volkswagen, Germany's largest company and the world's largest automaker by sales — 202.5 billion euros last year — has mystified consumers and regulators around the world. But given Volkswagen's history, culture and corporate structure, the real mystery may be why something like this didn't happen sooner.

"The governance of Volkswagen was a breeding ground for scandal," said Charles M. Elson, professor of finance and director of the John L. Weinberg Center for Corporate Governance at the University of Delaware. "It was an accident waiting to happen." The company, founded by the Nazis before World War II, is governed through an unusual hybrid of family control, government ownership and labor influence. Even by German standards, "Volkswagen stands apart," said Markus Roth, a professor at Philipps-University Marburg and an expert in European corporate governance. "It's been a soap opera ever since it started."

****

I spoke this week to a longtime former senior Volkswagen executive, who agreed that a scandal, especially one involving emissions, was all but inevitable at Volkswagen. He cited the company's isolation, its clannish board and a deep-rooted hostility to environmental regulations among its engineers.

The former executive, who spoke on the condition of anonymity because he now works at a competing global automaker, said that Wolfsburg, where Volkswagen is based in Lower Saxony and the city with the highest per capita income in Germany, is even more remote and isolated than Detroit was in its heyday. "The entire economy is automotive," he said. "People have a completely uncritical view of cars and their impact on the environment because they all make a living from the industry."

****

The Volkswagen board has been especially slow to move on environmental issues, investing less in electric and hybrid engine technology than industry leaders.

"There's an attitude among the German public that it's very unfair for the U.S. to target the auto industry over emissions," Professor Roth said. "If you have electric cars and a coal-fired plant producing the electricity, you gain nothing."

The former Volkswagen executive said Volkswagen's engineer-driven culture takes the notion even further. He said the engineers felt that the politicians were guilty of rank hypocrisy, especially in

> the United States, also grumbling that electric cars make no sense as long as power plants are burning fossil fuels.
>
> "There's an attitude of moral superiority there," he said. "The engineers think they know best."
>
> That Volkswagen is nonetheless obliged to obey applicable environmental laws, he said, is a notion likely to fall on deaf ears in Wolfsburg, especially compared to demands to be No. 1 in sales. (The motive for the software evasion is widely believed to have been to increase sales of diesel-powered cars in the United States.)

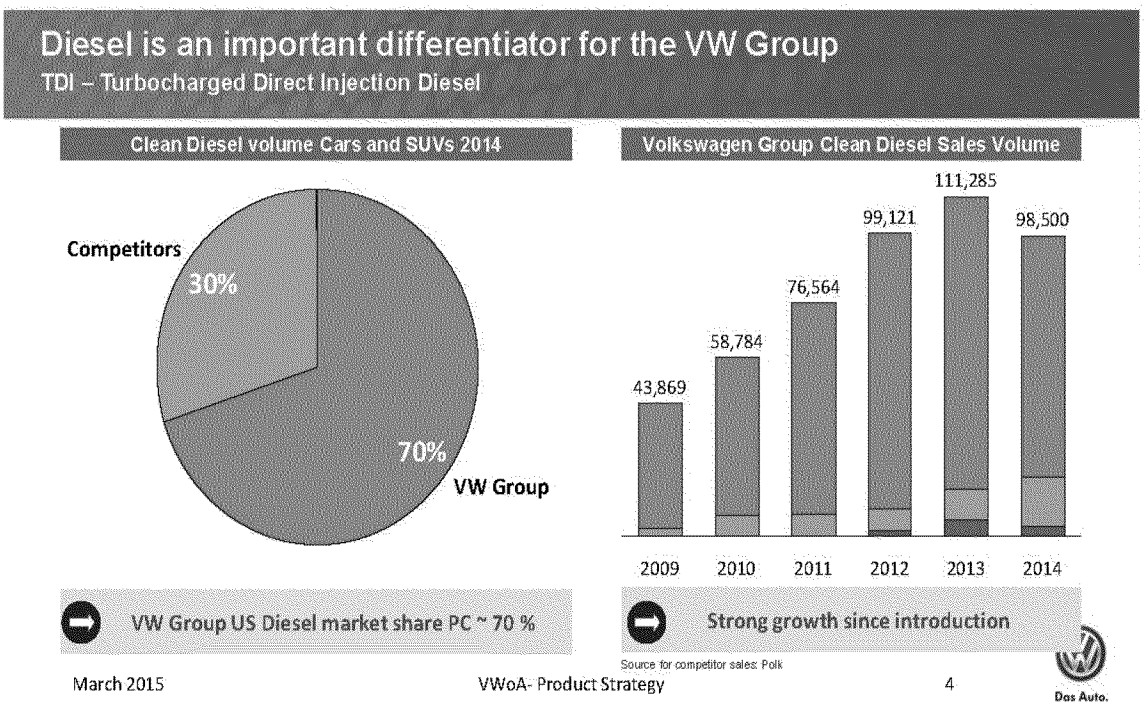
Thus, executives and engineers at Volkswagen were clearly unhappy with United States automotive emissions standards and were all too willing to sacrifice those standards (and their obligations under United States antitrust laws) in order to ensure that their company became the number one automaker in the world. The current scandal involving Volkswagen Clean Diesel TDI vehicles is a direct result of that arrogant intention to flout United States environmental laws. It is also a direct result of what has been described by one German executive as Volkswagen's "uniquely awful" corporate governance.[63]

D. The Clean Diesel Car Market.

61. Volkswagen's illegal conduct in this country occurred in the Clean Diesel passenger car market in the United States (the "Clean Diesel Car Market"), which can be viewed as a market of its own or as a submarket of passenger cars sold in this country. This fact was confirmed in a presentation by Douglas Skorupski ("Skorupski"), Manager of Power Train Strategy for VWoA, given to the Diesel Technology Forum ("DTF") in March of 2015:

[63] http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034764



62. Thus, VWoA clearly views clean diesel cars as a distinct market and Volkswagen's TDI technology as a factor that allowed it to obtain a monopoly share of that market.[64] It distinguished Clean Diesel cars from gasoline/electric hybrid cars based on superior performance:

[64] The presentation can be found at http://cleandieseldelivers.com/media/Douglas-Skorupski-VWoA_DTF_March2015.pdf. Bosch has similarly identified a distinct Clean Diesel car category: http://www.low-carbonfuels.com/pdfs/acte2011presentations/Day1/Breakout1/LightDuty/ACT2011-Breakout1-FreitagAlexPresentation150.pdf. And the EPA has noted that "Clean diesel" refers to a three-part emissions control system that combines cleaner diesel fuel, advanced engines and effective emissions control technology.

"[o]ne way Volkswagen aimed to achieve its lofty goal was by betting on diesel-powered cars — instead of hybrid-electric vehicles like the Toyota Prius--promising high mileage and low emissions without sacrificing performance."[65] Similarly, a survey conducted by Strategic Vision for Volkswagen found that customers of diesel and hybrid vehicles are very different and there is "very little crossover from one to the other."[66] The same article noted that Clean Diesel TDI and hybrid buyers differed demographically; the latter were "were just 51 percent male, 78 percent of them were married, 89 percent had no kids in the household, and their average age was 61", while the former "included far more men than women[,] [f]ewer of them were married, but more of them had children in the house, and they were fully 17 years younger, with an average age of 44." Likewise, a Volkswagen Clean Diesel IQ survey found that diesel car customers are highly aware of the benefits of clean diesel technology in contrast to hybrid and gasoline car customers. Furthermore, 94% of diesel customers will purchase clean diesel cars again while only 26% of hybrid and gasoline car customers will consider clean diesel cars for their next purchase.[67] All of this indicates little cross-elasticity of demand between hybrid vehicles and Clean Diesel vehicles.

63. Indeed, the major European competitors of Volkswagen in the Clean Diesel Car Market belong, along with Volkswagen, to an organization that is devoted to extolling the benefits of Clean Diesel cars.[68]

64. Bloomberg Business noted that consumers are willing to pay a substantial premium

---

[65] http://mobile.nytimes.com/2015/09/27/business/as-vw-pushed-to-be-no-1-ambitions-fueled-a-scandal.html?referer.

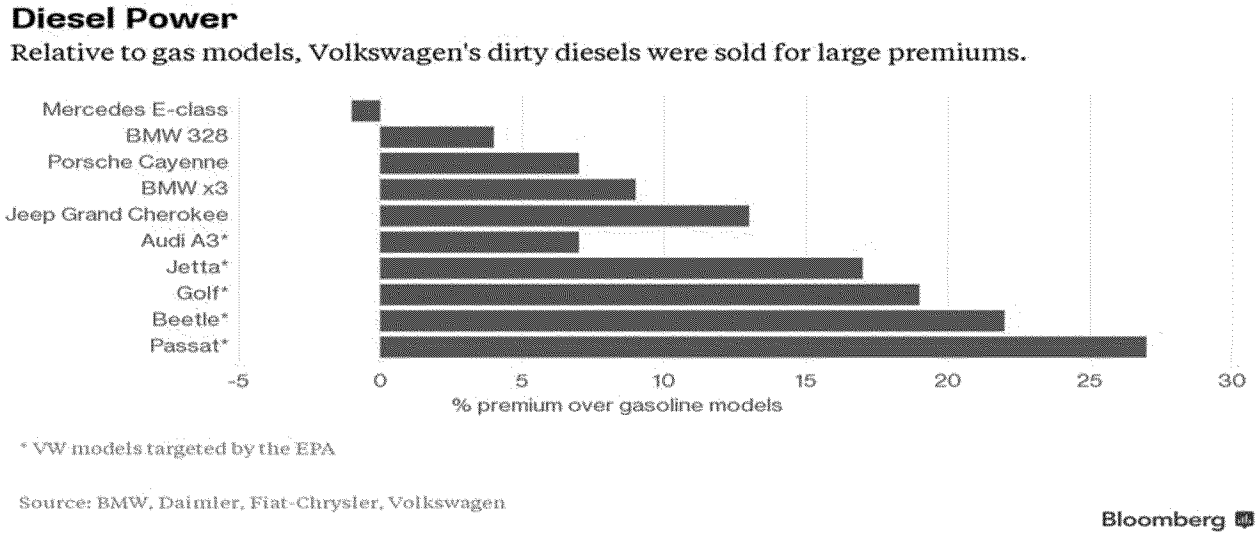
[66] http://www.greencarreports.com/news/1080201_vw-diesel-buyers-hybrid-buyers-both-want-fuel-economy-but-beyond-that.

[67] http://www.autosphere.ca/fleetdigest/2013/04/01/volkswagen-surveys-diesel-drivers/. *See also* http://www.cmu.edu/gdi/docs/diesel-and.pdf (noting many key differences between diesel and hybrid car customers).

[68] http://www.clearlybetterdiesel.org/index.html#cleanDiesel.

VW FOIA, EPA 06/20/2017 2017-FFP_034766

for Clean Diesel vehicles over those of its competitors.[69]



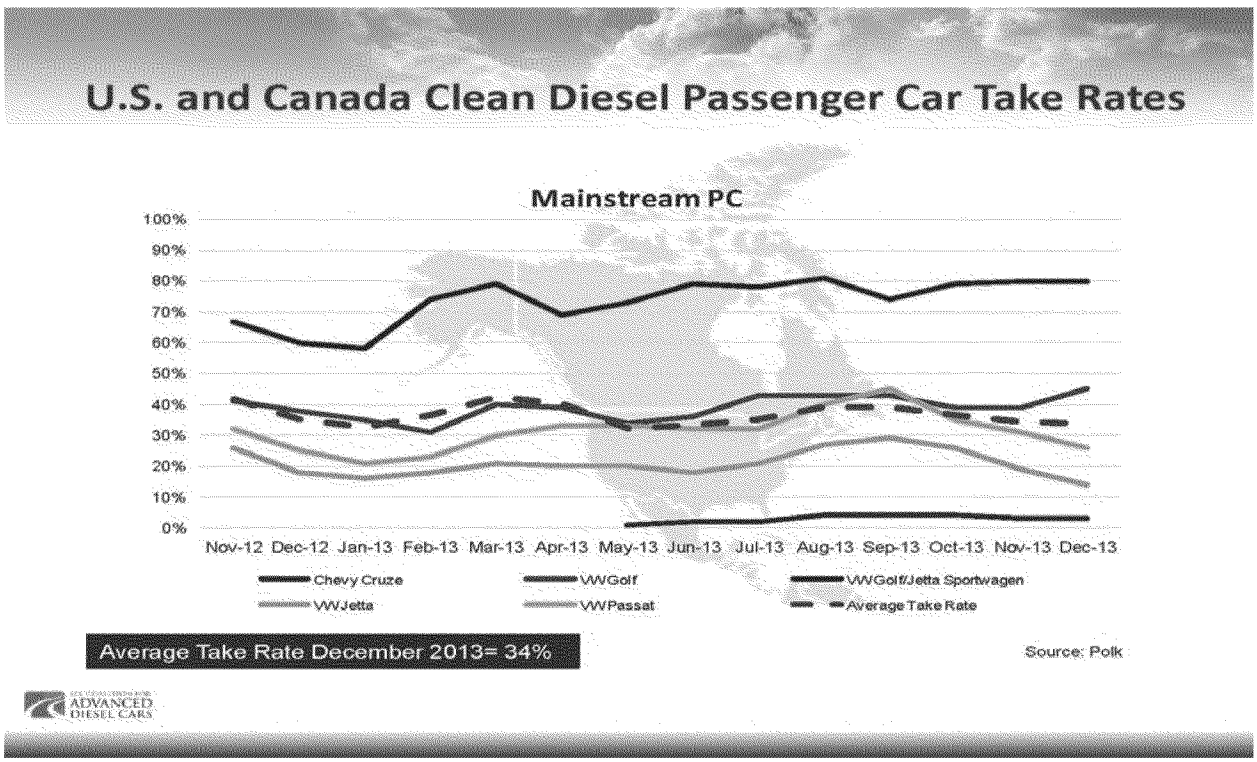
65. As the BloombergBusiness article goes on to explain:

> The math on diesel has never been tidy. The additional mileage is great, but unless one drives a lot, it doesn't really cover the added expense for the engine and for the fuel itself. At current gas prices, the diesel premium on the Passat—some $5,755—would buy enough gas to drive the gas-burning model for about 88,000 miles. **For the majority of diesel drivers, the factor that probably swung the decision was the apparent environmental benefit. The green aspect was the fulcrum**. (Emphases added).

Thus, Volkswagen's false claims about its TDI technology were a driving factor in the premium prices it charged consumers for such technology. As noted above, VWAG has taken full responsibility for the "economic damage" caused by its illegal conduct.

[69] http://www.bloomberg.com/news/articles/2015-09-23/volkswagen-s-other-diesel-ruse-premium-pricing.

66. A chart contained in a presentation made by CMW Research at the March 2015 DTF conference[70] underscores the differences in take rates between Volkswagen Clean Diesel cars and those made by its competitors:



67. The price premium for Clean Diesel vehicles is also reflected in this chart showing the price differentials between gasoline-powered models and Clean Diesel models of Volkswagen's own cars:

Clean Diesel Price Premium				
Mode	**Base**	**Mid-Level**	**Top-Level**	**Average**
VW Jetta	$2,860.00	$1,570.00	$1,030.00	$1,820.00
VW SportWagen	$5,570.00	$1,680.00	$0.00	$2,416.67
VW Golf	$2,400.00	$1,000.00	$1,000.00	$1,466.67
VW Golf	$2,950.00	$1,000.00	$1,000.00	$1,650.00
VW Beetle	$4,635.00	$4,920.00	$0.00	$3,185.00
VW Beetle	$4,080.00	$530.00	$700.00	$1,770.00
VW Passat	$5,755.00	$2,845.00	$2,135.00	$3,578.33

[70] http://cleandieseldelivers.com/media/Take-Rate-Slides-March-2014.pdf.

Audi A3	$2,300.00	$2,300.00	$2,300.00	$2,300.00
Average	$3,818.75	$1,980.63	$1,020.63	$2,273.33

E. Volkswagen's False Advertising.

68. Volkswagen, as part of its plan to increases sales and market share in the United States, increased its emphasis on diesel-powered cars and began marketing these cars heavily to the United States public beginning in 2008. It emphasized the TDI Clean Diesel cars' environment-friendly engine, excellent gas mileage, and high-quality performance. In one advertisement (which, as of this writing, was available on Audi's website after the scandal surfaced and is attached as Exhibit 5 to the Complaint),[71] for example, Volkswagen claimed:

> Getting more from less. Audi pioneered TDI® clean diesel engines to deliver more torque, lower fuel consumption and reduce CO2 emissions, compared to equivalent gasoline engines. The result of this revolutionary engineering delivers remarkable performance, while achieving increased fuel economy.

69. Another advertisement by VWAG for Clean Diesel cars asserts that

> This ain't your daddy's diesel. Stinky, smoky, and sluggish. These old diesel realities no longer apply. Enter TDI Clean diesel. Ultra-low-sulfur fuel, direct injection technology, and extreme efficiency. We've ushered in a new era of diesel.[72]

This internet advertisement is attached as Exhibit 6 to the Complaint.

70. Volkswagen's advertising relentlessly touted the supposed fuel efficiency and environmental features of its Clean Diesel TDI vehicles. In 2009, Volkswagen introduced its "Meet the Volkswagens" campaign, which promoted "fuel efficiency, green credentials, cost of ownership and safety," and compared Volkswagen's diesel passenger cars to its competitors. According to Tim Ellis, Volkswagen's marketing chief, the goal of this advertising campaign was to "grow the brand in the U.S."[73] This campaign, among other things, included social media links

---

71 https://web.archive.org/web/20150928180733/http://www.audiusa.com/technology/efficiency/tdi

72 https://web.archive.org/web/20150330110301/http://www.vw.com/features/clean-diesel/.

73 http://abcnews.go.com/Business/story?id=7493781.

VW FOIA, EPA 06/20/2017 2017-FFP_034769

to a blog (tdi.vw.com/tdi), which focused on Volkswagen's TDI clean diesel model.

71. Between 2011 and 2013, Volkswagen spent more than $2.9 billion annually on advertising world-wide; many of those advertising dollars were directed at the United States public. Volkswagen issued hugely popular videos featuring the Golden Sisters, who purported to debunk the myths about polluting diesel cars.[74] Other videos that were highly successful included a "Truth or Dare" effort started in 2009 that was about "debunking the myths on clean diesel and fueling the passion of existing diesel owners"; a 2009 Audi video that proclaimed "diesel, no longer a dirty word"; and a Passat "being a Mom" video, all of which can be viewed on the *New York* magazine website.[75] Another well-known video showed German engineers of TDI Clean Diesel vehicles earning their "angel's wings."[76]

72. Volkswagen also used point-of-purchase displays at the showrooms of Volkswagen Authorized Dealers such as the one depicted below:

[74] http://blog.caranddriver.com/vws-hilarious-new-tdi-diesel-ads-return-excellent-viral-mileage/.

[75] http://nymag.com/daily/intelligencer/2015/09/vws-clean-diesel-ads-now-make-us-feel-dirty.html.

[76] https://www.youtube.com/watch?v=fwkPEza9FPw.

VW FOIA, EPA 06/20/2017 2017-FFP_034770

73. As VWoA's Mark Barnes put it, the TDI Clean Diesel cars were ''fantastic power train[s]" with "very good fuel economy." Yet "[i]t's also good for the environment because it puts out 25% less greenhouse gas emission than what a gasoline engine would. And thanks to the uniqueness of the TDI motor, it cuts out the particulate emissions by 90% and the emissions of nitrous oxide are cut by 95%. So a very very clean running engine. Clean enough to be certified in all 50 states.''[77]

74. In television and print advertisements and in social media, Volkswagen strived to present its Clean Diesel TDIs as the environmentally-friendly, fuel-efficient, fun-to-drive and reasonably priced passenger car. As noted above, Volkswagen's sham advertising campaign was a success. Unfortunately, all of these accolades were based on a sham perpetrated by Volkswagen for seven years.

F. Volkswagen's Defeat Device.

75. As noted above, Volkswagen's defeat device is described as a "sophisticated software algorithm" that detects when the car is undergoing emissions testing. The algorithm used information about how the car was being steered, how long the engine ran and atmospheric pressure to "precisely track" the conditions that corresponded to a federal emissions test, according to the EPA. During emissions testing, the software "turns on" the car's full emissions control system in order to pass the test. Under normal driving situations, however, these emissions control systems are ***turned off***, allowing the cars to spew as much as 40 times the allowable amount of NOx into the air. As an EPA spokesman noted, the defeat device was "particularly difficult for us to detect."[78] This ruse went undetected for seven years, although as noted above, Bosch and one

[77] http://www.businessinsider.com/volkswagen-preps-for-a-diesel-revolution-2009-10.

[78] http://www.washingtonpost.com/news/wonkblog/wp/2015/09/22/anatomy-of-volkswagons-deception-the-recall-that-never-fixed-any-cars/. A useful timeline of how the scandal came to light is provided on the website of Cars.com: https://www.cars.com/articles/vw-diesel-crisis-timeline-of-events-1420681251993/.

VW FOIA, EPA 06/20/2017 2017-FFP_034771

of VWAG's own engineers complained about it to the company.

76. One technology blog has described Volkswagen's defeat device as follows:

> The method by which Volkswagen diesel cars were able to thwart emissions tests and spew up to 40X the nitrogen oxide levels set by the Environmental Protection Agency was relatively simple. It was more likely no more than a single line of code used to detect when an emissions test was being performed and place the emissions system in an alternate mode — something as simple as a software "on/off" switch. Volkswagen AG CEO Martin Winterkorn, who stepping down as the result of his company's scandal, has said he had no knowledge of the emissions cheat, but software dev/test audit trails are almost certain to pinpoint who embedded the code and who authorized it. You can actually see who asked the developer to write that code," said Nikhil Kaul, a product manager at test/dev software maker SmartBear Software. "Then if you go upstream you can see who that person's boss was...and see if testing happened...and, if testing didn't happen. So you can go from the bottom up to nail everyone."[79]

77. As also noted above, 482,000 vehicles were described as affected, with over 50,000 in the state of California.[80] In testimony at the October 8 Hearing, Horn put the number at approximately 525,000 vehicles.

78. In 2013 and again in 2014, the International Council for Clean Transportation ("ICCT") published studies showing serious discrepancies between laboratory and in-use emissions of certain cars, including VW TDI Diesel cars used in Europe.[81] A decision was made to test American Clean Diesel cars to show that they were success stories; the opposite turned out to be the case. The ICCT, in conjunction with researchers at and West Virginia University's Center for Alternative Fuels, Engines and Emissions ("CAFEE") conducted on-road emissions tests on

---

[79] http://developers.slashdot.org/story/15/09/24/1423225/how-did-volkswagen-cheat-emissions-tests-and-who-authorized-it.

[80] http://www.latimes.com/business/autos/la-fi-hy-california-dmv-vw-diesel-20150921-story.html. This number excludes unregistered vehicles.

[81] http://theicct.org/sites/default/files/publications/ICCT_LabToRoad_20130527.pdf; http://www.theicct.org/sites/default/files/publications/ICCT_LaboratoryToRoad_2014_Report_English.pdf)

three vehicles sold in the United States: a 2013 TDI Passat, a 2012 TDI Jetta, and a BMW X5 SUV. These researchers found that for the Passat and Jetta, emissions were far higher than the emissions generated in the laboratory by CARB. The Jetta exceeded United States NOx emissions standard by 15 to 35 times, and the Passat by five to 20 times. In laboratory testing by CARB, in contrast, these same vehicles complied with United States NOx emissions standards. The CAFEE report is attached as Exhibit 7 to the Complaint. ICCT brought the information to the attention of CARB and the EPA, who commenced their own investigations and contacted Volkswagen. Volkswagen chalked the discrepancies up to "various technical issues and unexpected in-use conditions," but agreed in December of 2014 to recall approximately 500,000 vehicles in order to apply a "software patch."[82]

79. After the remediation, CARB in May of 2015 tested a 2012 TDI Passat on the road and in the laboratory. It found some improvement in in-use NOx emissions, but not enough. An article in the *Philly Voice* describes what happened next.

> On July 8, CARB shared its results with VW, but there was no change in Volkswagen's position. Some officials privately questioned whether Volkswagen was deliberately violating the federal Clean Air Act by installing defeat devices -- software programmed to switch engines to a cleaner mode during official emissions testing, according to a person involved in the process.
>
> During normal driving, the software then shuts off, enabling cars to emit as much as 40 times the legal limit of pollutants.
>
> In early August, Oliver Schmidt, who followed [Norbert] Krause and preceded [Stuart] Johnson in VW's U.S. engineering and environmental office, attended a conference in Traverse City, Michigan and told regulators Volkswagen stood by its conclusions that the problem was technical, people involved said.[83]

80. Then, on August 21, there was a complete reversal. The *Philly Voice* article goes on to describe what happened:

> After more than a year of stonewalling investigators, Volkswagen stunned two senior officials with the U.S. Environmental

[82] http://www.cnbc.com/2015/09/24/.

[83] http://www.phillyvoice.com/year-stonewalling-volkswagen-stunned-regulators/.

VW FOIA, EPA 06/20/2017 2017-FFP_034773

> Protective Agency and California's environmental watchdog by admitting the automaker hacked its own cars to deceive U.S. regulators about how much their diesel engines pollute.
>
> That disclosure on Aug. 21, confirmed by two people with knowledge of the exchange, shows Volkswagen buckled to pressure from environmental regulators almost a month earlier than the scandal was made public. The admission to regulators came after a year during which VW officials insisted to regulators that tests on its diesel cars showing a spike in pollution levels on the road were in error.
>
> ****
>
> At first, regulators were surprised that Volkswagen would make its confession at the conference, held in Pacific Grove, California. Minutes before Christopher Grundler, director of the EPA's transportation and air quality office, was to deliver a 9 a.m. speech to the conference, a Volkswagen representative told him about the deception. At the same meeting, representatives of the California Air Resources Board, a state agency that had been pushing VW hard, were also given a verbal notice of the deception, people with knowledge of the events said.
>
> Volkswagen declined to comment on the sequence of events described to Reuters. It isn't clear which VW representative delivered the news of the deception to Grundler and the CARB. Stuart Johnson, head of VW's engineering and environmental office in the United States, was registered to attend the Aug. 21 conference, which was organized by the University of California, Davis. Johnson, who still works for VW in Auburn Hills, Michigan, did not respond immediately to a request for comment.

81. On September 3, Volkswagen officials further laid out the use of the defeat device to regulatory representatives.[84]

82. Volkswagen was faced with the threat that the EPA it would not certify any of its 2016 models for sale in the United States until the questions surrounding the emissions discrepancies were answered. Volkswagen admitted that it relied upon a "second calibration" in the vehicles that was intended to run only during certification testing. This second calibration was triggered when a highly sophisticated software algorithm determined – after measuring factors like the position of the steering wheel, the vehicle's speed, pedal movement, and even barometric

[84] http://docs.house.gov/meetings/IF/IF02/20151008/104046/HHRG-114-IF02-Wstate-HornM-20151008.pdf.

pressure – that the car was being tested. Then it would configure the engine to reduce emissions of NOx. As David Clegern of CARB explained, "[w]e met with VW on several occasions and they continued to dispute our data, so we'd return to the lab. Over time, VW had no other explanations left, and it was our lab staff who actually got VW to admit that there was, in fact, a defeat device."[85] As another CARB spokesperson told the *Washington Post*, "[t]hey basically ran out of excuses."[86]

83. The scandal surfaced on September 18, 2015, when CARB and the EPA announced that VWAG, Audi and VWoA had illegally installed emissions testing "defeat devices" in the aforementioned vehicles. *See* Exhibits 1 and 2. The EPA found violations of 42 U.S.C. §§7522(a), 7522(a)(1) and 7522(a)(3)(B), as well as 40 C.F.R. §§86.1854-12(a)(3)(ii) and 86.1854-12(a). The EPA identified the following affected vehicles:

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGAV02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

84. As noted above, Horn of VWoA admitted that Volkswagen was dishonest with both

[85] http://www.foxnews.com/leisure/2015/09/22/for-7-years-vw-software-thwarted-pollution-regulations/.

[86] http://www.washingtonpost.com/news/wonkblog/wp/2015/09/22/anatomy-of-volkswagonsdeception-the-recall-that-never-fixed-any-cars/.

VW FOIA, EPA 06/20/2017 2017-FFP_034775

customers and regulators and Huber of VWAG called the matter a "moral and political disaster."

85. Volkswagen has ordered its dealers to cease selling the Affected Vehicles[87] and has set aside a minimum of 6.5 billion Euros ($7.2 billion) to deal with the fallout from this catastrophe, which it now concedes involved 11 million vehicles worldwide. An internal memorandum issued on September 22 details this:

Wolfsburg, 22 September 2015

Volkswagen AG has issued the following information:

Volkswagen is working at full speed to clarify irregularities concerning a particular software used in diesel engines. New vehicles from the Volkswagen Group with EU 6 diesel engines currently available in the European Union comply with legal requirements and environmental standards. The software in question does not affect handling, consumption or emissions. This gives clarity to customers and dealers.

Further internal investigations conducted to date have established that the relevant engine management software is also installed in other Volkswagen Group vehicles with diesel engines. For the majority of these engines the software does not have any effect.

Discrepancies relate to vehicles with Type EA 189 engines, involving some eleven million vehicles worldwide. A noticeable deviation between bench test results and actual road use was established solely for this type of engine. Volkswagen is working intensely to eliminate these deviations through technical measures. The company is therefore in contact with the relevant authorities and the German Federal Motor Transport Authority (KBA – Kraftfahrtbundesamt).

To cover the necessary service measures and other efforts to win back the trust of our customers, Volkswagen plans to set aside a provision of some 6.5 billion EUR recognized in the profit and loss statement in the third quarter of the current fiscal year. Due to the ongoing investigations the amounts estimated may be subject to revaluation.
Earnings targets for the Group for 2015 will be adjusted accordingly.

Volkswagen does not tolerate any kind of violation of laws whatsoever. It is and remains the top priority of the Board of Management to win back lost trust and to avert damage to our customers. The Group will inform the public on the further progress of the investigations constantly and transparently.

86. Volkswagen has indicated it will initiate a recall and remediation of the Affected Vehicles, but there is no "fix" that can be achieved that would not result in lesser mileage per gallon or degraded performance, two of the key attributes on which TDI Clean Diesel cars were

[87] *See* http://pics3.tdiclub.com/data/3209/stop-sale-note3.pdf.

VW FOIA, EPA 06/20/2017 2017-FFP_034776

sold.

> Experts Reuters spoke to indicate that two potential fixes could be needed for the two types of emissions control systems featured on 482,000 cars in the U.S., complicating the recall and refit process. Some experts opined that just a software solution could make the affected vehicles compliant with EPA regulations, reducing the performance characteristics of the engines in the process, while others suspect that a hardware solution may be needed for older vehicles without the urea injection system.
>
> A couple of experts warned that the potential solution could involve significantly increased consumption of urea, necessitating fill-ups at more frequent intervals such as every 5,000 miles, in addition to reducing the performance of the engines.[88]

The same point was made by the West Virginia AG in a complaint filed on October 2 against Volkswagen for civil penalties. It is attached as Exhibit 8.[89] In that complaint, the West Virginia AG notes that "Volkswagen will not be able to comply with the EPA [recall] order to make the Affected Vehicles comply with emissions standards without substantially degrading their performance and fuel efficiency to a level below that advertised by Volkswagen, and below that experienced by consumers prior to, or when they purchased their vehicles." Thus, there is no valid "cure" for Volkswagen's conduct.

87. At the October 8 Hearing, Horn testified that the "software solution" might apply to only 95,000 vehicles. Another 430,000 would have to be retrofiired with new hardware, a pricess that could take at least one to two years. Horn also indicated that Volkswagen would not seek certification by environental regulators of its 2016 Model Year diesel cars, due to nondisclosure of an "auxiliary emissions control device."[90]

88. Nor can any recall cure the tarnished reputation of Volkswagen's TDI Clean Diesel

---

[88] http://autoweek.com/article/car-news/vw-diesel-emissions-fix-may-require-2-solutions.

[89] The AG of Texas has also sued Volkswagen. https://www.texasattorneygeneral.gov/files/epress/01_Plaintiffs_Original_Petition_10.8.15.pdf.

[90] http://www.nytimes.com/2015/10/09/business/international/vw-diesel-emissions-scandal-congressional-hearing.html?_r=0.

vehicles and the substantial diminution of their resale value. The Kelley Bluebook has reported that prices for used Volkswagen diesel cars have declined by 21% in the last few weeks, reflecting the aftermath of Dieselgate.[91] Thus, customers not only overpaid when they bought the Affected Vehicles, but have suffered a significant diminution of the resale value of their vehicles. Indeed, a survey of 460 fleet buyers in the United Kingdom revealed that 49% of them were reconsidering their contracts with Volkswagen in the aftermath of the Dieselgate revelations.[92]

89. As noted above, the Executive Committee of the Board that accepted his retirement said that it "recognizes the economic damage caused" as well as the "loss of trust" among customers. No recall and supposed remediation can correct that.

90. A survey of vehicle owners conducted by AutoPacific[93] further reveals consumer disgust with Volkswagen. Only one in four have a positive opinion of Volkswagen, compared to three in four before the scandal. The corresponding figures for Audi were 29%, as opposed to 69%. Sixty-four percent of the survey respondents say they do not trust Volkswagen.

91. Steven Kalafer, a Volkswagen dealer, summed up the public thinking:

> "This fraud makes Madoff look like the minor leagues," Kalafer said from his dealership in Flemington, New Jersey. "It is the biggest fraud I have ever seen in all of business. Over $300 billion of these products have been sold in Europe, $15 billion [in] the United States. That dwarfs Ponzi and Madoff combined."
>
> ****
>
> "Customers are upset. They are upset that the brand they invested in, the brand they counted on, failed them," he said.
>
> ****
>
> "In all of the years that I have been in business, all of the frauds

[91] http://www.latimes.com/business/autos/la-fi-hy-auto-sales-20151001-story.html.

[92] http://www.dailymail.co.uk/money/news/article-3258793/VW-scandal-deepens-revealed-half-company-car-buyers-ditch-embattled-firm.html.

[93] http://www.autopacific.com/news-app/story.248/title.volkswagen-s-reputation-takes-big-hit-with-vehicle-owners-autopacific-predicts-tough-road-ahead.

VW FOIA, EPA 06/20/2017 2017-FFP_034778

that I have seen, this one just takes the cake," he said.[94]

92. But the illegal conduct by Volkswagen has not just resulted in economic damage and loss of consumer trust. It has caused **the death of dozens of people in the United States over the last seven years and degraded the health of many more**. On October 3, Associated Press ("AP") laid out the facts.[95] AP calculated exhaust pollution year by year, starting with the ten to 40 times emissions level estimate by the EPA and then factored in mileage and car number totals from the Kelley Blue Book. It came up with a range of NOx pollution caused by the Affected Vehicles and then took it to scientists who modeled mortality rates, which were confirmed by a dozen experts in emissions, risk and public health, none of whom were environmental advocates or representatives of automobile manufacturers. The results are depicted in the chart that follows.

//

//

//

//

//

//

//

//

//

//

//

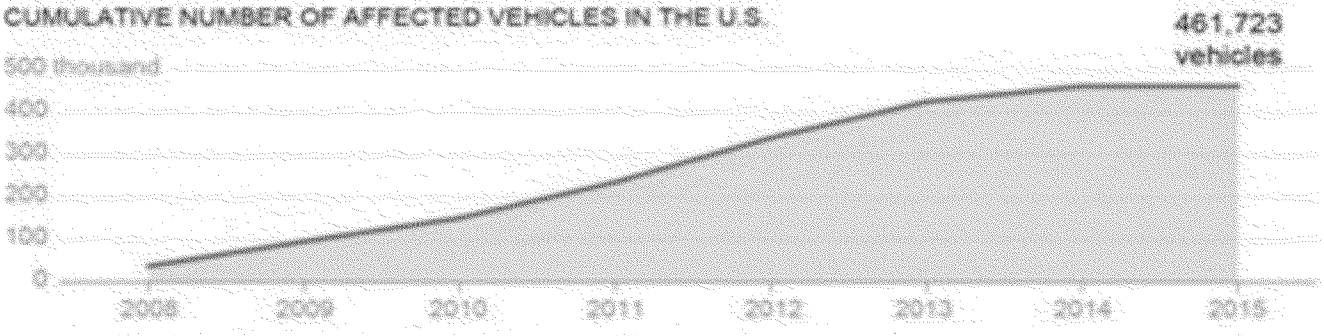
[94] http://www.cnbc.com/2015/10/07/vw-dealers-customers-feel-betrayed-by-emissions-cheating-scandal.html.

[95] http://bigstory.ap.org/article/a6925f0af82e44aaa1a1ed4b55d030f6/ap-analysis-dozens-deaths-likely-vw-pollution-dodge.

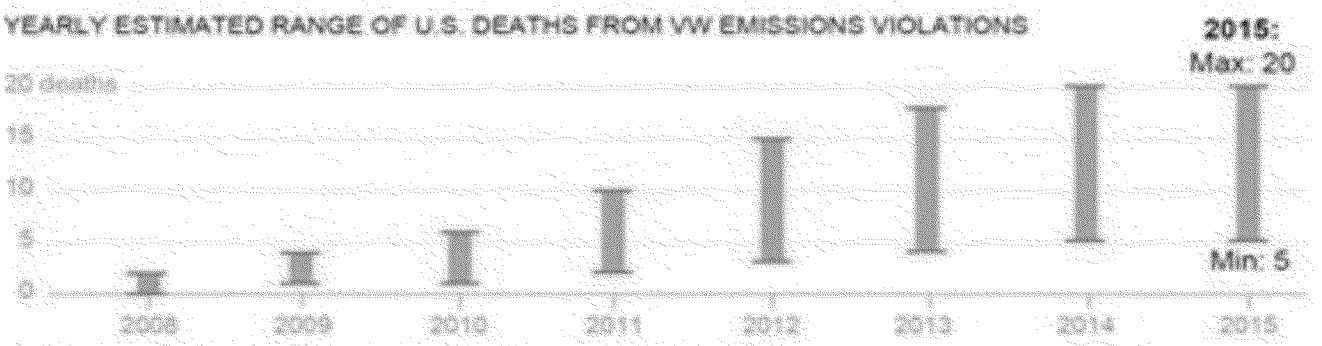
Calculating human toll of VW emissions problems

U.S. pollution resulting from Volkswagen's dodging of emissions tests is enough to have caused dozens of deaths since 2008. An AP analysis calculated upper and lower limits of pollution using the number of affected vehicles each year and average mileage. Scientists used that data in epidemiological computer models to estimate a range of deaths.

CUMULATIVE NUMBER OF AFFECTED VEHICLES IN THE U.S.

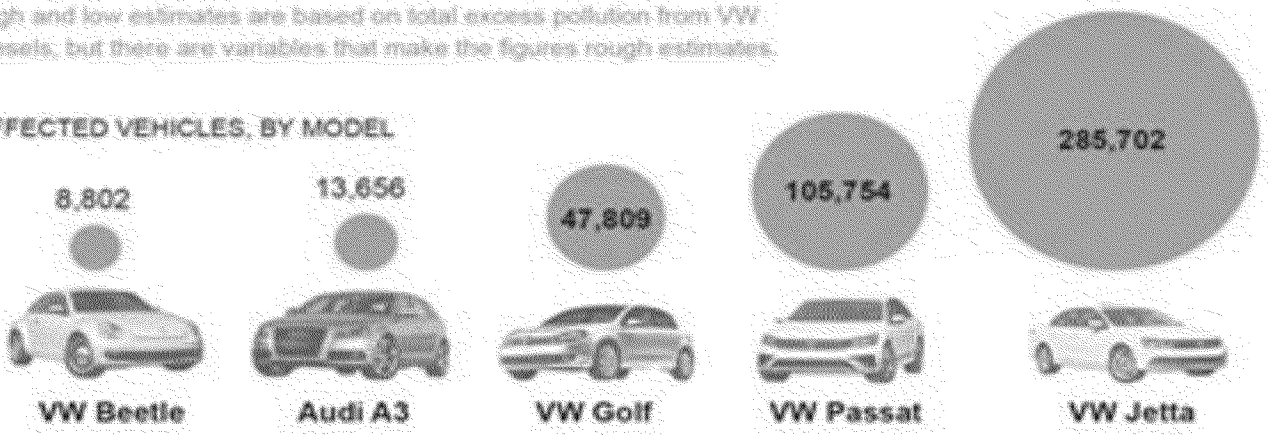


YEARLY ESTIMATED RANGE OF U.S. DEATHS FROM VW EMISSIONS VIOLATIONS



High and low estimates are based on total excess pollution from VW diesels, but there are variables that make the figures rough estimates.

AFFECTED VEHICLES, BY MODEL



NOTE: The total of 47,809 for VW Golf includes 3,530 VW Golf Sportswagen vehicles. The total figure of 461,723 is derived from Kelley Blue Book vehicle registration data. The Environmental Protection Agency estimates the total number of affected vehicles in the U.S. to be about 482,000.

SOURCES: AP analysis of data from the U.S. Environmental Protection Agency and Kelley Blue Book; Professor Peter Adams, Carnegie Mellon; Volkswagen; Audi AP

93. As the AP article notes, the Affected Vehicles spewed enough NOx over the course of seven years to significantly degrade the environment in urban areas. Eric Schneiderman, the New York AG has said that "[t]he stakes could not be higher for the health and safety of our communities who, if Volkswagen's own admissions are true, have for years been breathing air containing excess pollution from their vehicles."[96] Harris County Texas (where the City of Houston is located) has already sued Volkswagen for $100 million in harm to air quality.[97]

94. As noted in the *Minneapolis Star-Tribune* in a follow-up piece on the AP story:

> Computer software allowed VW diesel cars to spew between 10 to 40 times more nitrogen oxides (NOx) than allowed by regulation, making this "clearly a concern for air quality and public health," said Janet McCabe, acting air quality chief for the U.S. Environmental Protection Agency.
>
> Nitrogen oxides mostly form smog — that murky, dirty air that makes it hard to see and for some people to breathe — but also amplify a deadlier, larger problem: tiny particles of soot. Numerous medical studies show those tiny particles cause about 50,000 deaths a year in the United States, mostly from heart problems.
>
> Nitrogen oxides can travel hundreds of miles, so pollution spewed in Pittsburgh can be felt on the East Coast, [Carnegie Mellon environmental engineer Professor Peter] Adams said.
>
> Experts calculate how much pollution costs society by looking at the value of lost lives. In this case, Adams and other said the lost lives — valued at $8.6 million apiece — overwhelm other costs such as lost work days or hospital costs. The overall annual cost of the extra pollutants from the VW diesels ranged from $40 million to $170 million, environmental engineering professors calculated. "Even the small increase in NOx from VW diesel emissions is likely to have worsened pollution along the roadways where they have traveled, and affected the lives of hundreds of thousands of people," said Dan Greenbaum, president of the Health Effects Institute in Boston.

---

[96] http://mobile.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html?_r=0&referer=https://www.google.com/.

[97] http://www.wsj.com/articles/u-s-justice-department-conducts-criminal-probe-of-volkswagen-sources-say-1442869059.

> "To say millions of people of people are breathing poor air as the result of that is not off the mark," said Greenbaum, who runs the institute that is funded by both the EPA and the auto industry to serve as an independent arbiter of the science.[98]

95. The revelation of the scandal has led to numerous consequences in the United States. The DOJ is conducting a criminal probe of Volkswagen.[99] AGs in 30 states have initiated their own investigation.[100] A Texas judge has issued a temporary restraining order preventing the Affected Vehicles from being sold within the state. *See* Exhibit 9 to the Complaint. The Subcommittee of Oversight & Investigations of the Energy & Commerce Committee of the United States House of Representatives has initiated an investigation and sent letters to Volkswagen and the EPA.[101] The Federal Trade Commission launched an investigation after Senator Bill Nelson (D-Fl) urged the agency to look into Volkswagen's marketing of supposedly "clean diesel" vehicles.[102] Leaders of the Senate Finance Committee are also calling for VW to repay over $200 million worth of clean energy tax-credits buyers received as an incentive to purchase clean vehicles.[103] Fred Upton, the chairman of the full committee, has stated that "[t]he very notion of a carmaker intentionally violating our environmental laws is beyond belief….[R]eports of Volkswagen selling cars with devices aimed at skirting the law cannot, and will not be tolerated.

---

[98] http://www.startribune.com/ap-analysis-dozens-of-deaths-likely-from-vw-pollution-dodge/330512421/.

[99] http://www.wsj.com/articles/u-s-justice-department-conducts-criminal-probe-of-volkswagen-sources-say-1442869059.

[100] http://www.law360.com/articles/707229/volkswagen-faces-multistate-probe-over-emissions-fraud.

[101] http://energycommerce.house.gov/press-release/committee-leaders-request-documents-volkswagen-investigation-continues.

[102] http://adage.com/article/cmo-strategy/ftc-joins-vw-emissions-probe/300916/

[103] http://www.law360.com/articles/714146/sens-demand-vw-return-200m-in-tax-credits

Attempting to deceive regulators and customers is a double whammy of betrayal."[104] Over 200 private lawsuits have been filed, many of them class actions. Among those class actions, most involve class claims for individual statewide classes, as opposed to federal claims for nationwide classes.

96. Outside the United States, several countries are investigating Volkswagen's conduct.[105] Switzerland has banned the sale within its borders of certain Volkswagen TDI Diesel cars sold in Europe.[106] German prosecutors have raided VWAG's headquarters in Wolfsburg.[107] Prosecutors in Paris have launched an investigation for suspected "aggravated" deception of affected vehicles sold in France; French Environment Minister Segolene Royal called Volkswagen's conduct "a form of theft from the taxpayer and the state."[108] The Italian antitrust authority has also commenced an investigation, saying "Volkswagen's claims about emissions and certifications in advertising campaigns and information brochures distributed by dealers might have induced consumers to make an error in their choice."[109]

97. As noted above, Volkswagen has set aside $7.2 billion to deal with the costs of the scandal. That will not be nearly enough. James E. Tierney, a former AG in Maine, has been quoted as saying that the costs to Volkswagen might be "'incalculable,' with each false

---

[104] http://energycommerce.house.gov/press-release/suboversight-schedules-volkswagen-hearing-october-8.

[105] https://en.m.wikipedia.org/wiki/Volkswagen_emissions_violations.

[106] http://www.theguardian.com/business/2015/sep/26/volkswagen-emissions-scandal-switzerland-bans-sale-of-some-models.

[107] http://www.timesfreepress.com/news/business/aroundregion/story/2015/oct/08/breaking-german-prosecutors-conduct-search-raids-vw-emissions-probe/329409/.

[108] http://www.dailymail.co.uk/news/article-3257720/Paris-prosecutors-latest-launch-investigation-potential-fraud-Volkswagen-emissions-cheating-scam.html.

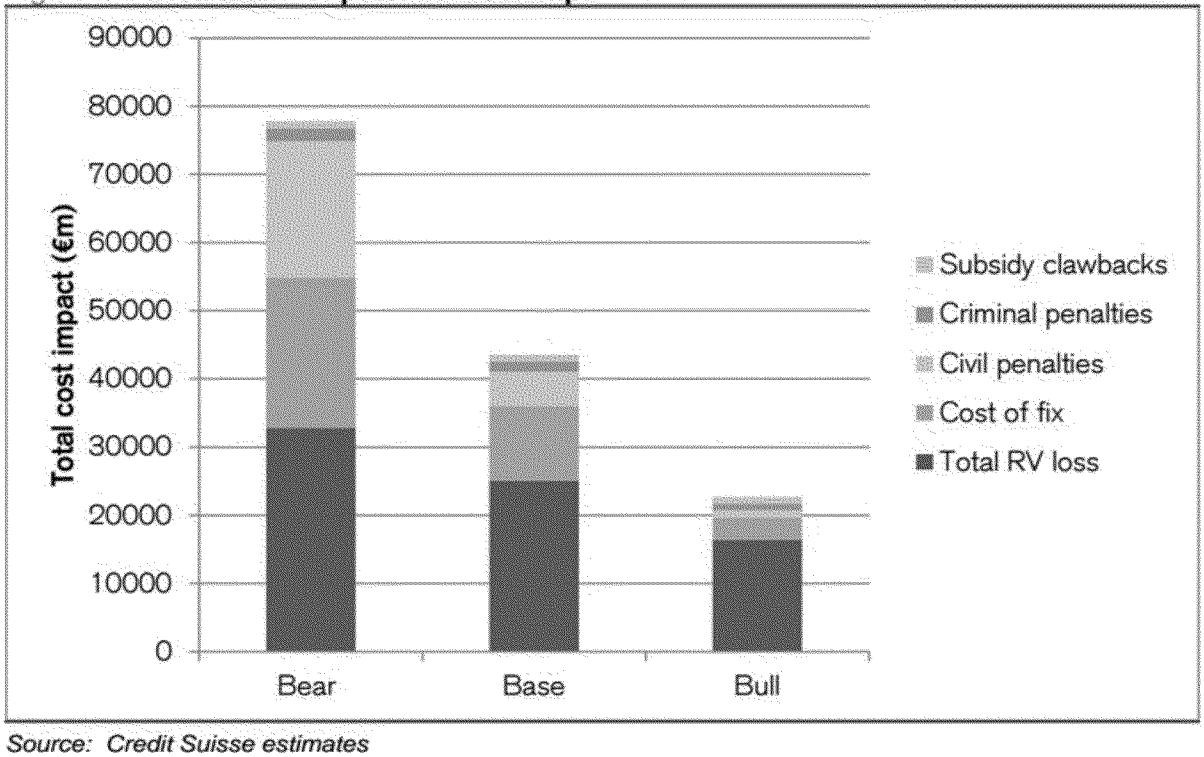
[109] http://www.morningstar.com/news/dow-jones/TDJNDN_201510023140/italy-antitrust-body-opens-case-against-volkswagen-over-emissions.html.

VW FOIA, EPA 06/20/2017 2017-FFP_034783

advertisement to consumers, for example, carrying a potential penalty. 'This product was designed to operate illegally, and that is very serious.'"[110]

98. Nonetheless, some attempts at calculation have been made. On October 2, Credit Suisse disseminated an analysis showing Volkswagen's anticipated costs in a "bull" scenario (where events turned out favorably to it), a "base" scenario, and a "bear" scenario (where events turned out unfavorably).[111] The "bull" scenario was $25.6 billion in costs, while the "bear" scenario was $87.1 billion. The analysis is summarized in the following chart:

Figure 17: **Breakdown of potential cost impact for VW**



Source: Credit Suisse estimates

Societe Generale has also presented dire predictions.[112] Volkswagen itself has since conceded that

[110] http://mobile.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html?_r=0&referer=https://www.google.com/.

[111] http://www.businessinsider.com/credit-suisse-volkswagen-shares-could-fall-another-20-2015-10?r=UK&IR=T.

[112] http://www.cbsnews.com/news/emissions-scandal-could-cost-volkswagen-more-than-35-billion/.

VW FOIA, EPA 06/20/2017 2017-FFP_034784

the cost of Dieselgate will be far more than it initially anticipated.[113] As can be seen, costs associated with criminal and civil penalties make up a significant portion of the differing amounts. Credit Suisse also predicts that Volkswagen's stock may decline another 20%.

VI. PLAINTIFF'S STANDING

99. CAS is a non-profit, Section 501(c)(3) organization whose aim is to provide consumers a voice for auto safety and quality. As such, CAS has standing to bring the present action on its own and on behalf of its members.

ASSOCIATIONAL STANDING

100. CAS's membership consists of approximately 15,000 individuals, including at least 200 in the District of Columbia, 450 in Massachusetts, 1500 in California, and 300 in Michigan. CAS members pay for the benefits of membership, which includes receiving a copy of CAS's annual *Car Book*. The *Car Book* makes recommendations on the best vehicles based on CAS's research of various factors, including fuel economy. CAS members rely on the information CAS gathers to make purchasing decisions when buying a new or used vehicle. In 2013 CAS rated the AUDI A4 as one if it's overall "Best Bets," a rating that would not have been given had CAS known of Defendants' fraudulent reporting of the vehicle's fuel economy. In 2015 it recommended the Volkswagen Jetta. CAS members relied on CAS's recommendations in deciding which vehicle to buy. Had CAS known the true nature of Affected Vehicles' efficiency performance, CAS would not have rated them highly and its members would not have purchased the vehicles.

---

[113] http://www.techtimes.com/articles/92854/20151009/volkswagen-emissions-cheating-scandal-costs-five-times-more-than-expected-ceo-warns-employees-of-cutbacks.htm,

VW FOIA, EPA 06/20/2017 2017-FFP_034785

101. Many of CAS's members would have standing in their own right to bring an action in this case. CAS has identified members who purchased Volkswagen's Clean Diesel vehicles. Any member who purchased an Affected Vehicle has suffered a concrete and particularized injury by purchasing or leasing a vehicle that they would not otherwise have purchased or leased; paying more for vehicles than they would have otherwise paid if they had known the true facts concerning the defeat devices; and purchasing vehicles, the value of which has been severely diminished, thus reducing their residual and/or resale value.

102. Defendants' illegal conduct has injured all members of CAS, regardless of whether or not they purchased an Affected Vehicle, due to Volkswagen's fraudulent scheme to deceive consumers as to the non-compliance of its vehicles to applicable emissions standards, and Volkswagen's pollution of the environment by selling vehicles which emitted NOx gasses in levels ten to forty times permitted by the EPA. These injuries are a direct result of Volkswagen's fraudulent activities.

103. CAS's member's injuries will be redressed by a successful result in this matter through declaratory and injunctive relief because such relief will effectively abate Volkswagen's illegal conduct and will prevent recurrence. Specifically—relief in this matter will eliminate Volkswagen's fraud, bring Affected Vehicles into compliance with emissions standards, and thereby reduce air pollution from the 525,000 Affected Vehicles.

104. The interest CAS is seeking protect in this case is germane to its purpose as an organization. CAS aims to lower vehicle emissions and promote fuel efficiency. CAS's Safe Climate Campaign aims to "slash auto emissions" and "hold polluters . . . accountable." In pursuing this case, CAS is working directly within its mission to reduce fuel emissions and educate the public about energy efficient vehicle choices. A successful outcome in this case will deter

VW FOIA, EPA 06/20/2017 2017-FFP_034786

future vehicle manufacturers from fraudulently manipulating their vehicles' emissions performance.

105. CAS's claims do not require the individual participation of each of its members to obtain the relief that it seeks. CAS only seeks injunctive and/or declaratory relief, not damages on behalf of members. Defendants violated and continue to violate various state and federal laws by fraudulently misrepresenting the Affected Vehicles' emissions, environmental standards, fuel efficiency, and performance. These practices affected all CAS members. CAS can establish the illegality of Defendants' practices through evidence of Defendants' conduct that is common to all members.

ORGANIZATIONAL STANDING

106. CAS also has standing to bring these claims on its own behalf because Defendants' conduct has caused a diversion of its resources and has frustrated its mission. Each year, CAS spends considerable time and financial resources researching and compiling reports on the country's best vehicles, working with automakers and governments to improve the efficiency of motor vehicles and the standards that govern them, and advising members on purchasing decisions. Relying on Volkswagen's misrepresentations, CAS gave the Affected Vehicles high ratings and recommended that its members purchase those vehicles. As a result of Defendants' unlawful activities, CAS will have to divert its financial and staff resources from its planned activities.

107. CAS will have to modify its vehicle ratings system to ensure that vehicles are not circumventing emissions testing procedures to obtain better fuel economy ratings. CAS will have to redirect staff time and financial resources to new mechanisms of vehicle rating for its annual *Car Book*.

108. Through its "Safe Climate Campaign", CAS spent time and resources working to

VW FOIA, EPA 06/20/2017 2017-FFP_034787

increase emissions standards that Defendants' violated. As a result of Defendants' fraud, CAS will now have to divert its time and resources to detect possible future fraudulent actions to subvert emissions standards. CAS will have to divert resources and staff time from current programs to help members of Congress conduct oversight investigations, to develop policy solutions to solve the VW problems, and prevent future frauds. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

109. As a result of defendants' fraud, hundreds of thousands of vehicles have been polluting the atmosphere by circumventing emissions standards. This pollution has undermined CAS's activities to reduce overall air emissions. CAS must work even harder, and devote additional time and resources to its emissions reduction campaigns to reduce overall air emissions as a means of compensating for the excess pollutants the Affected Vehicles continue to spew into the atmosphere.

110. In the absence of Volkswagen's misrepresentations about their vehicles' environmental impact, fuel efficiency, and performance, CAS would not have suffered these injuries.

CAUSES OF ACTION

FIRST CLAIM

Fraudulent Business Acts and Practices in Violation of California Business & Professions Code §§ 17200, *et seq.*

111. Plaintiff incorporates by reference each preceding and succeeding paragraph.

112. Plaintiff brings this cause of action individually and on behalf of its members.

113. California Business and Professions Code §§ 17200, *et seq.* prohibits acts of unfair competition, which mean and include any "fraudulent . . . business practices."

VW FOIA, EPA 06/20/2017 2017-FFP_034788

114. As more fully described above, Defendants' acts and practices with respect to the fuel efficiency, and performance of Affected Vehicles have a tendency to deceive, and have deceived, Plaintiff and its members, thus constituting a fraudulent business act or practice.

115. Defendants acted fraudulently for the purpose of section 17200 by misrepresenting and omitting truths regarding the Affected Vehicles' eco-friendly nature, fuel efficiency, and performance in their advertising, public statements, and marketing. These fraudulent statements were a material factor in inducing CAS members to purchase Affected Vehicles. CAS members suffered injury in fact and lost money and/or property as a result of Volkswagen's unlawful business acts and practices. CAS's members suffered harm when each member was required to pay a purchase price for their Affected Vehicles which they never would have purchased if the true facts were known, or paid a price in excess of what they would have paid had Volkswagen accurately disclosed the Affected Vehicles' characteristics. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and will result in lower resale value. CAS members suffered injury in fact as a result.

116. Defendants' fraudulent statements were a material factor in inducing CAS's ratings and recommendations for Affected Vehicles, and in pursuing particular activities in furtherance of its mission and policy goals. Defendants' fraud caused CAS to inaccurately rate and report on Affected Vehicles. CAS would have used staff time and financial resources differently had Volkswagen accurately disclosed the Affected Vehicles' characteristics. As a result of Defendants' fraud, CAS will now have to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging

VW FOIA, EPA 06/20/2017 2017-FFP_034789

consumers to switch to clean cars and to make other clean transportation choices.

117. Defendants either knew, recklessly disregarded, or should have known that Volkswagen's statements were false, misleading, untrue, deceptive, or likely to deceive or mislead the public, Plaintiff and its members.

118. Plaintiff and its members relied upon Defendants' material omissions, nondisclosures and representations to their detriment.

119. Plaintiff's members have suffered injury in fact and have lost money as a result of defendants' unfair competition and violations of law in that they purchased vehicles for prices that were grossly inflated; they would not have purchased these vehicles had they known the true efficiency and nature of the Affected Vehicles; and they would not have been exposed to pollutants from the Affected Vehicles. Defendants' conduct has caused CAS injury in fact, a diversion of resources, and frustration of its mission. Had plaintiff known the true facts plaintiff would not have rated the Affected Vehicles highly, and would have used its staff time and resources differently with respect to its mission and purpose. Plaintiff is therefore entitled to the relief available under Business and Professions Code §§ 17200, *et seq*., as detailed herein.

SECOND CLAIM
Unlawful Business Acts and Practices in Violation of California Business & Professions Code §§ 17200, *et seq*.

120. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

121. Plaintiff brings this cause of action individually and on behalf of its members.

122. California Business and Professions Code §§ 17200, *et seq*. prohibits acts of unfair competition, which mean and include any "unlawful . . . business practices."

123. As alleged herein, Defendants routinely misrepresented Affected Vehicles' emissions, environmental standards, fuel efficiency, and performance in their advertising, public statements, and marketing.

124. As a result, Defendants' uniform policies, acts, omissions, and practices, among

VW FOIA, EPA 06/20/2017 2017-FFP_034790

others, violate numerous provisions of California statutory and common law including, but not limited to the following:

- Violating the CLRA; and
- Violating California's False Advertising Law.

125. Plaintiff and its members relied upon these material omissions and misrepresentations to their detriment.

126. Plaintiff reserves the right to allege other violations of law that constitute unlawful business acts or practices based upon the above-described conduct. Such conduct is ongoing and continues to this date.

127. Plaintiff's members have suffered injury in fact and have lost money as a result of defendants' unfair competition and violations of law in that they purchased vehicles for prices that were grossly inflated; they would not have purchased these vehicles had they known the true efficiency and nature of the Affected Vehicles; and they would not have been exposed to pollutants from the Affected Vehicles. Defendants' conduct has caused CAS injury in fact, a diversion of resources, and frustration of its mission. Had plaintiff known the true facts plaintiff would not have rated the Affected Vehicles highly, and would have used its staff time and resources differently with respect to its mission and purpose. Plaintiff is therefore entitled to the relief available under Business and Professions Code §§ 17200, *et seq*., as detailed herein.

THIRD CLAIM
Unfair Business Acts and Practices in Violation of California Business & Professions Code §§ 17200, *et seq.*

128. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

129. Plaintiff brings this cause of action individually and on behalf of its members.

130. California Business and Professions Code §§ 17200, *et seq*. prohibits acts of unfair competition, which mean and include any "unfair . . . business practices."

131. Defendants' conduct constitutes "unfair" business acts and practices because

VW FOIA, EPA 06/20/2017 2017-FFP_034791

Defendants' practices have caused and are "likely to cause substantial injury" to Plaintiff and its members which injury is not "reasonably avoidable" by Plaintiff and its members and is "not outweighed" by the practices' benefits to Plaintiff and its members.

132. As more fully described above, Defendants' misrepresentations and omissions in their advertising, public statements, and marketing constitute unfair business acts or practices within the meaning of Cal. Bus. & Prof. Code §§ 17200, *et seq.*, in that the justification for Defendants' conduct is outweighed by the gravity of the consequences to the general public.

133. Defendants had reasonably available alternatives to further their business interests other than by misleading Plaintiff and its members about Affected Vehicles' eco-friendly nature, fuel efficiency, and performance. Indeed, the burden and expense of not installing the "defect device" is infinitesimal in comparison to the negative impact and injury to Plaintiff and its members.

134. Plaintiff and its members could not have reasonably avoided injury because, as more fully described above, Defendants' scheme was designed to keep Plaintiff and its members from knowing the truth about the Affected Vehicles' eco-friendly nature, fuel efficiency, and performance.

135. Defendants' failure to disclose these facts, coupled with the defeat device, made it nearly impossible for Plaintiff and its members to know the true nature of Affected Vehicles' eco-friendly nature, fuel efficiency, and performance.

136. Plaintiff and its members were never in a position to avoid injury, due to Defendants' active concealment of material information.

137. The practice of misrepresenting the eco-friendly nature of the Affected Vehicles, fuel efficiency, and performance deceived Plaintiff and its members into paying for services that were never rendered or the value of which was grossly inflated; making inaccurate recommendations on which products to buy; and focusing its staff time and resources working to increase emissions standards which were being flagrantly violated by Defendants. These actions

VW FOIA, EPA 06/20/2017 2017-FFP_034792

are contrary to public policy, immoral, unethical, oppressive, unscrupulous, and/or substantially injurious to consumers.

138. Defendants' conduct has violated statutory and common law, and the policy and spirit of California's statutory law including, but not limited to, California's Consumer Legal Remedies Act, California's Unfair Competition Law, California's False Advertising Law, and California Pollution Control laws and applicable regulations. These violations significantly harmed Plaintiff and its members.

139. Plaintiff and its members relied upon these material omissions and misrepresentations to their detriment.

140. Plaintiff's members have suffered injury in fact and have lost money as a result of defendants' unfair competition and violations of law in that they purchased vehicles for prices that were grossly inflated; they would not have purchased these vehicles had they known the true efficiency and nature of the Affected Vehicles; and they would not have been exposed to pollutants from the Affected Vehicles. Defendants' conduct has caused CAS injury in fact, a diversion of resources, and frustration of its mission. Had plaintiff known the true facts plaintiff would not have rated the Affected Vehicles highly, and would have used its staff time and resources differently with respect to its mission and purpose. Plaintiff is therefore entitled to the relief available under Business and Professions Code §§ 17200, *et seq*., as detailed herein.

FOURTH CLAIM
Violations of the Consumers Legal Remedies Act
(California Civil Code § 1750 *et seq*.)

141. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

142. This cause of action is brought pursuant to the California Consumers Legal Remedies Act ("CLRA"), Civil Code § 1750, *et seq*.

143. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated,

VW FOIA, EPA 06/20/2017 2017-FFP_034793

and continue to violate California Civil Code § 1770, subdivisions (a)(9), (a)(7), (a)(16), and (a)(5) by:

- Representing to consumers purchasing the Affected Vehicles that these vehicles' eco-friendly nature, fuel efficiency, and high performance are as advertised and publicized.
- Representing in their advertising eco-friendly nature, fuel efficiency, and performance characteristics for the Affected Vehicles that are false.

144. Plaintiff and its members have suffered harm as a result of these violations.

145. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning these resources would otherwise have been spent in other ways will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

146. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because it recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS

VW FOIA, EPA 06/20/2017 2017-FFP_034794

having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

147. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

148. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

149. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

FIFTH CLAIM
Violations of the Michigan Consumer Protection Act
(Mich. Comp. Laws § 445.901 *et seq.*)

150. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

151. Michigan Consumer Protection Act, Mich. Comp. Laws § 445.901 *et seq.* prohibits "[u]nfair, unconscionable, or deceptive methods, acts, or practices in the conduct of trade or commerce."

152. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated, and continue to violate Mich. Comp. Laws § 445.903, subsections (a), (e), and (l) by:

VW FOIA, EPA 06/20/2017 2017-FFP_034795

- Representing to consumers purchasing the Affected Vehicles that these vehicles' eco-friendly nature, fuel efficiency, and high performance are as advertised and publicized.
- Representing in their advertising emissions, environmental, fuel efficiency, and performance characteristics for the Affected Vehicles that are false.
- Representing that the Affected Vehicles were compliant with state and federal emissions regulations.

153. Volkswagen concealed from Plaintiff and its members accurate information concerning eco-friendly nature, fuel efficiency, and performance of the Affected Vehicles.

154. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were made knowingly, and with the intent that consumers would purchase vehicles based on those representations.

155. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning the "defeat devices" will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

156. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because it recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made

VW FOIA, EPA 06/20/2017 2017-FFP_034796

them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

157. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

158. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

159. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

SIXTH CLAIM
Violations of the Massachusetts General Statute 93A
(Mass. Gen. Laws ch. 93A § 1 *et seq.*)

160. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

161. Massachusetts General Statute, Mass. Gen. Laws ch. 93A § 1 *et seq.*, prohibits "unfair or deceptive acts or practices in the conduct of any trade or commerce."

162. As more fully described above, Defendants' acts and practices with respect to the fuel efficiency, and performance of the Affected Vehicles have a tendency to deceive, and have

VW FOIA, EPA 06/20/2017 2017-FFP_034797

deceived, Plaintiff and its members, thus constituting unfair, immoral, unethical, oppressive, and unscrupulous actions. These actions included:

- Falsely representing to consumers purchasing the Affected Vehicles that these vehicles' emissions, fuel efficiency, and high performance are as advertised and publicized.
- Falsely representing in their advertising emissions, environmental, fuel efficiency, and performance characteristics for Affected Vehicles that are false.
- Falsely representing that the Affected Vehicles were compliant with state and federal emissions regulations.

163. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

164. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were made knowingly, and with the intent that consumers would purchase vehicles based on those representations.

165. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning the "defeat devices" will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

166. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because it recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the

VW FOIA, EPA 06/20/2017 2017-FFP_034798

Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

167. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, Plaintiff and members of the consuming public will be further damaged by Volkswagen's conduct.

SEVENTH CLAIM

Violations of the District of Columbia Consumer Procedures Protection Act (DC Code § 28-3901 *et seq.*)

168. Plaintiffs incorporate by reference each preceding and succeeding paragraph.

169. This cause of action is brought pursuant to the District of Columbia Consumer Procedures Protection Act, DC Code § 28-3901 *et seq.*

170. The acts and practices described in this Complaint were intended to result in the sale of goods, specifically a motor vehicle, in consumer transactions. Volkswagen has violated, and continue to violate California Civil Code § 28-3904, subdivisions (a), (b), (e), (f), and (x) by:

- Representing to consumers purchasing the Affected Vehicles that these vehicles'

VW FOIA, EPA 06/20/2017 2017-FFP_034799

emissions, fuel efficiency, and high performance are as advertised and publicized.

- Representing in their advertising emissions, environmental, fuel efficiency, and performance characteristics for the Affected Vehicles that are false.
- Representing that the Affected Vehicles were compliant with federal emissions regulations when they were not.

171. Plaintiff and its members have suffered harm as a result of these violations.

172. Plaintiff's members have suffered harm as a result of Volkswagen's unlawful conduct because they purchased the Affected Vehicles believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in higher purchase prices for the Affected Vehicles and the subsequent revelation concerning the "defeat devices" will result in lower resale value. CAS members suffered injury in fact when they were exposed to greater NOx emissions than represented by Volkswagen and permitted by law.

173. Plaintiff suffered harm as a result of Volkswagen's unlawful conduct because CAS recommended Affected Vehicles in its *Car Book*, and directed staff time and resources in pursuance of activities it would not have pursued had Volkswagen accurately disclosed the Affected Vehicles' characteristics. Plaintiff rated Affected Vehicles, believing, based on Volkswagen's representations, that the Affected Vehicles had certain characteristics that made them environmentally friendly, fuel efficient, and high performance, when in fact these vehicles cannot have these fuel efficiency and performance standards because their emissions do not comply with federal and state laws and regulations. These misrepresentations also resulted in CAS having to divert staff time and financial resources away from its mission and goals to: adjust its rating system so it is able to detect future fraudulent subversions of emissions standards; help members of Congress conduct oversight investigations of Defendants' fraudulent actions; develop

VW FOIA, EPA 06/20/2017 2017-FFP_034800

policy solutions to solve the VW problems and prevent future frauds; and devote additional resources to reducing emissions to compensate for the additional pollution caused by Volkswagen's actions. Unless new funds are raised, resources will be diverted which would otherwise have been spent in different ways, such as encouraging consumers to switch to clean cars and to make other clean transportation choices.

174. Volkswagen concealed from Plaintiff and its members accurate information concerning the emissions standards, fuel efficiency, and performance of the Affected Vehicles.

175. Volkswagen's misrepresentations and omissions described in the preceding paragraphs were intentional, or alternatively, made without the use of reasonable procedures adopted to avoid such errors.

176. Unless Volkswagen is enjoined from engaging in such wrongful actions and conduct in the future, members of the consuming public will be further damaged by Volkswagen's conduct.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray that the Court enter judgment on its behalf and on behalf of its members, and:

A. Order the appointment of an independent organization to be External Compliance Monitor to monitor Volkswagen's compliance with federal and state environmental laws, as well as any other relief granted in the ultimate resolution of this case, and provide reports annually to the Court for a period no less than five years;

B. Order Volkswagen to pay a portion of its annual net profits into an independent fund administered by third parties approved by the Court who can disburse the funds to non-profit organizations that seek to monitor, educate people about, and/or remediate the deleterious environmental effects of vehicular diesel fuel emissions through advanced emissions controls and systems;

C. Adjudge and decree that Volkswagen has violated the California Pollution Control

VW FOIA, EPA 06/20/2017 2017-FFP_034801

Laws, California Business & Professions Code, the California Civil Code, the Michigan Consumer Protection Act, and Massachusetts General Statute 93A and that Plaintiffs and its members have been injured in their business and property as a result of Volkswagen's violations;

D. To the extent provided by law, enjoin and restrain Volkswagen, its subsidiaries, affiliates, successors, transferees, assignees and the respective officers, directors, partners, agents, and employees thereof and all other persons acting or claiming to act on their behalf from continuing to violate the California Pollution Control laws, California Business & Professions Code, the California Civil Code, the Michigan Consumer Protection Act, and Massachusetts General Statute 93A.

E. Award Plaintiffs and its members their costs of this suit, including reasonable attorneys' fees as provided by law; and

F. Order such other or further relief as may be just and proper.

IX. JURY TRIAL DEMAND.

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiffs demand a trial by jury of all of the claims asserted in this Complaint so triable.

DATED: October 16, 2015 Respectfully submitted,

By: _____

Bernard J. DiMuro (VSB No. 18784)
Harvey B. Cohen (VSB No. 06440)
DIMUROGINSBERG, P.C.
1101 King Street, Suite 610
Alexandria, Virginia 23314
Telephone: (703) 684-4333
Facsimile: (703) 548-3181
Email: bdimuro@dimuro.com
Email: hcohen@dimuro.com

Michael D. Hausfeld
Walter D. Kelley, Jr.
James J. Pizzirusso
HAUSFELD LLP

VW FOIA, EPA 06/20/2017 2017-FFP_034802

1700 K Street NW, Suite 650
Washington, DC 20006
Telephone: (202) 540-7200
Facsimile: (202) 540-7201
Email: mhausfeld@hausfeld.com
Email: wkelley@hausfeld.com
Email: jpizzirusso@hausfeld.com

Michael P. Lehmann
Bonny E. Sweeney
Christopher L. Lebsock
HAUSFELD LLP
600 Montgomery Street, Suite 3200
San Francisco, CA 94111
Telephone: 415-633-1908
Facsimile: 415-217-6813
Email: mlehmann@hausfeldllp.com
Email: bsweeney@hausfeldllp.com
Email: clebsock@hausfeldllp.com

Counsel for Plaintiff

VW FOIA, EPA 06/20/2017 2017-FFP_034803

To: .WASH WI-2 Weber, Michael[wi-2@wash.auswaertiges-amt.de]
Cc: .WASH VERK-1 Zass, Stephan Klaus[verk-1@wash.auswaertiges-amt.de]
From: Phillips, Anna
Sent: Wed 10/21/2015 6:41:22 PM
Subject: RE: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Dear Michael and Stephan,

I'm back from vacation and am now working on preparations for the Administrator McCarthy's meeting with Minister Dobrindt next week.

Can you please provide a list of the delegation members who will accompany Minister Dobrindt and advise if you have already submitted the required clearance spreadsheet? If not, I would appreciate receiving the delegation list (names and affiliations) via e-mail while you compile the rest of the data for spreadsheet. Michael is very familiar with this process but please let me know if you need me to resend the form.

Many thanks...
Anna

~~~
~~~

Please let us know if you have any more questions.

Best,

Michael

-----Ursprüngliche Nachricht-----
Von: Kasman, Mark [mailto:Kasman.Mark@epa.gov]
Gesendet: Freitag, 2. Oktober 2015 13:05
An: .WASH WI-2 Weber, Michael
Betreff: Re: AW: Minister's Request to Meet EPA Administrator

Thanks Michael.

Sent from my iPhone

> On Oct 2, 2015, at 11:34 AM, .WASH WI-2 Weber, Michael <wi-2@wash.auswaertiges-amt.de> wrote:
>
> Hi Mark,
>
> Thanks for helping out on this. I asked my colleagues in Berlin to specify the topics and questions they would like to address. I'll let you know once I've heard back from them.
>
> Best,
>
> Michael
>
> -----Ursprüngliche Nachricht-----
> Von: Kasman, Mark [mailto:Kasman.Mark@epa.gov]
> Gesendet: Freitag, 2. Oktober 2015 08:51
> An: .WASH WI-2 Weber, Michael
> Cc: Phillips, Anna
> Betreff: Minister's Request to Meet EPA Administrator
>
> Hi Michael,
>
> While Anna is out, I am following up on this request. Can you provide us with more details of what the Minister would like to discuss? It would be helpful to know the sorts of questions he would like to ask. For example, will he be asking about monitoring standards or enforcement issues. It informs who could participate or not.
>
> As we have an ongoing investigation, we are required to be very specific about these meetings right now.
>
> Thanks, Mark
>
> Mark Kasman
> Director
> Office of Regional and Bilateral Affairs
>
> Sent from my iPhone
>

From: Ex. 7
Location: ARB Conference Room Non-Responsive
Importance: Normal
Subject: Meeting –In- Use Compliance Section/ARB and VW
Start Date/Time: Thur 10/29/2015 4:00:00 PM
End Date/Time: Thur 10/29/2015 8:00:00 PM

;
Meeting –In- Use Compliance Section/ARB and VW
ORGANIZER: Ex. 7
TOPICS:
Agenda to be provided by Ex. 7
Ensure that German Technical Team participates
VW will answer list of In-Use Compliance Recall related questions to the best of their ability
Provide a schedule or Gantt chart of activities and expected timeframe to provide all the answer to the questions asked by ARB
ECARSD INVITEES: Ex. 7
Ex. 7
Ex. 7 +ARB ECARSD Events Calendar
Non-ARB INVITEES: EPA - Byron Bunker, Linc Wehrly, Joel Ball, Jim Snyder, Joel Dalton; VW - Ex. 7
Ex. 7
MEETING PURPOSE: Meeting to Address Questions Related to VW Recall Action
CONFERENCE ROOM: Non-Responsive
Agenda and Conference Call Number to be provided

To: .WASH VERK-1 Zass, Stephan Klaus[verk-1@wash.auswaertiges-amt.de]
From: Phillips, Anna
Sent: Wed 10/21/2015 7:37:30 PM
Subject: RE: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Thank you, Stephan. Are all of the Departments and Directors listed here part of the Federal Transport Ministry?

Anna Phillips
Program Manager for Europe
U.S. Environmental Protection Agency (EPA)
Office of International & Tribal Affairs
Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov
http://www2.epa.gov/international-cooperation

Please consider the environment before printing this message.

-----Original Message-----
From: .WASH VERK-1 Zass, Stephan Klaus [mailto:verk-1@wash.auswaertiges-amt.de]
Sent: Wednesday, October 21, 2015 3:20 PM
To: Phillips, Anna <Phillips.Anna@epa.gov>
Subject: AW: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Dear Anna,

the requested list is attached.

Best
Stephan

-----Ursprüngliche Nachricht-----
Von: Phillips, Anna [mailto:Phillips.Anna@epa.gov]
Gesendet: Mittwoch, 21. Oktober 2015 14:41
An: .WASH WI-2 Weber, Michael
Cc: .WASH VERK-1 Zass, Stephan Klaus
Betreff: RE: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Dear Michael and Stephan,

I'm back from vacation and am now working on preparations for the Administrator McCarthy's meeting with Minister Dobrindt next week.

Can you please provide a list of the delegation members who will accompany Minister Dobrindt and advise if you have already submitted the required clearance spreadsheet? If not, I would appreciate receiving the delegation list (names and affiliations) via e-mail while you compile the rest of the data for spreadsheet. Michael is very familiar with this process but please let me know if you need me to resend the form.

Many thanks...
Anna

~~~~~~
Anna Phillips
Program Manager for Europe
U.S. Environmental Protection Agency (EPA) Office of International & Tribal Affairs Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov
http://www2.epa.gov/international-cooperation

~~~~~~
Please consider the environment before printing this message.

-----Original Message-----
From: .WASH WI-2 Weber, Michael [mailto:wi-2@wash.auswaertiges-amt.de]
Sent: Tuesday, October 06, 2015 3:05 PM
To: Kasman, Mark <Kasman.Mark@epa.gov>
Cc: .WASH VERK-1 Zass, Stephan Klaus <verk-1@wash.auswaertiges-amt.de>; Phillips, Anna <Phillips.Anna@epa.gov>; Dieu, Martin <Dieu.Martin@epa.gov>
Subject: AW: AW: Minister's Request to Meet EPA Administrator

Dear Mark,

We talked to our colleagues in Berlin about the topics Minister Dobrindt would like to address during his visit at the EPA. The Minister would like to inform EPA of the actions the German Government has taken in light of the recent developments regarding Volkswagen. Furthermore he is interested to learn about emission standards and testing in the US and EPA's plans to further improve the process in the future. He would also like to discuss the enforcement process in general.

I am including my colleague Stephan Zass in this e-mail. He is our Transport Counsellor at the Embassy and will be able to help set up the meeting while I am out of office October 9 - 14. He will also be able to provide you with a list of the delegation that is accompanying Minister Dobrindt.

Please let us know if you have any more questions.

Best,

Michael

-----Ursprüngliche Nachricht-----
Von: Kasman, Mark [mailto:Kasman.Mark@epa.gov]
Gesendet: Freitag, 2. Oktober 2015 13:05
An: .WASH WI-2 Weber, Michael
Betreff: Re: AW: Minister's Request to Meet EPA Administrator

Thanks Michael.

Sent from my iPhone

> On Oct 2, 2015, at 11:34 AM, .WASH WI-2 Weber, Michael <wi-2@wash.auswaertiges-amt.de> wrote:

>
> Hi Mark,
>
> Thanks for helping out on this. I asked my colleagues in Berlin to specify the topics and questions they would like to address. I'll let you know once I've heard back from them.
>
> Best,
>
> Michael
>
> -----Ursprüngliche Nachricht-----
> Von: Kasman, Mark [mailto:Kasman.Mark@epa.gov]
> Gesendet: Freitag, 2. Oktober 2015 08:51
> An: .WASH WI-2 Weber, Michael
> Cc: Phillips, Anna
> Betreff: Minister's Request to Meet EPA Administrator
>
> Hi Michael,
>
> While Anna is out, I am following up on this request. Can you provide us with more details of what the Minister would like to discuss? It would be helpful to know the sorts of questions he would like to ask. For example, will he be asking about monitoring standards or enforcement issues. It informs who could participate or not.
>
> As we have an ongoing investigation, we are required to be very specific about these meetings right now.
>
> Thanks, Mark
>
> Mark Kasman
> Director
> Office of Regional and Bilateral Affairs
>
> Sent from my iPhone
>

To: Ex. 7 Bunker, Byron[bunker.byron@epa.gov]
From: Ex. 7
Sent: Wed 10/21/2015 7:50:29 PM
Subject: RE: Dealer Presentation

The whole slide?

Ex. 7

Emissions Compliance, Automotive Regulations and Science (ECARS) Division

California Air Resources Board

Ex. 7

Ex. 7

From: Ex. 7
Sent: Wednesday, October 21, 2015 12:28 PM
To: bunker.byron@epa.gov; Ex. 7
Subject: Dealer Presentation

The latest feedback I have is that the last slide will be deleted and only presented verbally.

To: Ex. 7 Bunker, Byron[bunker.byron@epa.gov]
From: Ex. 7
Sent: Wed 10/21/2015 7:53:57 PM
Subject: RE: Dealer Presentation

Yes, the whole slide is now removed and will be presented verbally.

From: Ex. 7
Sent: Wednesday, October 21, 2015 3:50 PM
To: Ex. 7 ; bunker.byron@epa.gov
Subject: RE: Dealer Presentation

The whole slide?

Ex. 7

From: Ex. 7 Ex. 7
Sent: Wednesday, October 21, 2015 12:28 PM
To: bunker.byron@epa.gov; Ex. 7
Subject: Dealer Presentation

The latest feedback I have is that the last slide will be deleted and only presented verbally.

To: .WASH VERK-1 Zass, Stephan Klaus[verk-1@wash.auswaertiges-amt.de]
From: Phillips, Anna
Sent: Wed 10/21/2015 8:11:54 PM
Subject: RE: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Thanks, Stephan. That's what I thought but just wanted to double-check.

Best,

Anna

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

From: .WASH VERK-1 Zass, Stephan Klaus [mailto:verk-1@wash.auswaertiges-amt.de]
Sent: Wednesday, October 21, 2015 4:10 PM
To: Phillips, Anna <Phillips.Anna@epa.gov>
Subject: AW: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Anna,

I have highlighted all members from the Ministry. Michael, myself and of course the Ambassador are from the Embassy. Mr. Zinke is from the Federal Motor Transport Authority KBA which is a subsidiary authority to Ministry.

-----Ursprüngliche Nachricht-----
Von: Phillips, Anna [mailto:Phillips.Anna@epa.gov]
Gesendet: Mittwoch, 21. Oktober 2015 15:37
An: .WASH VERK-1 Zass, Stephan Klaus
Betreff: RE: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Thank you, Stephan. Are all of the Departments and Directors listed here part of the Federal Transport Ministry?

~~~~~~

Anna Phillips

Program Manager for Europe

U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427

E-mail: phillips.anna@epa.gov
~~~~~~

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

-----Original Message-----

From: .WASH VERK-1 Zass, Stephan Klaus [mailto:verk-1@wash.auswaertiges-amt.de]

Sent: Wednesday, October 21, 2015 3:20 PM

To: Phillips, Anna <Phillips.Anna@epa.gov>

Subject: AW: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Dear Anna,

the requested list is attached.

Best

Stephan

-----Ursprüngliche Nachricht-----

Von: Phillips, Anna [mailto:Phillips.Anna@epa.gov]

Gesendet: Mittwoch, 21. Oktober 2015 14:41
~~~~~~

An: .WASH WI-2 Weber, Michael

Cc: .WASH VERK-1 Zass, Stephan Klaus

Betreff: RE: AW: Minister's Request to Meet EPA Administrator -- Delegation and Clearance Information

Dear Michael and Stephan,

I'm back from vacation and am now working on preparations for the Administrator McCarthy's meeting with Minister Dobrindt next week.

Can you please provide a list of the delegation members who will accompany Minister Dobrindt and advise if you have already submitted the required clearance spreadsheet? If not, I would appreciate receiving the delegation list (names and affiliations) via e-mail while you compile the rest of the data for spreadsheet. Michael is very familiar with this process but please let me know if you need me to resend the form.

Many thanks...

Anna

~~~~~~

Anna Phillips

Program Manager for Europe

U.S. Environmental Protection Agency (EPA) Office of International & Tribal Affairs
Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427

E-mail: phillips.anna@epa.gov
~~~~~~

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

-----Original Message-----

From: .WASH WI-2 Weber, Michael [mailto:wi-2@wash.auswaertiges-amt.de]

Sent: Tuesday, October 06, 2015 3:05 PM

To: Kasman, Mark <Kasman.Mark@epa.gov>

Cc: .WASH VERK-1 Zass, Stephan Klaus <verk-1@wash.auswaertiges-amt.de>; Phillips, Anna <Phillips.Anna@epa.gov>; Dieu, Martin <Dieu.Martin@epa.gov>

Subject: AW: AW: Minister's Request to Meet EPA Administrator

Dear Mark,

We talked to our colleagues in Berlin about the topics Minister Dobrindt would like to address during his visit at the EPA. The Minister would like to inform EPA of the actions the German Government has taken in light of the recent developments regarding Volkswagen. Furthermore he is interested to learn about emission standards and testing in the US and EPA's plans to further improve the process in the future. He would also like to discuss the enforcement process in general.

I am including my colleague Stephan Zass in this e-mail. He is our Transport Counsellor at the Embassy and will be able to help set up the meeting while I am out of office October 9 - 14. He will also be able to provide you with a list of the delegation that is accompanying Minister Dobrindt.
~~~~~~

Please let us know if you have any more questions.

Best,

Michael

-----Ursprüngliche Nachricht-----

Von: Kasman, Mark [mailto:Kasman.Mark@epa.gov]

Gesendet: Freitag, 2. Oktober 2015 13:05

An: .WASH WI-2 Weber, Michael

Betreff: Re: AW: Minister's Request to Meet EPA Administrator

Thanks Michael.

Sent from my iPhone

> On Oct 2, 2015, at 11:34 AM, .WASH WI-2 Weber, Michael <wi-2@wash.auswaertiges-amt.de> wrote:

>

> Hi Mark,

>

> Thanks for helping out on this. I asked my colleagues in Berlin to specify the topics and questions they would like to address. I'll let you know once I've heard back from them.

>

> Best,

>

> Michael

>

> -----Ursprüngliche Nachricht-----

> Von: Kasman, Mark [mailto:Kasman.Mark@epa.gov]

> Gesendet: Freitag, 2. Oktober 2015 08:51

> An: .WASH WI-2 Weber, Michael

> Cc: Phillips, Anna

> Betreff: Minister's Request to Meet EPA Administrator

>

> Hi Michael,

>

> While Anna is out, I am following up on this request. Can you provide us with more details of what the Minister would like to discuss? It would be helpful to know the sorts of questions he would like to ask. For example, will he be asking about monitoring standards or enforcement issues. It informs who could participate or not.

>

> As we have an ongoing investigation, we are required to be very specific about these meetings right now.

>

> Thanks, Mark

>

> Mark Kasman

> Director

> Office of Regional and Bilateral Affairs

>

> Sent from my iPhone

>

To: Bunker, Byron[bunker.byron@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]
Cc: Grundler, Christopher[grundler.christopher@epa.gov]
From: Phillips, Anna
Sent: Wed 10/21/2015 8:18:39 PM
Subject: FW: Briefing Memos for Administrator's Meetings with EU and German Officials
GM-EU VP Sefcovic Meeting 10 23 2015.doc
GM-German Minister Dobrindt Meeting 10 27 2015.doc

From: Phillips, Anna
Sent: Wednesday, October 21, 2015 4:09 PM
To: Dieu, Martin <Dieu.Martin@epa.gov>; Kasman, Mark <Kasman.Mark@epa.gov>; Almodovar, Lisa <Almodovar.Lisa@epa.gov>
Cc: Grundler, Christopher <grundler.christopher@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Newberg, Cindy <Newberg.Cindy@epa.gov>; Niebling, William <Niebling.William@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; LeFranc, Maurice <LeFranc.Maurice@epa.gov>; Krieger, Jackie <Krieger.Jackie@epa.gov>; Brooks, Phillip <Brooks.Phillip@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Kelley, Rosemarie <Kelley.Rosemarie@epa.gov>
Subject: Briefing Memos for Administrator's Meetings with EU and German Officials
Importance: High

Martin et al. – With many thanks to everyone who contributed, attached are the briefing memos for the Administrator's upcoming meetings with EU Vice President Sefcovic (on Friday, 10/23) and German Transport Minister Dobrindt (on Tuesday, 10/27).

I also am copyng OAR and OECA here so that they have a chance to review and provide any final comments before they are sent forward to the Administrator's Office.

Many thanks…

Anna

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)
~~~~~~

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.
~~~~~~

To: Ex. 7
From: Snyder, Jim
Sent: Wed 10/21/2015 10:01:46 PM
Subject: Ex. 7

Ex. 7

Ex. 7 I would like the official name or parameter label of it. Also, I asked for an A2L file for the 2016 2.0L that we have. Haven't heard back about it.

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Ex. 7
From: Ex. 7
Sent: Wed 10/21/2015 10:17:20 PM
Subject: Re: Letter to Ex. 7 from Janet McCabe US EPA

Thanks Byron,
We had a constructive call with the Dep. Administrator. I Ex. 7 received the message clearly and he committed to the process in the letter. Ex. 7 will have the direct engagement of the senior parent company people in his discussions with you, for real time reaction. We will of course send a written reply to Ms. McCabe.

Thank you and best regards,

Ex. 7

On Oct 21, 2015, at 4:55 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Dear Ex. 7

Attached please find a letter for Ex. 7 from our Associate Administrator, Janet McCabe. If you have any questions about this letter, please do not hesitate to contact me.

Best regards,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From Ex. 7
Sent: Tuesday, October 20, 2015 9:33 PM
To: Bunker, Byron
Cc: Ex. 7
Subject: Re: Dealer Presentation

Hello Byron,

Ex. 7 number is Ex. 7 Ex. 7 will give him a heads up that a call and a letter is coming. If you know when she will call we can let him know or also schedule it.

Ex. 7

Sent from my iPhone

On Oct 20, 2015, at 9:17 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Thanks Ex. 7

One more, if Janet would like to call Ex. 7 how do we make that happen?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 9:16 PM
To: Bunker, Byron
Subject: Re: Dealer Presentation

Hello Byron,

Please send via email to Ex. 7 and me.

Thank you,

Ex. 7

Sent from my iPhone

On Oct 20, 2015, at 8:44 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Hi Ex. 7,

Janet has some correspondence that she would like to send to Ex. 7 We have his postal address and will be sending a hard copy there. Does he have an e-mail address where we could send the letter as well? Or, would it be better to send it electronically to you or Ex. 7 to send forward?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 6:20 PM
To: Bunker, Byron; Hebert, Ex. 7
Subject: Dealer Presentation

Hello Ex. 7 and Byron,

Many thanks for your feedback on the dealer presentation. I'm not sure if you have spoken but we have heard Byron's concerns and we will revise the slides and share them with you tomorrow morning. Hopefully we can have a short discussion about the revised and simpler presentation tomorrow.

Thanks again and I appreciate the comments,

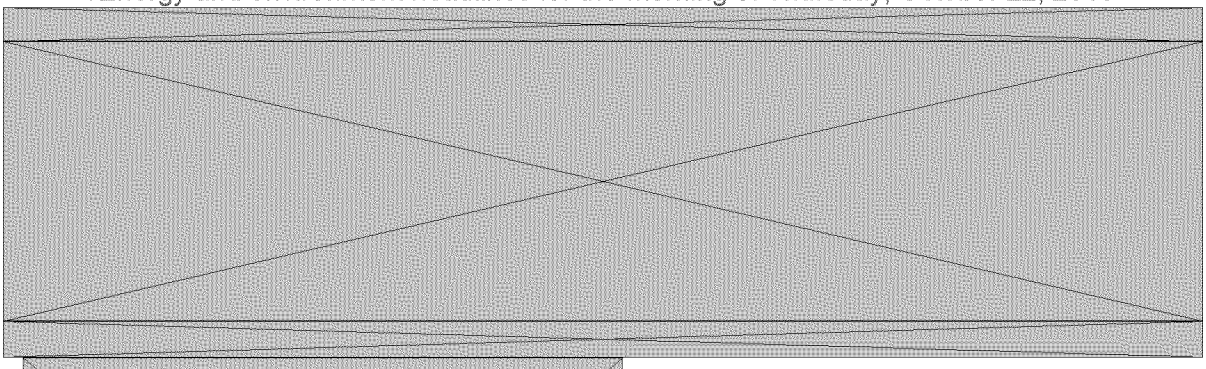
Ex. 7

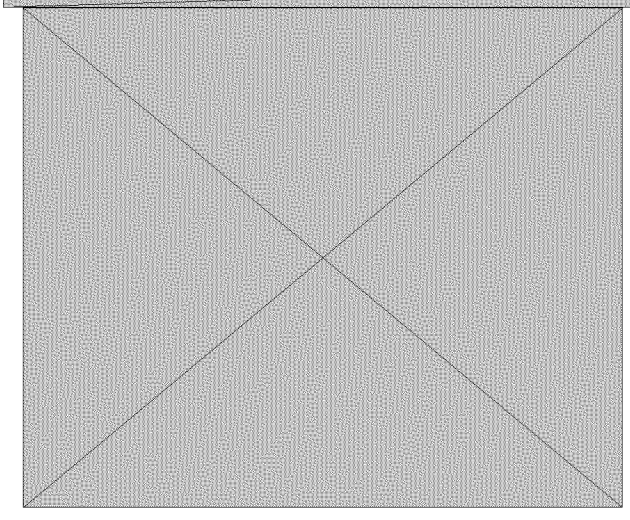
<Agency letter to Volkswagen Group of America 10-21-2015.pdf>

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Thur 10/22/2015 11:22:25 AM
Subject: West Virginia to lay out legal case against Clean Power Plan

Advertise | Contact

Energy and environment headlines for the morning of Thursday, October 22, 2015





West Virginia to lay out legal case against Clean Power Plan

By Kevin Rogers

Republicans on a House Energy and Commerce subcommittee on Thursday will give West Virginia's chief courtroom lawyer a platform to lay out his state's argument against the Environmental Protection Agency's final Clean Power Plan.

West Virginia Solicitor General Elbert Lin, who's expected to lead the courtroom attack against the agency, is among the witnesses set to testify before the Energy and Power

Subcommittee, where he plans to accuse the agency of developing a "contrived" Clean Air Act interpretation for its power plant carbon regulations.

The agency, in its final rule, argued that it can regulate power plants under both Section 111(d) and Section 112, so long as the Section 111(d) rules don't cover hazardous pollutants like mercury. Lin said that interpretation breaks with more than 20 years of protocol.

"EPA seeks to save the Power Plan by adopting an interpretation of the phrase 'regulated under [Section 112]' that the agency never suggested before litigation in the D.C. Circuit this year," Lin plans to say. "This contrived reading — invented by EPA after two decades of reading the text 'literal[ly]' — is indefensible."

Lin, who litigated a failed attempt to block the proposed rule in spring, contends that the agency doesn't have the authority to regulate power plants under both sections.

The rules, finalized in August, seek to cut emissions from the power sector by 32 percent from 2005 levels by 2030. Its rules for existing plants require states develop plans to hit specific carbon reduction goals, though it offers a variety of channels to achieve them, including replacing coal-fired power with natural gas and renewables, energy efficiency programs and cross-state emissions trading programs.

In the absence of a state-submitted plan, the agency would impose a backstop federal plan.

Lin will argue that the approach is illegal, since it goes beyond regulating the power plants and presses states shift to natural gas or renewable energy for electric generation.

"The Power Plan runs roughshod over States' constitutional rights regarding intrastate generation and use of electricity, and is thus illegal," he said. "That the Power Plan leaves States the option of not submitting State Plans does not cure these constitutional problems. If States comply and submit State Plans to reorganize their energy economies, they will become mere 'administrative agencies of the Federal Government' in this critical area of state authority."

While Lin's boss, Attorney General Patrick Morrisey, has pledged to sue the agency over the rules, legal challenges can't be filed until the regulations are published in the Federal Register.

The hearing will be overseen by Subcommittee Chairman Rep. Ed Whitfield, R-Ky., who authored a bill that would allow states to avoid complying with the Clean Power Plan until legal challenges are resolved. His bill was approved by the House, but faces a White House veto threat.

Lin will be joined in his arguments against the rule by Allison Wood, a partner at Hunton & Williams LLP, and Raymond Gifford, a partner with Wilkinson Barker Knauer LLP.

The Obama administration will not be without its defenders, however. Emily Hammond, a

law professor and associate dean at the George Washington University Law School, and Richard Revesz, a law professor and dean emeritus at the New York University of Law, will testify on the legal foundations of the regulations.

Revesz, who filed a brief in support of EPA against the proposed rule lawsuit, plans to mount a legal defense of the regulations as "consistent with the Clean Air Act and the Constitution."

"It is not, as opponents argue, an unprecedented approach raising the prospect of economic calamity, but rather just another example of EPA doing its job to ensure that polluters account for the cost of their pollution in a manner that still result in substantial net economic benefits to the public," he plans to say.

Quick Links

Interior HQ should go West, says candidate Bush

House conservatives back Ryan, opening door to a new speaker

Study: Strong Oklahoma quakes caused by industrial activity

VW investigating whether more cars have trick software

Apple cleaning up act in China with more renewable energy

Defense attorney: Texas lawyer indicted over oil spill fraud

LA agency to raise water rates because of conservation

Correction to AP story about Blankenship trial

No output cuts agreed at Wednesday OPEC meeting

Rail shipments of coal decline as natural gas rises in popularity

Information sharing could boost grid cybersecurity, Congress told

Ohio lawsuit settlement to cost Duke $81 million

MISO reports it has sufficient power for winter

Oil bounces back after drop

More job cuts coming at Weatherford

U.S. probing corruption at Venezuela's state oil company

Canada's Trudeau has wide range of choice for Environment Minister

Upcoming Events

Interior HQ should go West, says candidate Bush

By Scott Sonner

RENO, Nev. (AP) — Jeb Bush said Wednesday that he would rein in regulation at the Interior Department as president and try to move its headquarters from Washington, D.C., to the West, home to 90 percent of federally owned land.

"There is a tradition of having a secretary from the West," the former Florida governor said at a discussion organized by his presidential campaign. "But the folks that actually do the work ... all live in Maryland, Virginia and Washington, D.C., and I think they ought to be living out amongst us."

The proposal was part of Bush's land and resource management plan, which is aimed at building consensus between federal, state and local governments.

Bush didn't say in his speech where he would locate the headquarters, although an outline suggested his proposed agency would do a better job of keeping in touch with the people it serves if it was based in a place like Denver, Salt Lake City or Reno.

More

House conservatives back Ryan, opening door to a new speaker

By Alan Fram

WASHINGTON (AP) — Backed by a majority of the pugnacious House Freedom Caucus, Rep. Paul Ryan seems all but assured of becoming the next House speaker, an ascension Republicans hope would end a month of political pandemonium that has made Congress and the GOP seem anarchic.

Meeting late Wednesday, around two-thirds of the hardline conservative group's three dozen members voted to back the Wisconsin Republican's bid for the House's top job, caucus members said. With their support the chief remaining question over whether he'd seek the job, the group's vote essentially meant the speaker's post is his for the taking when the House

formally chooses a new leader next week.

Republicans believe that by assuming command of the House, the GOP's 2012 vice presidential candidate could stem the political fratricide between the party's pragmatists and hard-right conservatives that helped force last month's startling resignation by Speaker John Boehner, R-Ohio. That conflict has also spilled over to the GOP's 2016 presidential contest, where leading candidates Donald Trump and Ben Carson have positioned themselves as outsiders and reveled in attacking establishment Republicans as relics of an outmoded era.

The Freedom Caucus' vote fell short of the 80 percent margin the group requires for an official endorsement, which Ryan had earlier demanded as a condition of seeking the post. But in a written statement afterward, Ryan erased any doubt that he considered their vote a green light to run.

More

Study: Strong Oklahoma quakes caused by industrial activity

By Justin Juozapavicius

TULSA, Okla. (AP) — A sharp rise in earthquakes in Oklahoma in the past 100 years is likely the result of industrial activities in the energy-rich state, such as oil and natural gas production, a new study suggests.

The paper by the U.S. Geological Survey, which singled out the state of Oklahoma, was released online this week and will be published in December's Bulletin of the Seismological Society of America. It concludes that injection of massive amounts of the byproduct of oil and gas production — chemical-laced wastewater — deep into the earth has induced the quakes.

The paper dates wastewater injection methods to the 1920s in Oklahoma. The modern-day process that produces the byproduct wastewater is known as fracking, or forcing millions of gallons of water, sand and other additives deep into the ground to free up pockets of natural gas.

Both the energy industry and scientists agree that fracking doesn't directly cause significant earthquakes. Where they part ways is what role injection of the byproduct wastewater back into the deep ground plays in inducing the quakes.

More

VW investigating whether more cars have trick software

Sponsored Links

By The Associated Press

BERLIN (AP) — German automaker Volkswagen says it is trying to determine whether even more of its cars may have been fitted with software that was used to cheat on U.S. emissions tests.

The company had previously said that the software was installed on cars with variants of the EA 189 diesel engine built to the "Euro 5" emissions standard.

Spokesman Pietro Zollino confirmed to the AP on Thursday a report from the dpa press agency that the company is now checking whether models with the EA 288 diesel motor built to the same emissions standard may also have the software.

Newer cars built to the "Euro 6" standard are said not to be affected.

More

Apple cleaning up act in China with more renewable energy

By Michael Liedtke

SAN FRANCISCO (AP) — Apple is cleaning up its manufacturing operations in China to reduce the air pollution caused by the factories that have assembled hundreds of millions of iPhones and iPads during the past eight years.

The world's most valuable company is working with its Chinese suppliers to eventually produce 2.2 gigawatts of solar power and other renewable energy.

The commitment announced Wednesday represents Apple's latest attempt to prevent the popularity of its devices and digital services from increasing the carbon emissions that are widely believed to changing the Earth's climate.

Apple Inc. estimates 20 million metric tons of greenhouse gas pollution will be avoided as more of its suppliers rely on renewable energy between now and 2020. That's like having four million fewer cars on the road for a year.

More

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant

prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

Defense attorney: Texas lawyer indicted over oil spill fraud

By Jeff Amy

JACKSON, Miss. (AP) — A Texas lawyer faces criminal charges after he was accused of submitting thousands of false claims for damages from the 2010 Gulf of Mexico oil spill.

Robert McDuff, a lawyer for San Antonio attorney Mikal Watts, confirmed Wednesday that Watts was indicted in Mississippi and will appear in court Oct. 29 in Gulfport.

"I look forward to a speedy trial and the opportunity to prove to a jury that I am not guilty of any crimes," Watts said in a statement.

McDuff said the indictment is sealed and he wouldn't discuss the specific charges against Watts. He said they are related to allegations that Watts committed fraud or forgery when he claimed to represent 44,000 clients in litigation against BP PLC.

More

LA agency to raise water rates because of conservation

By The Associated Press

LOS ANGELES (AP) — Los Angeles residents who conserved water during the drought will be paying more for using less.

The Los Angeles Daily News reports the Department and Water and Power board voted Tuesday to hike rates 4 percent in January because the utility lost money due to conservation.

The DWP estimates it received around $111 million less than expected in the last fiscal year because customers used about 10 percent less water than expected.

The hike will increase the average residential monthly bill from around $50 to $51.53. But the DWP says with less water being used, most customers will still pay less per month than in 2014.

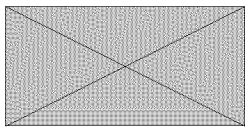
Correction to AP story about Blankenship trial

Sponsored Links

CHARLESTON, W Va. (AP) — In a story about coal ex-CEO Don Blankenship's criminal trial published by EnergyGuardian Wednesday evening, AP incorrectly stated the role of former assistant prosecutor Mike Hissam. He helped investigate the Upper Big Branch mine, not build the case against Blankenship, before becoming a defense attorney.

A corrected version of the story can be viewed here

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

No output cuts agreed at Wednesday OPEC meeting

A Wednesday meeting between OPEC and representatives from five other oil producing countries did not produce any agreement on production cuts, despite proposals from Venezuela to increase prices, Reuters reports.

More

Rail shipments of coal decline as natural gas rises in popularity

The Association of American Railroads reports that coal shipments by rail continue to drop as natural gas increasingly becomes the fuel of choice for power plants, Platts reports. The 95,822 carloads of coal moving last week represented a drop of nearly 3 percent from the previous week and 13 percent from a year ago.

More

Information sharing could boost grid cybersecurity, Congress told

Real-time information sharing from the federal government would help the electricity industry defend against cyberattacks, an executive from FirstEnergy Service Company told a joint hearing of two House Science, Space and Technology subcommittees Wednesday, The Hill reports.

More

Ohio lawsuit settlement to cost Duke $81 million

Trouble seeing this email? Click here.

Duke Energy and its Ohio subsidiary have denied the claims made in a class-action lawsuit over contracts in the state, but the firms have agreed to settle for $81 million to avoid further litigation, The Charlotte Observer reports.

More

MISO reports it has sufficient power for winter

Changes made by the Midcontinent Independent System Operator following the frigid Polar Vortex weather pattern two years ago are helping to bolster grid reliability for the coming winter season, Platts reports.

More

Oil bounces back after drop

Oil was trading higher early Thursday following a drop the day before on Energy Information Administration reports of a jump in stockpiles. U.S. benchmark crude rose 40 cents to $45.60 a barrel in electronic trading on the Nymex, while in London Brent gained 38 cents to $48.23, Reuters reports.

More

More job cuts coming at Weatherford

Prompted by the continued fall in crude prices, oil field services operator Weatherford International says it will trim 3,000 more positions before the end of the year, bringing its total job cuts to 14,000, FuelFix reports.

More

U.S. probing corruption at Venezuela's state oil company

No charges have been made public yet, but sources tell The Wall Street Journal that federal prosecutors in at least four different jurisdictions have been investigating allegations that top officials at Venezuela's state oil company were soliciting kickbacks and bribes from companies involved in construction projects.

More

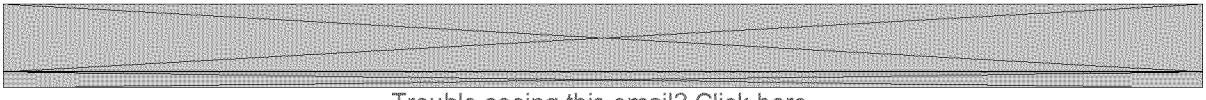
Canada's Trudeau has wide range of choice for Environment Minister

More than half a dozen candidates are possibilities to take the post of Environment Minister in Canada as Justin Trudeau picks his new cabinet, according to the National Observer.

More

Upcoming Events

- Oct. 22, Washington: The House Energy and Commerce Subcommittee on Energy and Power to hold a hearing on the legality of the Environmental Protection Agency's final Clean Power Plan. 2:00 pm , 2123 Rayburn.
- Oct. 22, Washington: The House Science, Space and Technology Committee to hold a hearing on the Environmental Protection Agency's final rule to set the ground-level ozone standard to 70 parts per billion. 10:00 am , 2318 Rayburn.
- Oct. 22, Washington: Environmental Protection Agency Administrator Gina McCarthy to discuss her agency's proposed rule to limit methane emissions from the oil and gas sector at an event hosted by the Center for American Progress. 10:00 am , 1333 H St. NW.
- Oct. 22, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on a bill to assist rural communities to meet Environmental Protection Agency drinking water rules. 10:00 am , 2123 Rayburn.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

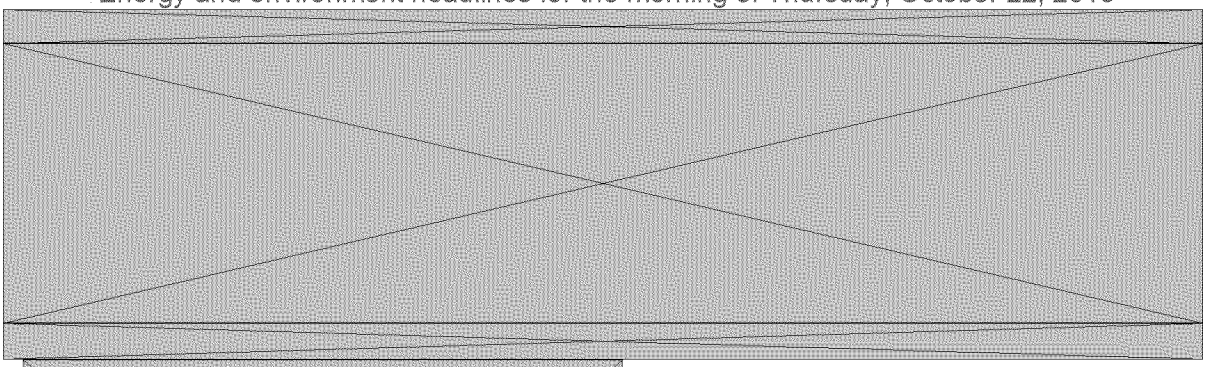
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

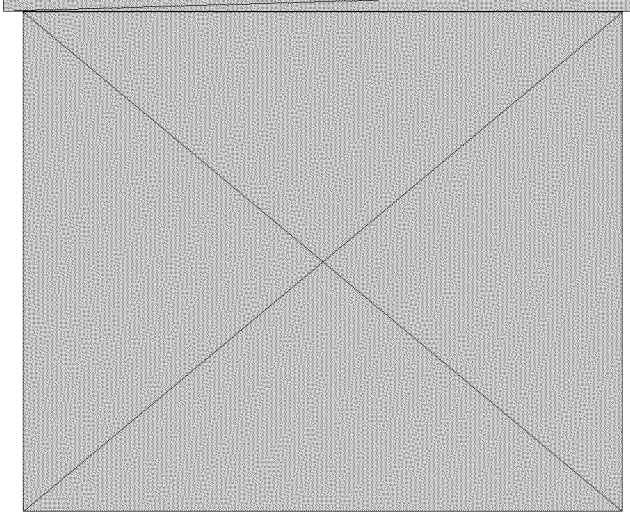
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Thur 10/22/2015 11:22:25 AM
Subject: West Virginia to lay out legal case against Clean Power Plan

Advertise | Contact

Energy and environment headlines for the morning of Thursday, October 22, 2015





West Virginia to lay out legal case against Clean Power Plan

By Kevin Rogers

Republicans on a House Energy and Commerce subcommittee on Thursday will give West Virginia's chief courtroom lawyer a platform to lay out his state's argument against the Environmental Protection Agency's final Clean Power Plan.

West Virginia Solicitor General Elbert Lin, who's expected to lead the courtroom attack against the agency, is among the witnesses set to testify before the Energy and Power

Subcommittee, where he plans to accuse the agency of developing a "contrived" Clean Air Act interpretation for its power plant carbon regulations.

The agency, in its final rule, argued that it can regulate power plants under both Section 111(d) and Section 112, so long as the Section 111(d) rules don't cover hazardous pollutants like mercury. Lin said that interpretation breaks with more than 20 years of protocol.

"EPA seeks to save the Power Plan by adopting an interpretation of the phrase 'regulated under [Section 112]' that the agency never suggested before litigation in the D.C. Circuit this year," Lin plans to say. "This contrived reading – invented by EPA after two decades of reading the text 'literal[ly]' – is indefensible."

Lin, who litigated a failed attempt to block the proposed rule in spring, contends that the agency doesn't have the authority to regulate power plants under both sections.

The rules, finalized in August, seek to cut emissions from the power sector by 32 percent from 2005 levels by 2030. Its rules for existing plants require states develop plans to hit specific carbon reduction goals, though it offers a variety of channels to achieve them, including replacing coal-fired power with natural gas and renewables, energy efficiency programs and cross-state emissions trading programs.

In the absence of a state-submitted plan, the agency would impose a backstop federal plan.

Lin will argue that the approach is illegal, since it goes beyond regulating the power plants and presses states shift to natural gas or renewable energy for electric generation.

"The Power Plan runs roughshod over States' constitutional rights regarding intrastate generation and use of electricity, and is thus illegal," he said. "That the Power Plan leaves States the option of not submitting State Plans does not cure these constitutional problems. If States comply and submit State Plans to reorganize their energy economies, they will become mere 'administrative agencies of the Federal Government' in this critical area of state authority."

While Lin's boss, Attorney General Patrick Morrisey, has pledged to sue the agency over the rules, legal challenges can't be filed until the regulations are published in the Federal Register.

The hearing will be overseen by Subcommittee Chairman Rep. Ed Whitfield, R-Ky., who authored a bill that would allow states to avoid complying with the Clean Power Plan until legal challenges are resolved. His bill was approved by the House, but faces a White House veto threat.

Lin will be joined in his arguments against the rule by Allison Wood, a partner at Hunton & Williams LLP, and Raymond Gifford, a partner with Wilkinson Barker Knauer LLP.

The Obama administration will not be without its defenders, however. Emily Hammond, a

law professor and associate dean at the George Washington University Law School, and Richard Revesz, a law professor and dean emeritus at the New York University of Law, will testify on the legal foundations of the regulations.

Revesz, who filed a brief in support of EPA against the proposed rule lawsuit, plans to mount a legal defense of the regulations as "consistent with the Clean Air Act and the Constitution."

"It is not, as opponents argue, an unprecedented approach raising the prospect of economic calamity, but rather just another example of EPA doing its job to ensure that polluters account for the cost of their pollution in a manner that still results in substantial net economic benefits to the public," he plans to say.

Quick Links

Interior HQ should go West, says candidate Bush

House conservatives back Ryan, opening door to a new speaker

Study: Strong Oklahoma quakes caused by industrial activity

VW investigating whether more cars have trick software

Apple cleaning up act in China with more renewable energy

Defense attorney: Texas lawyer indicted over oil spill fraud

LA agency to raise water rates because of conservation

Correction to AP story about Blankenship trial

No output cuts agreed at Wednesday OPEC meeting

Rail shipments of coal decline as natural gas rises in popularity

Information sharing could boost grid cybersecurity, Congress told

Ohio lawsuit settlement to cost Duke $81 million

MISO reports it has sufficient power for winter

Oil bounces back after drop

More job cuts coming at Weatherford

U.S. probing corruption at Venezuela's state oil company

Canada's Trudeau has wide range of choice for Environment Minister

Upcoming Events

Interior HQ should go West, says candidate Bush

By Scott Sonner

RENO, Nev. (AP) — Jeb Bush said Wednesday that he would rein in regulation at the Interior Department as president and try to move its headquarters from Washington, D.C., to the West, home to 90 percent of federally owned land.

"There is a tradition of having a secretary from the West," the former Florida governor said at a discussion organized by his presidential campaign. "But the folks that actually do the work ... all live in Maryland, Virginia and Washington, D.C., and I think they ought to be living out amongst us."

The proposal was part of Bush's land and resource management plan, which is aimed at building consensus between federal, state and local governments.

Bush didn't say in his speech where he would locate the headquarters, although an outline suggested his proposed agency would do a better job of keeping in touch with the people it serves if it was based in a place like Denver, Salt Lake City or Reno.

More

House conservatives back Ryan, opening door to a new speaker

By Alan Fram

WASHINGTON (AP) — Backed by a majority of the pugnacious House Freedom Caucus, Rep. Paul Ryan seems all but assured of becoming the next House speaker, an ascension Republicans hope would end a month of political pandemonium that has made Congress and the GOP seem anarchic.

Meeting late Wednesday, around two-thirds of the hardline conservative group's three dozen members voted to back the Wisconsin Republican's bid for the House's top job, caucus members said. With their support the chief remaining question over whether he'd seek the job, the group's vote essentially meant the speaker's post is his for the taking when the House

formally chooses a new leader next week.

Republicans believe that by assuming command of the House, the GOP's 2012 vice presidential candidate could stem the political fratricide between the party's pragmatists and hard-right conservatives that helped force last month's startling resignation by Speaker John Boehner, R-Ohio. That conflict has also spilled over to the GOP's 2016 presidential contest, where leading candidates Donald Trump and Ben Carson have positioned themselves as outsiders and reveled in attacking establishment Republicans as relics of an outmoded era.

The Freedom Caucus' vote fell short of the 80 percent margin the group requires for an official endorsement, which Ryan had earlier demanded as a condition of seeking the post. But in a written statement afterward, Ryan erased any doubt that he considered their vote a green light to run.

More

Study: Strong Oklahoma quakes caused by industrial activity

By Justin Juozapavicius

TULSA, Okla. (AP) — A sharp rise in earthquakes in Oklahoma in the past 100 years is likely the result of industrial activities in the energy-rich state, such as oil and natural gas production, a new study suggests.

The paper by the U.S. Geological Survey, which singled out the state of Oklahoma, was released online this week and will be published in December's Bulletin of the Seismological Society of America. It concludes that injection of massive amounts of the byproduct of oil and gas production — chemical-laced wastewater — deep into the earth has induced the quakes.

The paper dates wastewater injection methods to the 1920s in Oklahoma. The modern-day process that produces the byproduct wastewater is known as fracking, or forcing millions of gallons of water, sand and other additives deep into the ground to free up pockets of natural gas.

Both the energy industry and scientists agree that fracking doesn't directly cause significant earthquakes. Where they part ways is what role injection of the byproduct wastewater back into the deep ground plays in inducing the quakes.

More

VW investigating whether more cars have trick software

Sponsored Links

By The Associated Press

BERLIN (AP) — German automaker Volkswagen says it is trying to determine whether even more of its cars may have been fitted with software that was used to cheat on U.S. emissions tests.

The company had previously said that the software was installed on cars with variants of the EA 189 diesel engine built to the "Euro 5" emissions standard.

Spokesman Pietro Zollino confirmed to the AP on Thursday a report from the dpa press agency that the company is now checking whether models with the EA 288 diesel motor built to the same emissions standard may also have the software.

Newer cars built to the "Euro 6" standard are said not to be affected.

More

Apple cleaning up act in China with more renewable energy

By Michael Liedtke

SAN FRANCISCO (AP) — Apple is cleaning up its manufacturing operations in China to reduce the air pollution caused by the factories that have assembled hundreds of millions of iPhones and iPads during the past eight years.

The world's most valuable company is working with its Chinese suppliers to eventually produce 2.2 gigawatts of solar power and other renewable energy.

The commitment announced Wednesday represents Apple's latest attempt to prevent the popularity of its devices and digital services from increasing the carbon emissions that are widely believed to changing the Earth's climate.

Apple Inc. estimates 20 million metric tons of greenhouse gas pollution will be avoided as more of its suppliers rely on renewable energy between now and 2020. That's like having four million fewer cars on the road for a year.

More

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant

prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

Defense attorney: Texas lawyer indicted over oil spill fraud

By Jeff Amy

JACKSON, Miss. (AP) — A Texas lawyer faces criminal charges after he was accused of submitting thousands of false claims for damages from the 2010 Gulf of Mexico oil spill.

Robert McDuff, a lawyer for San Antonio attorney Mikal Watts, confirmed Wednesday that Watts was indicted in Mississippi and will appear in court Oct. 29 in Gulfport.

"I look forward to a speedy trial and the opportunity to prove to a jury that I am not guilty of any crimes," Watts said in a statement.

McDuff said the indictment is sealed and he wouldn't discuss the specific charges against Watts. He said they are related to allegations that Watts committed fraud or forgery when he claimed to represent 44,000 clients in litigation against BP PLC.

More

LA agency to raise water rates because of conservation

By The Associated Press

LOS ANGELES (AP) — Los Angeles residents who conserved water during the drought will be paying more for using less.

The Los Angeles Daily News reports the Department and Water and Power board voted Tuesday to hike rates 4 percent in January because the utility lost money due to conservation.

The DWP estimates it received around $111 million less than expected in the last fiscal year because customers used about 10 percent less water than expected.

The hike will increase the average residential monthly bill from around $50 to $51.53. But the DWP says with less water being used, most customers will still pay less per month than in 2014.

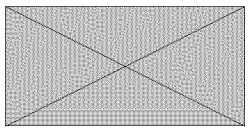
Correction to AP story about Blankenship trial

Sponsored Links

CHARLESTON, W Va. (AP) — In a story about coal ex-CEO Don Blankenship's criminal trial published by EnergyGuardian Wednesday evening, AP incorrectly stated the role of former assistant prosecutor Mike Hissam. He helped investigate the Upper Big Branch mine, not build the case against Blankenship, before becoming a defense attorney.

A corrected version of the story can be viewed here

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

No output cuts agreed at Wednesday OPEC meeting

A Wednesday meeting between OPEC and representatives from five other oil producing countries did not produce any agreement on production cuts, despite proposals from Venezuela to increase prices, Reuters reports.

More

Rail shipments of coal decline as natural gas rises in popularity

The Association of American Railroads reports that coal shipments by rail continue to drop as natural gas increasingly becomes the fuel of choice for power plants, Platts reports. The 95,822 carloads of coal moving last week represented a drop of nearly 3 percent from the previous week and 13 percent from a year ago.

More

Information sharing could boost grid cybersecurity, Congress told

Real-time information sharing from the federal government would help the electricity industry defend against cyberattacks, an executive from FirstEnergy Service Company told a joint hearing of two House Science, Space and Technology subcommittees Wednesday, The Hill reports.

More

Ohio lawsuit settlement to cost Duke $81 million

Trouble seeing this email? Click here.

Duke Energy and its Ohio subsidiary have denied the claims made in a class-action lawsuit over contracts in the state, but the firms have agreed to settle for $81 million to avoid further litigation, The Charlotte Observer reports.

More

MISO reports it has sufficient power for winter

Changes made by the Midcontinent Independent System Operator following the frigid Polar Vortex weather pattern two years ago are helping to bolster grid reliability for the coming winter season, Platts reports.

More

Oil bounces back after drop

Oil was trading higher early Thursday following a drop the day before on Energy Information Administration reports of a jump in stockpiles. U.S. benchmark crude rose 40 cents to $45.60 a barrel in electronic trading on the Nymex, while in London Brent gained 38 cents to $48.23, Reuters reports.

More

More job cuts coming at Weatherford

Prompted by the continued fall in crude prices, oil field services operator Weatherford International says it will trim 3,000 more positions before the end of the year, bringing its total job cuts to 14,000, FuelFix reports.

More

U.S. probing corruption at Venezuela's state oil company

No charges have been made public yet, but sources tell The Wall Street Journal that federal prosecutors in at least four different jurisdictions have been investigating allegations that top officials at Venezuela's state oil company were soliciting kickbacks and bribes from companies involved in construction projects.

More

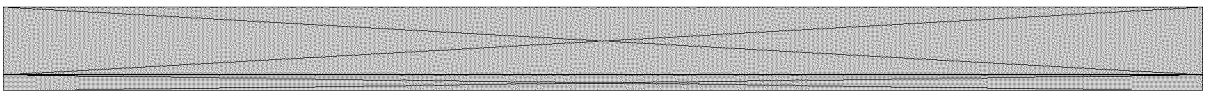
Canada's Trudeau has wide range of choice for Environment Minister

More than half a dozen candidates are possibilities to take the post of Environment Minister in Canada as Justin Trudeau picks his new cabinet, according to the National Observer.

More

Upcoming Events

- Oct. 22, Washington: The House Energy and Commerce Subcommittee on Energy and Power to hold a hearing on the legality of the Environmental Protection Agency's final Clean Power Plan. 2:00 pm , 2123 Rayburn.
- Oct. 22, Washington: The House Science, Space and Technology Committee to hold a hearing on the Environmental Protection Agency's final rule to set the ground-level ozone standard to 70 parts per billion. 10:00 am , 2318 Rayburn.
- Oct. 22, Washington: Environmental Protection Agency Administrator Gina McCarthy to discuss her agency's proposed rule to limit methane emissions from the oil and gas sector at an event hosted by the Center for American Progress. 10:00 am , 1333 H St. NW.
- Oct. 22, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on a bill to assist rural communities to meet Environmental Protection Agency drinking water rules. 10:00 am , 2123 Rayburn.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Wright, DavidA[Wright.DavidA@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Ex. 7
Ex. 7
From: Ex. 7
Sent: Thur 10/22/2015 12:49:11 PM
Subject: A3 e-tron

David,

Thanks for the help getting the A3 e-tron Certificate done for us. We really appreciate it.

Regards,

Ex. 7

EEO

EXHIBIT C

INSTRUCTIONS

1. This Request is a continuing request. You must promptly supplement your response in the event that you learn that you possess responsive documents or information not yet produced, or gain possession, custody or control of responsive documents or information after initially responding to this Request.

2. For both paper and electronic records, provide documents in their original language and, if the original language is not English, an English translation.

3. Paper documents should be produced in legible copies, organized by request and, within each request, by component and custodian. For electronically stored information, including but not limited to computer files or disks, produced in response to this information request:

   a. Provide detailed instructions sufficient to enable the federal government to access and retrieve the data contained in each such file or disk.
   b. Deliver emails in their native format, preferably from the database (folder) itself and not as individual emails. Microsoft Outlook emails should be delivered for each custodian in PST format; Lotus Notes emails should be delivered in NSF format. Other emails should be produced in comparable formats.
   c. If VW maintains responsive information in a commercially available software format for spreadsheets, word processing documents, presentations, photographs, etc. (e.g., Microsoft Excel, Corel WordPerfect), then:
      i. Files should be delivered in their native format.
      ii. Native files should be collected using a method that preserves all of the files' metadata, folder location and generates a "hash" value for verification that an exact copy of the file was collected.
      iii. Files should be organized on the media in folders by component and custodian.
      iv. AutoCAD Files, GIS Data, and other compound files should be produced in native format on its own media. A native file viewer should also be included in order to view the data.
   d. If VW maintains responsive information in an enterprise database or archiving system, the system must be made available to the government for inspection including any manuals, field lists, data dictionaries, indices, etc. for the government to use to formulate methods for identifying and extracting responsive information into a usable form. Information identified as responsive within the system must be extracted in a forensically sound manner and provided with documentation of the procedures used to identify and extract the responsive information from the system.
   e. VW shall not de-duplicate its production without prior notice to and consultation with the EPA.
   f. Label all media with the name of the company, the source of the information, and a tracking

number.

g. Ensure that all submissions of electronic data are free of computer viruses and that all passwords protecting files or media are removed or provided with the media.

4. Where documents or information necessary for a response are not in your possession, custody, or control, indicate in your response why such information is not available or in your possession, custody or control, and identify any source that either possesses or is likely to possess such information.

5. All submitted documents should be copies and not original documents. Provide two complete sets of the requested documents and information.

6. Indicate on each document produced the number of the question to which it corresponds.

7. Where VW has previously submitted to the EPA or the California Air Resources Board (CARB) information requested herein, re-submit the information in the format requested. Identify the material that was previously provided, the date on which it was provided, and the person at the EPA or CARB to whom it was provided.

To: mike.hennard@vw.com[mike.hennard@vw.com]
Cc: Ball, Joel[ball.joel@epa.gov]
From: Gordinier, Terry
Sent: Thur 10/22/2015 2:29:43 PM
Subject: Catalytic Converter Warranty
20150928_152720_001.jpg
Ex. 6 150763383.pdf

Michael Hennard

Senior Manager - Emissions Compliance EEO

Volkswagen Group of America

3800 Hamlin Road

Auburn Hills, MI 48326

Mr. Hennard,

It has been brought to the EPA's attention from consumers Ex. 6 that while their 2008 VW Touareg (VIN Ex. 6) registered a catalytic converter failure at 79,886 miles, by the time they brought the vehicle into a VW dealership, the odometer read 80,051 miles, whereupon the dealership informed them VW could not perform the necessary repair under the federal emission warranty. They were also informed that even though the diagnostic test was done by an independent shop, if the diagnostic were to have been done by the dealership, the result regarding the emission warranty coverage would have been the same.

The Ex. 6 have appealed the denial of emission warranty coverage to Volkswagen's customer care center, which notified the Ex. 6 that as a result of their investigation, they are upholding the denial of the Ex. 6 warranty claim.

Verifiable evidence exists of the catalytic converter failure occurring within the mileage limitation, and while the odometer exceeded the 80,000 threshold by the time the vehicle was brought into the VW dealership, it does not reflect a situation where the consumer continued to drive the vehicle and accumulate an excessive amount of mileage, perhaps into the thousands, before bringing the vehicle into the dealership with the expectation of having their emission warranty honored. Rather, this vehicle would be approximately 50 miles over the 80,000 mile

warranty, while keeping in mind that the failure was recorded at just less than 120 miles under the 80,000 expiration.

This situation appears as one where the consumer made a reasonable effort to have their concern addressed under the federal emission warranty, including an appeal to Volkswagen's customer care, and that this customer has a legitimate argument to have their warranty claim recognized by the manufacturer.

As a result, the EPA request that Volkswagen please reconsider their position regarding the Ex. 6 warranty claim of the failed catalytic converter on their Touareg, and to perform the necessary repair under the emission warranty.

Kind Regards,

Terry Gordinier

Environmental Protection Agency

Light Duty Vehicle Group

Compliance
Division

Ph: 734.214.4517

Email: Gordinier.Terry@epa.gov

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Thur 10/22/2015 3:27:15 PM
Subject: Air & Radiation Law News for October 22, 2015

Air & Radiation Law News

for October 22, 2015

Bloomberg BNA **Daily Environment Report™**

Climate Change

Climate Change to Slam Global Economy, Study Finds

Climate change could cause 10 times as much damage to the global economy as previously estimated, slashing output as much as 23 percent by the end of the century, a new research paper from Stanford University and the University of California,...

Climate Regulation

EPA: Clean Power Plan Extensions Not a 'Heavy Lift'

The Environmental Protection Agency has intentionally set a very low bar for states seeking a two-year extension to submit plans to implement the Clean Power Plan, the agency's top air pollution official said....

Climate Regulation

New Oil, Gas Greenhouse Gas Reporting Mandates Finalized

Oil and natural gas companies will be required to collect and report additional greenhouse gas emissions data under a final Environmental Protection Agency rule to be published Oct. 22. ...

Climate Science

World Posts Warmest First Nine Months Since 1880, U.S. Says

Last month was the world's warmest September, and the globe has just marked its hottest first nine months for any year going back to 1880, the National Centers for Environmental Information said Oct. 21....

Corporate Responsibility

MIT Won't Divest Fossil Fuel Stocks, Joins Yale

The Massachusetts Institute of Technology rejected demands from a student-led group to divest its $13.5 billion endowment of fossil fuel investments, joining universities such as Harvard and Yale....

Corporate Responsibility

Panelists: Corporate Governance Must Engender Public Trust

The success of corporate sustainability efforts largely depends on the private sector's ability to demonstrate environmental leadership and to maintain public trust, industry officials and attorneys said during an Oct. 20 forum on...

Energy

Nuclear Industry's Future in Flux Due to Market Challenges

With the future of the nuclear industry remaining in flux as reactors start closing due to economic challenges, the Federal Energy Regulatory Commission and Nuclear Energy Commission stressed the importance of nuclear power as a carbon-free,...

Hazmat Transport

House, Senate Seem Broadly in Sync on Hazmat Agenda

The House and Senate seem broadly in sync when it comes to setting an agenda for hazardous materials transportation programs through fiscal year 2021, foreshadowing what a final six-year authorization may address....

International Climate

Decarbonization Goal Likely Left to World Leaders in Paris

International climate negotiators continue to struggle in Bonn on one of the more intractable issues confronting efforts to get a global climate accord, in part because they are still faced with too many choices on setting a goal to decarbonize...

International Climate

Official Defends U.S. Climate Policy as Global Talks Near

The Obama administration is dismissing congressional attempts to undercut a policy that is the centerpiece to both its domestic climate change agenda and its contribution toward a potential global climate deal....

International Climate

World Can Decouple Emissions, Electricity Demand, IEA Says

Power sector carbon dioxide emissions would decouple from soaring global electricity demand by 2030 if pledges that countries have made for this year's Paris climate summit are actually implemented, the International Energy Agency...

Regulatory Policy

Republicans Target EPA Regulatory Analysis Process

Senate Republicans accused the Environmental Protection Agency of using flawed regulatory impact analyses to justify expensive regulations, pledging greater congressional scrutiny and oversight. ...

Renewable Energy

Mexico Planning Coast-to-Coast Wind-Energy Push

Mexico is planning to quadruple its wind-power capacity as part of President Enrique Pena Nieto's effort to transform the country's energy industry....

Sustainability

Sustainable Investing Is Booming. Is It Smart?

Want to invest in "high-quality, attractively priced companies making a positive impact on the world"? Of course you do....

BNA INSIGHTS

Can EPA's Clean Energy Incentive Program Spur Growth in Renewable and Efficiency Projects?

On Aug. 3, the Environmental Protection Agency released its final rule regulating emissions of carbon dioxide from certain existing power plants. The rule, known as the Clean Power Plan, is the pièce de résistance of President...

Inside EPA's **Weekly Report**, 10/23/2015

http://insideepa.com/newsletters/inside-epa

Latest News

EPA Suggests Utility MACT Reassessment Will Likely Project Lower Costs

EPA is suggesting that its pending review of the costs and benefits of its power plant maximum achievable control technology (MACT) air toxics rule will likely show lower compliance costs for the rule than previously estimated, aiming to boost its call for a federal appeals court to reject vacatur of the rule while EPA undertakes the review.

U.S. Chamber Touts Regulatory Bill To Resolve EPA Cost-Benefit Concerns

The U.S. Chamber of Commerce is urging Senate Republicans to advance a regulatory reform bill that would create additional hurdles for EPA and other agencies to promulgate expensive regulations, saying the legislation could help to resolve concerns about EPA crafting flawed cost-benefits analyses for its major air, water and other rules.

EPA Defends Rationale For Avoiding Distinct 'Secondary' Ozone Air Limit

EPA is defending the scientific rationale for its decision to avoid setting a distinct "secondary" ozone air standard designed to protect the environment separate from its strengthened "primary" health-based limit issued this month, after White House reviewers told the agency to ensure the decision is based on a review of ozone's welfare effects.

Republicans, Environmentalists Ramp Up Attacks On EPA Ozone Standard

Republicans and environmentalists are ramping up competing attacks on EPA's decision to tighten its ozone air limit from 75 parts per billion (ppb) down to 70 ppb, with the GOP House holding an Oct. 22 hearing on the data behind the standard while advocates claim the agency heeded the utility sector's call not to tighten the limit below 70 ppb.

News Briefs

Advocates Defend Utility GHG Rules Ahead Of Publication

Environmentalists are stepping up their defense of EPA's suite of greenhouse gas (GHG) rules for power plants ahead of the agency's expected publication of the rules in the *Federal Register* as soon as Oct. 23, a move that will trigger a flurry of lawsuits from state and industry critics of the GHG regulations.

D.C. Circuit Rejects Request To Amend Test Fuels Ruling

The U.S. Court of Appeals for the District of Columbia Circuit has rejected ethanol advocates' petition for the court to revise its July 14 opinion upholding EPA's vehicle fuels testing policy in *Energy Future Coalition, et al. v. EPA*, after the pro-ethanol groups claimed the court had wrongly interpreted the Clean Air Act.

Greenwire

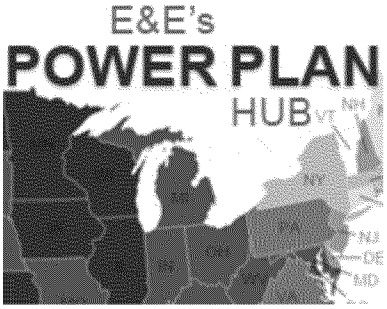
CLEAN POWER PLAN:

Final rule will be in tomorrow's *Federal Register*

Amanda Reilly, E&E reporter

Published: October 22, 2015 at 9:46 AM

The Obama administration's landmark rule to stem carbon dioxide emissions from existing power plants will be published in tomorrow's *Federal Register*.



The publication of the Clean Power Plan will set off a flurry of legal activity, with several states expected to immediately request a stay of the contentious rule. Fifteen states filed a lawsuit to block a draft of the rule, but their challenges were premature before the publication of the rule.

To secure a stay of the rule, opponents must prove they will face irreparable harm if the rule is in effect.

U.S. EPA finalized the rule in early August, and some critics have accused the agency of attempting to stall challenges by delaying publication. But EPA has maintained that it sent the rule to the *Federal Register* under an expedited schedule.

EPA's final rule to address carbon dioxide emissions from new and modified power plants, as well as its draft federal implementation plan for states that do not comply with the Clean Power Plan, are also scheduled to be published tomorrow.

ENERGY MARKETS:

Supreme Court's challenge: Fit new grid into old law

Robin Bravender, E&E reporter

Published: Wednesday, October 21, 2015

What happens when you try to fit an evolving electric grid into an 80-year-old statute?

Lawsuits wind their way to the Supreme Court.

In a move that surprised energy experts, the high court has decided to hear at least two cases this year that deal with how to regulate evolving electricity markets. It's an unusual amount of attention being paid by the high court to complex energy policies, and many attribute the heightened scrutiny to the rapidly changing nature of the grid and electricity markets.

"It's a great celebration of the 80th anniversary of the statute," said Jim Rossi, a law professor at Vanderbilt University who specializes in energy law. "In many ways, I think what's at issue here is whether an old New Deal statute can work effectively in managing a dynamic new interstate market that just didn't exist when the statute was passed."

The statute in play: the Federal Power Act, which in 1935 gave the Federal Energy Regulatory Commission the power to regulate interstate electricity transmission and wholesale energy rates.

The intricacies of that law are now being tested in two major Supreme Court cases. In the first, argued

last week before the court, justices are weighing whether a government "demand response" program to encourage consumers to slash electricity use surpasses FERC's authority. In the second -- just teed up this week for consideration later this term -- the justices will consider a related question about whether state programs to provide incentives for new power generation cross into FERC's territory.

The complex cases are being closely watched by a wide range of parties including federal regulators, states, power companies and environmentalists. And the court's decisions in both cases could have a major impact on the future of programs like demand response and state and federal efforts to set new energy policies.

"Everybody in the energy industry who I know is pretty familiar with these cases," Rossi said.

The court's decision could bring clarity to those looking for boundaries that weren't laid out explicitly in the Federal Power Act.

"There's a real need from the perspective of regulators at both the state and federal level to try to work out what the boundaries are," Rossi said, particularly as federal regulators are trying to push the electric power industry toward greater efficiency and some states are pursuing their own aggressive renewable energy policies. "There is some real concern in the industry; investors want certainty."

Ari Peskoe, an energy fellow at Harvard Law School's Environmental Policy Initiative, said it's surprising the court decided to take back-to-back FERC cases.

"Hopefully, these two decisions combined will give a lot of clarity in an area that I think really needs it," he said. "This section of the Federal Power Act was written 80 years ago, and it hasn't changed, but the industry has."

There's some concern among those watching the case that the court could split 4-4 in the demand response case due to a recusal by Justice Samuel Alito, simply upholding the lower court's decision and offering little guidance on the boundaries.

"The investment outlook is very important, whether you're a utility or independent generator or demand response provider or renewable energy provider because of the long life of the assets that you're being called upon to invest in," said Christi Tezak, an analyst at ClearView Energy Partners. "The industries' investors are very curious; they are watching this closely."

Impact on Clean Power Plan

The court's decisions could also affect compliance with the Obama administration's landmark Clean Power Plan -- a rule to curb greenhouse gases from the power sector.

"To the extent that the Clean Power Plan envisions states adopting policies that will promote lower-carbon sources of energy -- whether those sources of energy are renewable power, nuclear power or natural gas -- as part of those programs, states are very invested in putting in place incentives, subsidies, other programs to encourage new investment in these sources of energy," Rossi said.

"It's precisely those types of incentives and the form that those incentives take" that's being challenged in the case about states encouraging new power generation, he added. "So what's at core here is really what energy federalism will tolerate states doing to promote certain sources of energy against the backdrop of interstate markets, which FERC regulates."

Joseph Hall, a partner at Dorsey & Whitney and co-chairman of the firm's energy industry group, said the Obama administration rule "contemplates that states will require utilities to substitute the use of higher-

emission CO2 fossil-fuel-fired generators with lower or zero-emitting generators, presumably through a combination of shifting from coal-fired units to increased reliance on natural gas generation and renewables.

"The idea that states cannot interfere with FERC's jurisdiction over wholesale markets is not new, but depending on its scope, an order by the Supreme Court finding that states cannot set rules that interfere with the way that generation resources are dispatched in wholesale markets may have a direct impact on a cornerstone of the carbon plan," Hall added.

Tezak, however, said she isn't expecting the court's rulings to have a big impact on compliance with the Clean Power Plan, which prods states to develop plans to slash power plant emissions to comply with federal reduction limits.

In the demand response case, she said, "I think it's relevant, but a bit oblique," because EPA has acknowledged the role of demand response as a way to help avoid emissions.

In the second case involving incentives for state generation, she added, "I would suggest that the question before the court is not whether or not a state can define the environmental parameters of generation. That was never in dispute." That case centers on a natural gas plant and is about the ability to provide power when called upon, she said, whereas renewable energy is often variable and intermittent.

"Their ability to participate for the context of this state case is apples and steak," Tezak said. "It's not even really an orange."

CLIMATE:

Greens hail 'breakthrough' as Clinton faults FERC's record

Hannah Northey, E&E reporter

Published: Wednesday, October 21, 2015

Democratic presidential front-runner Hillary Clinton's criticism of the Federal Energy Regulatory Commission for failing to fully weigh concerns about climate change and the impacts of energy development on communities is being praised by environmentalists who have been protesting the agency's work on natural gas projects.

Speaking at a town hall meeting at New Hampshire's Keene State College last week, Clinton said FERC hasn't done enough to consider local opposition, safety issues and, most notably, climate change.

"Right now, [FERC's] mandate seems to be only about delivery of energy at anywhere, any time, and I don't think that's adequate in today's world," Clinton said. "If we're going to have a national commitment to do something about climate change, FERC needs to be part of that national commitment, and that's my view on how we have to alter a lot of parts of the federal government."

Clinton's comments came in response to a question on the Northeast Energy Direct project, a Kinder Morgan gas pipeline that would intersect 17 towns in the Granite State. Bipartisan New Hampshire lawmakers have urged federal watchdogs to make sure the public has a say in FERC's reviews (*E&E Daily*, July 21).

Although Clinton said she only became familiar with the opposition to FERC reviews after traveling through New Hampshire, activists who have for months protested on FERC's doorstep, interrupted

meetings and organized climate marches said her comments symbolized national recognition of the problem and are essentially a game changer.

"We think this is a big deal," said Ted Glick, national campaign coordinator for the Chesapeake Climate Action Network. "I'd personally call it a breakthrough.

"She is echoing what Beyond Extreme Energy and many other groups have been saying," he added, "that FERC needs to change to get with the up-and-coming renewables-based electrical/energy system."

Clinton said the concerns residents have raised with FERC's reviews are "legitimate" because the agency is employing a process that doesn't give enough weight to public opinion in areas intersected by natural gas pipelines.

She also vowed to put pressure on the commission for improvements if she wins the White House.

The agency "does not pay, in my opinion, enough attention to all of the other issues, whether they be health issues, safety issues and the like," Clinton said. "I am going to do what I can to try to make it absolutely the case that FERC has to, in any of these decisions, pay much more attention to local communities and listen to what your concerns are and do much more to evaluate whatever the consequences or the downsides of these decisions are."

But she stopped short of endorsing one commenter's accusation that the agency is funded by the oil and gas industry.

"They are certainly, as a regulator for oil and gas, used to paying attention to what oil and gas industry says, I'll absolutely give you that," Clinton said.

Environmental groups have for months pushed FERC to examine the effect of proliferating projects tied to the U.S. natural gas boom on global warming, arguing that the National Environmental Policy Act requires such assessments before projects move on.

But FERC has repeatedly stood its ground in saying there's no reliable formula for weighing the effects on the environment of emissions from any pipeline, compressor station or export terminal. The agency has also said it can't measure a project's indirect effects, such as how one pipeline might spur more drilling for gas (*Greenwire*, Oct. 20, 2014).

In July, Clinton unveiled an energy platform that includes vows to vastly expand the nation's solar capacity by 2020 and ensure that renewable energy sources contribute to at least a third of the nation's energy generation. She has also said she will back an expansion of the renewable fuel standard and work to end tax benefits to the fossil fuel industry (*Greenwire*, July 27).

But Clinton at the town hall meeting said natural gas can serve as a bridge fuel as the nation transitions away from fossil fuels to cleaner energy sources, and credited the Obama administration with curbing greenhouse gas emissions from gas production. She also said the White House had convinced her that hydraulic fracturing is appropriate in some places and not in others.

"If a local government says, 'No, not here,' they should be able to do that," Clinton said. "We have to move away from fossil fuels, including gas, but that gas can be a useful bridge, especially as we move away from coal and we move away from dirtier oil and some of the really bad alternatives."

FEDERAL WORKFORCE:

Employees could see pay cuts if Ryan wins speaker

Published: Wednesday, October 21, 2015

Federal workers can expect Rep. Paul Ryan (R-Wis.) to come down hard on their paychecks if he becomes the next speaker of the House.

During his four years leading the House Budget Committee, Ryan spearheaded legislation that would have raised pension contributions with no benefit increase, killed a retirement program for certain government staffers, eliminated student loan reimbursements and cut jobs.

The bills died in the Senate, which was then controlled by Democrats.

"Ryan demonstrated a belief that government is the cause of all the woes in this country," said William Dougan, president of the National Federation of Federal Employees.

"The Path to Prosperity," the name for his fiscal 2015 budget proposal, promised to balance the budget in part by slashing almost $140 billion from federal employees through pay freezes, pay reductions and benefit cuts, a report from House Budget Committee Democrats argued.

Budget Committee ranking member Chris Van Hollen (D-Md.) called Ryan's plan "a straight-out 5 percent pay cut."

Jessica Klement, legislative director for the National Active and Retired Federal Employees Association, said Ryan becoming speaker would be an ominous sign based on his voting record.

"I'm not optimistic," she said (Joe Davidson, *Washington Post*, Oct. 20). **-- DTB**

CLEAN POWER PLAN:

'Assume the rule will survive,' former EPA chief tells states

Amanda Reilly, E&E reporter

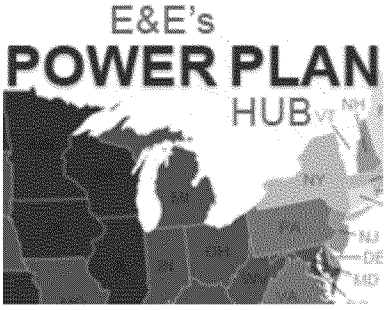
Published: Wednesday, October 21, 2015

Former U.S. EPA Administrator William Reilly said today the Clean Power Plan would survive legal challenges, urging regulators to start writing state plans.

Reilly -- who was President George H.W. Bush's EPA chief -- criticized Republican elected officials who have publicly opposed EPA's bid to reduce the power sector's carbon footprint and said it would be a "bad idea" to not write state implementation plans, or SIPs, to comply with the program.

"Move ahead with planning and assume the rule will survive," he told an Environmental Council of the States meeting in Washington, D.C.

Finalized in early August, EPA's Clean Power Plan aims to reduce carbon dioxide emissions from existing power plants. While Reilly said he was "under no illusion that meeting the objectives of the Clean Power Plan will be easy or straightforward," he said he believed EPA had put forth a flexible final program that would allow for collaborations between states and faster adoption of renewable forms of energy.



In his speech today, Reilly criticized congressional Republicans broadly for not believing that climate change was a problem.

"Many of the governors take a similarly dim view of the science of climate change and also would repudiate the rule," he said. "Several governors and legislatures have said they will not allow their regulators to submit state implementation plans. That would be a bad idea."

Reilly cast the decision of writing a state implementation plan as a choice between following the law or politics. He warned that in states that don't submit plans, Congress had sent an "unmistakable message" through the cooperative-federalism framework of the Clean Air Act that EPA would step in to protect public health with a federal implementation plan.

"I suspect that in the end, none of the governors and attorneys general ... want to see the agency write their implementation plan," he said. "They may be partisan, but they're not stupid."

Fifteen states filed a lawsuit to block the draft of the rule, and when the final version was unveiled, they petitioned for an emergency stay. When the rule is published in the *Federal Register*, their challenges will no longer be premature, and opponents are likely to file petitions for review and ask the court to stay the rule.

While he said the Clean Air Act was far from an ideal tool to address climate change, Reilly said that EPA was working within the authority given to it by Congress to reduce carbon dioxide emissions.

Reilly said that opponents who are pushing for a stay will be hard-pressed to prove to a court that the rule will cause immediate damage, since any effects are likely to be far in the future. He said that he expected the rule would hold up against the various legal challenges.

"My own expectation is even if elements of the rule are disapproved," he said, "most of what it contemplates will survive."

In addition to his work at EPA, Reilly has served as president of the World Wildlife Fund and currently sits on the board of Texas-based Energy Future Holdings Corp.

Paul Bailey, senior vice president of federal affairs and policy for the American Coalition for Clean Coal Electricity, told regulators at the ECOS meeting to not rush into making plans, arguing instead that the rule had a "very good chance" of getting struck down.

"How far do you go to make irrevocable commitments considering this program could be overturned in court?" Bailey said.

Reilly praised electric utilities for steps they've already taken to reduce carbon dioxide emissions but said the power sector, as a major generator of CO2, must move further and faster to avert "potentially catastrophic climate events," he said.

Quoting Pope Francis' encyclical calling for moral action to address climate change, Reilly said he believes state air regulators are the "unsung heroes on whom we all depend" and that the politics would catch up to actions they take to address climate change.

"The culture is moving ahead of the politics on climate, and where culture leads, the politics eventually and inevitably follows," Reilly said. "The clean power rule is on the right side of history."

WHITE HOUSE:

Admin launches Twitter account on climate

Kevin Bogardus, E&E reporter

Published: Wednesday, October 21, 2015

The White House has launched a new Twitter account to get out its message on climate change.

Yesterday, @FactsOnClimate began sending out tweets on support from administration officials, businesses and lawmakers for taking action against climate change.

"Get the facts on how @POTUS is combating climate change in the U.S. and mobilizing the world to #ActOnClimate," reads the Twitter account's bio.

The account also links to a White House webpage, espousing President Obama's efforts to combat climate change, including U.S. EPA's Clean Power Plan, which aims to reduce carbon emissions from power plants.

The Twitter account is part of a renewed push on the environment by the Obama administration ahead of next month's high-stakes international climate negotiations in Paris.

The White House has been looking to gin up support for a strong deal coming out of the talks. Earlier this week, the president rolled out private-sector backing for action on climate with more companies signing onto a White House pledge that the Paris negotiations produce a "strong step forward" in controlling global warming (*Greenwire*, Oct. 19).

PUBLIC OPINION:

75% of Americans now believe in climate change -- poll

Published: Wednesday, October 21, 2015

More than three-quarters of Americans believe that climate change is happening, according to a poll released yesterday, but views on environmental and energy topics still appear to be closely tied to political affiliation.

The University of Texas poll found that the number of climate change believers had risen by 11 percentage points to 76 percent from five years ago. But the split between political parties is still wide; 90 percent of Democrats believed climate change was occurring compared with 59 percent of Republicans.

"Political ideology continues to be the single greatest determinant of Americans' views on climate change," UT Energy Poll Director Sheril Kirshenbaum said in a statement (Jennifer Dlouhy, *Fuel Fix*, Oct. 20). **-- BTP**

ENERGY EFFICIENCY:

Dyson accuses rivals of Volkswagen-style deception

Published: Wednesday, October 21, 2015

In a mirror of this year's Volkswagen scandal, a British appliance company is accusing two European rivals of misleading consumers about the energy use of their vacuums.

Dyson Ltd. is suing Bosch and Siemens AG on the grounds that independent testing shows some of their products can use more than double their rated electricity draw under certain conditions. In particular, the products appear to increase their power as the machines suck up dust, compared with testing situations that have little dust.

"Bosch has installed control electronics into some of its machines to wrongfully increase energy consumption when in use -- to cheat the E.U. energy label," owner James Dyson said. "Their behavior is akin to that seen in the Volkswagen scandal."

In response, BSH Home Appliances, the manufacturer of the Bosch and Siemens brands, defended its "long and proud tradition of stringent testing."

"All Bosch and Siemens vacuum cleaners are measured in compliance with European energy regulations. Appliance performance at home is consistent with laboratory performance -- and any suggestion to the contrary is grossly misleading" (Press Association/London *Guardian*, Oct. 21). **-- BTP**

NATIONAL LABS:

Oak Ridge official tapped to lead NREL

Ariel Wittenberg, E&E reporter

Published: Wednesday, October 21, 2015

An Oak Ridge National Laboratory official will take the helm of the National Renewable Energy Laboratory next month.

Martin Keller was tapped by the Alliance for Sustainable Energy, which manages NREL for the Department of Energy, to take the helm vacated by the retirement of Dan Arvizu in March. Arvizu worked for the alliance for more than 10 years and led its successful contract bid to manage NREL in 2008.

PEOPLE

Keller, who will start Nov. 30, is currently Oak Ridge's associate laboratory director for energy and environmental sciences. In that role, he oversaw the lab's programs on biosciences, environmental sciences, building, technologies, transportation, climate change, manufacturing and electrical systems.

"I've been impressed by both the quality of the research and the impact that NREL is having nationally and globally in enabling the transformation of energy systems," Keller said in a statement. "I am looking forward to becoming a part of NREL's future success."

Assistant Secretary for Energy Efficiency and Renewable Energy David Danielson said Keller's work in clean energy innovation at Oak Ridge will serve as a foundation for leadership at NREL.

"I look forward to working with Martin hand in hand as strategic partners to deliver the technologies and solutions that will create American leadership in the transition to a global clean energy economy," he said.

AIR POLLUTION:

Researchers who tested Volkswagen diesels didn't expect scandal

Published: Wednesday, October 21, 2015

The researchers at West Virginia University's Center for Alternative Fuels, Engines and Emissions and the group that commissioned them to study U.S. diesel car emissions had no idea they would uncover a massive scandal.

"We thought the vehicles would be clean," said John German, U.S. co-director of the International Council on Clean Transportation. "We had no cause for suspicion." The group had contracted the WVU scientists to study American clean diesel cars made by Volkswagen and BMW in a bid to figure out how the automakers had met America's tough emissions standards and whether their approach could be implemented in European cars.

The researchers thus began to test the cars under a variety of driving conditions and stumbled on the deception. After recalibrating their instruments several times, the researchers eventually realized that Volkswagen vehicles were emitting five to 35 times more than the legal amount of emissions while driving, despite emitting normal emissions under testing conditions.

After sharing the results with Volkswagen, the team was contacted by several people from the company about the tests, and the issue eventually seemed to fade. The scientists assumed that there was some error in the models tested and that Volkswagen was working to correct it.

"We didn't hear anything more from them, so we fully assumed that they had made some recalls," said Daniel Carder, head of the WVU center (Lawrence/Elgin/Silver, Bloomberg, Oct. 21). **-- BTP**

JAPAN:

Fukushima worker will receive workers' comp for cancer

Published: Wednesday, October 21, 2015

Japan has agreed to pay workers' compensation to a man who developed leukemia after working to clean up the Fukushima Daiichi nuclear power plant.

Yesterday, the country's Ministry of Health, Labor and Welfare said the man's cancer could have been caused by radiation from the damaged plant -- the first such acknowledgment since the 2011 accident at the plant (*Greenwire*, Oct. 20).

The man was one of more than 40,000 workers who helped clean up the Fukushima Daiichi plant after it suffered multiple meltdowns following a tsunami. Several of those workers have since been diagnosed with cancer and are pursuing compensation from public insurance or plant owner Tokyo Electric Power Co. (Jonathan Soble, *New York Times*, Oct. 20). **-- BTP**

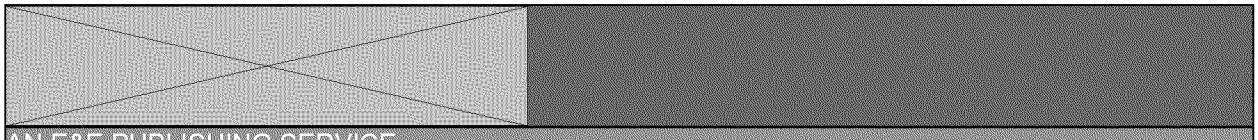
CLIMATE:

Former DOE official McConnell says power plan a forced renewable portfolio standard

Published: Wednesday, October 21, 2015

Does the Clean Power Plan help spur carbon capture and storage technology innovation and investments? During today's OnPoint, Charles McConnell, executive director of Rice University's Energy and Environment Initiative and a former assistant secretary of Energy at the Department of Energy, discusses the Obama administration's fossil energy strategy and the challenges ahead for technological innovation. He also explains why he believes the Obama administration has been "disingenuous" about its plans for an all-of-the-above energy strategy.

Click here to watch today's OnPoint.



AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Thu., October 22, 2015

READ FULL EDITION

1.NEGOTIATIONS:

Major oil-producing nations have not revealed their plans to reduce CO2 emissions

BONN, Germany -- Kuwait, Malaysia and the United Arab Emirates are preparing to submit their climate change targets to the United Nations, negotiators from those countries told *ClimateWire*. They are among 41 nations that, for various reasons, have not offered plans for curbing greenhouse gas emissions as part of a new global agreement set for Paris in December.

2.ECONOMICS:

New study suggests fossil fuel demand is beginning a nosedive

Successful companies make and sell products that consumers demand, and fossil energy companies have long said demand for their products -- particularly from emerging markets -- will be strong decades from now.

TODAY'S STORIES

3.BUSINESS:

Companies report $2.5B in 'detrimental' expenses from water scarcity this year

4.EXTREME WEATHER:

Earth experienced hottest September on record -- NOAA

5.BUSINESS:

Nordic countries slash energy use with everything from free transportation to apps

6.RENEWABLE ENERGY:

Apple begins to install solar power in China to reduce emissions

7.FINANCE:

MIT declines to divest from fossil fuels, angering student activists

8.WILDFIRES:

Scorched private forests will create more water problems in Calif. -- study

9.BIOMASS:

Wood pellet demand threatening wetland forests in southeast U.S. -- report

10.ADVOCACY:

Young conservatives huddle on clean energy, not climate change

11.REGULATION:

States 'off and running' to comply with EPA climate rule -- McCabe

12.FOSSIL FUELS:

U.S. leading G-7 in moving away from coal -- report

13.REGIONS:

Europe's GHG emissions plunge to record low

14.LAW:

Supreme Court considers key case about demand response and FERC's authority

15.RELIGION:

Dalai Lama urges action on climate change for 'survival of humanity'

E&ETV'S ONPOINT

16.BIOFUELS:

DuPont's Koninckx says RFS uncertainty driving investments abroad

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Thu., October 22, 2015

READ FULL EDITION

1.SECURITY:

Nuclear, grid regulators compare notes on cyberdefense

Regulators of the nation's nuclear plants and high-voltage power lines met yesterday for a top-level review of threats and hurdles each faces from cyberattacks, natural disasters and the grid's disruptive transitions.

2.SECURITY:

Denial of service attack shows limits of info sharing -- utility exec

This Tuesday morning, computer networks at FirstEnergy Corp. came under attack. A "denial of service" strike was threatening to flood the energy giant's network with online requests, according to Bennett Gaines, the Ohio-based company's chief information officer and senior vice president for corporate services. Data on the attack had also been shared with the U.S. government. But Gaines wasn't holding his breath for it to get out to those who could use it to block certain Internet Protocol addresses or take other defensive actions.

TOP STORIES

3.CLEAN POWER PLAN:

Rule poses no near-term threat to public power credit -- S&P

4.OIL:

Industry cautiously eyes new Canadian PM's focus on climate

ELECTRICITY

5.UTILITIES:

TVA analysis sees significantly less value in solar

6.SOLAR:

MIT research uses viruses to better capture sun's energy

OIL AND GAS

7.LAW:
Wash. court weighs environmental review for crude-by-rail facilities

8.EARTHQUAKES:
Study suggests historic Okla. quakes caused by oil and gas

9.OIL:
Middle East exporters face slowing economies -- IMF report

10.OIL:
U.S. production finally sinking under OPEC's glut

11.PUBLIC OPINION:
Majority of Americans want climate action, local drilling control

E&ETV'S ONPOINT

12.BIOFUELS:
DuPont's Koninckx says RFS uncertainty driving investments abroad

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

From: Glaser, Danica (ENRD)
Location: Danica's conference line (below)
Importance: Normal
Subject: VW -- Call with EPA and WVU re document collection
Start Date/Time: Mon 10/26/2015 5:00:00 PM
End Date/Time: Mon 10/26/2015 6:00:00 PM

;
Call-in number: 866-410-9426
Passcode **Non-Responsive**

To: Ex. 7
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Ex. 7
Ex. 7
From: Wright, DavidA
Sent: Thur 10/22/2015 5:38:49 PM
Subject: RE: A3 e-tron

No problem.

Regards,

David

From: Ex. 7
Sent: Thursday, October 22, 2015 8:49 AM
To: Wright, DavidA <Wright.DavidA@epa.gov>
Cc: Snyder, Jim <Snyder.Jim@epa.gov>; Ex. 7
Ex. 7
Ex. 7
Subject: A3 e-tron

David,

Thanks for the help getting the A3 e-tron Certificate done for us. We really appreciate it.

Regards,

Ex. 7

EEO

To: Dieu, Martin[Dieu.Martin@epa.gov]
Cc: Grundler, Christopher[grundler.christopher@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Kasman, Mark[Kasman.Mark@epa.gov]; Almodovar, Lisa[Almodovar.Lisa@epa.gov]
From: Phillips, Anna
Sent: Thur 10/22/2015 6:32:42 PM
Subject: FINAL Briefing Memos for Administrator's Meetings with EU and German Officials
GM-EU VP Sefcovic Meeting 10 23 2015 FINAL.doc
GM-German Minister Dobrindt Meeting 10 27 2015 FINAL.doc

Martin, here are the final versions of the subject memos which are ready to be sent to the Administrator's Office.

I also am copying OAR and OECA so that they have the final versions.

Many thanks…
Anna

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington D.C.

October 21, 2015

MEETING WITH EUROPEAN COMMISSION VICE PRESIDENT FOR ENERGY UNION MAROŠ ŠEFČOVIČ

DATE: October 23, 2015
LOCATION: Alm Conference Room
TIME: 11:00 – 11:30 a.m.
FROM: Anna Phillips, OITA

I. PURPOSE

Vice President Šefčovič *[SHEF-cho-veech]* requested this meeting to reaffirm the importance of cooperation with the U.S. on energy and climate issues. He is particularly interested in discussing EU and U.S. efforts to address the Volkswagen case, but he also may raise preparations for UNFCCC COP 21 in Paris and the Montreal Protocol.

Vice President Šefčovič was recently appointed to oversee the EU's efforts to respond to the Volkswagen case. According to the U.S. Mission to the EU, this decision was due to his stature and proven track record as a highly effective diplomat as he personally negotiated the gas deal between Russia and Ukraine and he was responsible for developing and selling the EU's Energy Union Strategy to 28 EU Member States. A brief biography is attached.

Current EU emissions testing regimes are much less rigorous than those in the United States. In addition, the European Commission does not have direct testing or enforcement authority and must rely on individual Member States to take those actions. Therefore, it is still unclear what steps the European Commission will be able to take in response to this case. Recent news coverage provides additional context and selected articles are attached for reference.

While in Washington, Vice President Šefčovič will meet with Energy Secretary Ernest Moniz, the White House, Department of State, U.S. Senate, World Bank, IMF and will speak at the Johns Hopkins University School of Advanced International Studies. The original purpose of his visit to Washington was to co-chair the U.S. - EU Energy Council with Secretary of State John Kerry but the meeting was cancelled at the last minute due to Secretary Kerry's recent decision to travel to the Middle East.

Vice President Šefčovič assumed his responsibilities as part of the new European Commission which took office in November 2014 for a five-year term. At the initiative of incoming European Commission President Jean Claude Juncker, a new matrix management structure was created which established six Vice Presidents responsible for cross-cutting issues who coordinate and oversee the work of other Commissioners with related and sometimes overlapping portfolios.

Vice President Šefčovič's mandate includes responsibility for establishing a European Energy Union (infrastructure connectivity, enforcement and competition); preventing energy shortages, diversifying energy sources and improving energy security; improving energy efficiency, especially for buildings (with a binding target of 30% less energy use by 2030); and ensuring that the EU reaches its climate and energy targets for 2020 and 2030.

This is your first meeting with Vice President Šefčovič. You recently met with EU Commissioner for Environment, Maritime Affairs and Fisheries Karmenu Vella in September.

II. PARTICIPANTS

Attendees
- Vice President Šefčovič
- Caroline Vicini, Deputy Chief of Mission, EU Delegation (Embassy) to the United States
- Juraj Nociar, Head of Cabinet of Vice President Šefčovič
- Bernd Biervert, Deputy Head of Cabinet of Vice President Šefčovič
- Jeffery Piper, International Relations Officer, Directorate-General for Energy
- Fabrice Vareille, Minister Counselor for Environment, Energy and Transport, EU Delegation
- Michael Koplovsky, Minister Counselor, Economic Affairs, U.S. Mission to the EU, Brussels

Staff
- YOU
- Jane Nishida, OITA
- Chris Grundler, OAR/OTAQ
- Cynthia Giles, OECA
- Evan Belser, OECA
- William Niebling, OAR
- Benjamin Hengst, OAR
- Mark Kasman, OITA
- Anna Phillips, OITA

III. AGENDA: This will be an informal discussion with no set agenda.
- YOU will start the meeting by welcoming participants and offering brief opening comments.
- Vice President Šefčovič will provide a brief overview of relevant issues from the EU perspective followed by a general discussion.

IV. PRESS: This is a closed meeting with no press attendance.

V. TALKING POINTS: Talking points are attached with key messages in bold.

VI. ATTACHMENTS
- Talking Points
- Biography of Vice President Šefčovič
- Selected News Articles

EPA Staff Contact: Anna Phillips, OITA; 202-564-6419

VW FOIA, EPA 06/20/2017 2017-FFP_034877

TALKING POINTS:

- Vice President Šefčovič *[SHEF-cho-veech]*, it is a pleasure to welcome you to EPA. I always appreciate the opportunity to exchange experiences with European partners so that we can learn from each other and meet our common challenges.

- I recently had the pleasure of meeting with Commissioner Vella who I understand is a member of your team at the European Commission.

- **Volkswagen's violations are egregious and serious.**

  - On September 18, EPA sent a Notice of Violation of the Clean Air Act to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. alleging that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards. These cars contain software that turns off emissions controls when driving normally, and turns them on when the car is undergoing an emission test.

  - Known as a "defeat device," this design feature results in the cars emitting up to 40 times the amount of NOx emissions that are allowed to ensure public health is protected.

  - The Volkswagen violations are very serious. Not only because the illegal defeat device results in excess NOx pollution at levels up to 40 times the allowable standard, but also because VW was concealing the facts from EPA, the State of California, and from consumers.

  - Using a defeat device in cars to evade clean air standards is illegal and a threat to public health.

- **EPA and CARB together are taking action.**

  - Working closely with the California Air Resources Board, EPA is committed to making sure that all automakers play by the same rules. EPA will continue to investigate these very serious matters.

- **EPA's oversight testing is robust and has been successful.**

  - We take seriously our responsibility to oversee the implementation and enforcement of our clean air regulations. It is this oversight that ensures both the benefits of clean air emissions standards; that industry is competing on a level playing field; and that consumers are getting what they pay for.

  - Our regulatory programs for cars and trucks are working. We know this because air quality monitors tell a clear and compelling story: U.S. air quality has dramatically improved as a result of implementing our program, even as vehicle miles and the economy have grown significantly.

  - EPA and California's motor vehicle programs have been very successful at delivering on our agencies' missions to protect human health and the environment.

Background: EPA issued a notice of violation (NOV) of the Clean Air Act (CAA) to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. on September 18, 2015. The NOV alleges that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards for certain air pollutants. The software produced by Volkswagen is a "defeat device," as defined by the Clean Air Act. California also issued its own In-Use Compliance letter to Volkswagen on September 18.EPA and the California Air Resources Board have both initiated investigations based on Volkswagen's alleged actions.

U.S. and European vehicle emission control programs differ in several important ways.

Structurally, EPA has comprehensive responsibility and authority to set vehicle emission standards, certify that vehicles meet those standards before they can be sold, monitor compliance of production vehicles throughout their useful life, and enforce compliance with the standards. Europe also requires manufacturers to secure up-front approval that vehicles meet emission standards. However, unlike EPA's certification process, the EU allows manufacturers to obtain that approval from commercial test labs. The labs must be certified by a member state but manufacturers may choose any certified lab in any member state for the testing. Europe's in-use oversight is also different. The only in-use compliance requirement is that manufacturers randomly test a small sample of their own vehicles and report the results to authorities. Each member state has its own enforcement authority and protocols.

U.S. and European emission standards and test procedures also differ in several ways including stringency. The U.S. NOx standard to which the VW defeat device vehicles were certified was significantly more stringent than the European NOx standard. In addition, the U.S. required much more rigorous test procedures than the EU did to measure compliance with those standards.

EPA adopted a 5-cycle test requirement as part of its Tier 2 emission standards, which phased in starting in MY 2004. The additional cycles were developed to address high-emission conditions such as high-speed, aggressive driving, low temperatures, and heat load/air conditioning use that had not been captured by the previous city and highway driving cycles. Europe also has recognized and is moving to address the gap between emissions measured over its lab testing cycles and real-world road driving. Europe plans to implement new test cycles that capture certain additional operational modes starting with 2017 models. Of course, it is still possible to deliberately defeat known test cycles, which is why we have now incorporated unpredictable procedures to detect defeat devices during certification and as part of our in-use monitoring program.

UNFCCC COP 21 (if raised):

- EPA continues to foster our relationships with other countries to address global climate change both bilaterally and by participation in UNFCCC international negotiations for which the State Department has the lead for the U.S. Government.

- The United States is fully engaged in the effort to deliver a strong agreement in Paris.

- On March 31, the U.S. announced a target to reduce climate pollution 26-28% below 2005 levels in 2025. This target is both ambitious and achievable. It is consistent with achieving deep, economy-

wide reductions of over 80 percent by 2050. It roughly doubles the pace of emission reductions for the period 2020-2025 as compared to 2005-2020.

- We also have intensified focus on bolstering our domestic resilience to climate change.

Montreal Protocol (if raised):

- The United States, Canada, and Mexico have modified our HFC amendment approach for a two-step process to phase down HFCs:
  - adopt a more limited HFC amendment at the 2015 MOP, and
  - agree to negotiate the rest of the phasedown and other aspects in 2016.

- This approach is our best chance to adopt an amendment this year. We remain committed to the overall ambition of our proposed amendment, and we will revisit the rest in 2016.

- Our overall objectives on HFCs are very similar, and we want to work together.

- **There are two key aspects that may still divide us:**

  - **First, you use a basket approach including both HCFCs and HFCs together, whereas we phase down HFCs alone. I'd urge you to consider whether our simpler approach of addressing HFCs will work for you, as the basket approach you suggest is not a typical Montreal approach and introduces a lot of complexity.**

  - **Second, you are still pushing for a full non-Article 5 (developed) phasedown even if Article 5 (developing) countries only commit to a freeze. We propose limiting our reductions to the first two of the four steps for non-Article 5 because:**

    1. **It gives us something to offer for the negotiations in 2016;**
    2. **Some of our developed country partners have reservations about the last two steps so we will have to push them very hard to get there; and**
    3. **It introduces excessive differentiation just before COP 21 where we are trying to avoid differentiation.**

VW FOIA, EPA 06/20/2017 2017-FFP_034880

- **We also urge your Member States to send a strong signal that they are prepared to provide the financial support necessary for Article 5 to meet HFC obligations. The June G-7 statement on finance for an amendment should be helpful in this regard.**

VW FOIA, EPA 06/20/2017 2017-FFP_034881

EUROPEAN COMMISSION VICE PRESIDENT FOR ENERGY UNION MAROŠ ŠEFČOVIČ

Slovak nationality. Married with three children.

- Commission Vice-President for Energy Union (2014 – present)
- European Commissioner and Vice-President for Inter-Institutional Relations (2010-2014)
- European Commissioner for Education, Training, Culture and Youth (2009-2010)
- Slovak Permanent Representative to the EU (2004-2009)
- Director-General of European Affairs Section, Slovak Ministry of Foreign Affairs (2003)
- Director-General of Bilateral Cooperation Section, Slovak Ministry of Foreign Affairs (2002)
- Ph.D. in international and European law, Comenius University in Bratislava (2000)
- Ambassador, Slovak Embassy, Israel (1999)
- Deputy Head of Mission, Slovak Mission to the EU in Brussels (1998)
- Director, Slovak Foreign Minister's Office (1998)
- Deputy Director, Slovak Foreign Minister's Office (1997)
- Deputy Director for the EU and NATO countries, Slovak Ministry of Foreign Affairs (1996)
- Deputy Chief of Mission, Czech and Slovak Embassy, Canada (1992)
- Doctor of Law (JUDr.), Comenius University in Bratislava (1990)

VW FOIA, EPA 06/20/2017 2017-FFP_034882

http://www.nytimes.com/2015/10/15/business/international/cozy-relations-complicate-europes-bid-for-new-car-tests.html

The New York Times

International Business

VW Scandal Exposes Cozy Ties in Europe's New Car Tests

By DANNY HAKIM and GRAHAM BOWLEY

OCT. 14, 2015

LONDON — Three diesel cars were taken out for a trial run last year by a German engineering and testing company. Employees at the company, TÜV Nord, drove the cars in Stuttgart and in Munich, and in suburbs, on country roads and on highways.

What they found was that all of the cars — a Volkswagen, a BMW and a Mazda — gave off far more pollutants than they did in lab tests, in some cases, more than six times the limit under new European regulations. For TÜV Nord, the research was just another confirmation of the shortcomings of the existing European lab tests.

The Hanover-based TÜV Nord knows as much as any company about how diesels perform on the road and in the lab. Widely regarded for its engineering expertise, the company has been a major force in developing a more accurate testing process for Europe's cars, which is expected to be introduced in the next year or so.

But the scandal at Volkswagen has exposed the deep conflicts in the chummy world of European emissions testing, where car manufacturers hire outside firms to certify their pollution controls in laboratories. Not only is TÜV Nord at the forefront of finding a new testing regimen for automakers, but it is also the company that signed off on VW's emissions tests in Europe.

Many of Volkswagen's vehicles, the automaker admitted last month, included software programmed to cheat on laboratory emissions tests. Given TÜV Nord's testing expertise, the situation raises questions about what, if anything, it knew about VW's tactics. And it highlights the weaknesses in a system that relies on contractors paid by carmakers to carry out the tests.

Since Volkswagen admitted the deception, TÜV Nord has been largely silent. A spokeswoman declined to comment on the specifics of the Volkswagen case, including whether the vehicles it tested were programmed to thwart laboratory tests, or if it had raised concerns about the vehicles' performance on the tests.

In an email, the spokeswoman said little beyond confirming that "TÜV Nord performs emission measurements within the framework of the approval process for models of different vehicle manufacturers (among others for VW)."

Who conducts emissions tests and how they are done remains a central question on both sides of the Atlantic after the Volkswagen scandal. While regulators in the United States allow automakers to do their own testing, the American system is seen as more robust than Europe, because the Environmental Protection Agency conducts random tests of its own.

Although Volkswagen's deception was particularly egregious, testing firms in Europe are generally seen as assisting automakers employ what are legal strategies to help their vehicles reduce their pollution in a lab in ways they never could on the road. Among other problems with the process, automakers in Europe can run their tests on preproduction cars that may not perform like the cars that ultimately come off the assembly line.

"Testing companies assist with the distortion of laboratory test results to produce artificially low results," said Greg Archer, the clean vehicles program manager at Transport & Environment, an advocacy group. "We have testing organizations that are working for the carmakers, exploiting all the loopholes that they can in an obsolete testing procedure."

TÜV Nord, which is privately held, has its roots as one of a number of trade associations set up to inspect steam boilers in 19th-century Germany. Now it has more than 10,000 employees around the world and inspects everything from satellite components to computer networks, and operates a food testing laboratory in Pune, India.

While one of TÜV Nord's promotional videos notes its "objective outside viewpoint," the company has a close relationship with Volkswagen, which goes beyond emissions testing.

TÜV Nord has also worked for Volkswagen in the United States; its engineers spent a week auditing environmental compliance at the carmaker's plant in Chattanooga, Tenn., before production started in 2011. One of the members of TÜV Nord's supervisory board, Stephan Schaller, has also been an executive at both Volkswagen and BMW during his tenure on the TÜV board.

This spring, TÜV Nord's chairman, Guido Rettig, posed for a photograph next to Martin Winterkorn, then the chief executive of Volkswagen. Both men smiled as Mr. Rettig awarded Mr. Winterkorn and Volkswagen with an oversized certificate for overall quality excellence "throughout its entire organization," according to a news release.

"It testifies to the outstanding work of everyone at VW," Mr. Winterkorn said at the time.

Following the Volkswagen scandal, automakers have publicly embraced the on-road tests that TÜV Nord and other groups are helping develop in Europe, though they are also lobbying behind the scenes to make them much easier to pass.

None dispute that their cars emit more on the road than they do in the precise conditions of lab tests, as studies have shown. Volkswagen did not respond to requests for comment, but the two other companies involved in the TÜV Nord test last year acknowledged such differences.

"The driver may brake and accelerate more frequently, and ascend steeper slopes than is done during testing," said Graeme Fudge, a Mazda spokesman. "All of these factors will increase engine emissions."

VW FOIA, EPA 06/20/2017 2017-FFP_034884

Michael Rebstock, a spokesman for BMW, said the company supported "rapid introduction of the new regulations to create clarity for consumers and the industry as quickly as possible."

Concerns about diesel pollution have long festered in Europe, where diesels are more popular than anywhere else, and regulators have spent several years trying to develop tests outside laboratories. The United States has required such tests on large diesel trucks since a similar cheating scandal in 1998, but Europe's will be the first required for cars by regulators anywhere.

With its extensive research, TÜV Nord, which has been developing portable testing equipment for trucks for more than a decade, was a natural partner on the project. The company has been a regular presence at a technical working group advising policy makers in Brussels, the seat of the European Commission.

Even environmental advocacy groups have sought TÜV's help. Transport & Environment has taken part in discussions about the new European tests and has used TÜV Nord for one of its own studies.

The International Council on Clean Transportation, which oversaw the independent tests of diesel emissions that led to the Volkswagen scandal, is currently collaborating on a study with TÜV Nord of emissions from diesel-electric hybrid vehicles.

Vicente Franco, a researcher at I.C.C.T. who has taken part in meetings in Brussels with officials from TÜV Nord, said the company "made meaningful contributions that were meant to make the on-road tests more robust."

Still, Mr. Franco conceded that the interconnectedness underscores the vulnerabilities of the system. "There is a financial dependency between the technical services and manufacturers that at some point should be rethought to improve the confidence in the system, but this is a long-term process, and it takes a lot of political will," he said.

Many policy makers have faulted the passive role played by regulators and believe there is a need for far more independent tests. Regulation in Europe is handled by each of the 28 member states, and there is little enforcement.

"We are definitely against having self-regulatory tests, because obviously they are not working," said Miriam Dalli, a Social Democrat from Malta who sits on the European Parliament's environmental committee. "We need an independent testing system."

Giovanni La Via, the chairman of the Parliament's environmental committee, says there needs to be a new European agency to oversee car testing in the 28 member states.

"European institutions react after a scandal," said Mr. La Via, a member of the center-right European People's Party, the largest bloc in the Parliament. "We need to use the same procedure for all the car producers. We cannot maintain 28 different systems."

Danny Hakim reported from London, and Graham Bowley from Wolfsburg, Germany.

VW FOIA, EPA 06/20/2017 2017-FFP_034885

EEST Press Clips
October 20, 2015

Dieselgate: More EU countries join call for stricter emission tests

EurActiv (Oct 20) - Several EU member states including major automaker France will urge Europe's pollution regulator to thoroughly assess the consequences of the Volkswagen emissions scandal, according to a document seen by AFP Monday (19 October). "The environmental dimension needs to be clearly assessed and highlighted," said the letter, which was addressed to the EU's 28 environment ministers ahead of talks on October 26 in Luxembourg.

"The case could have a direct bearing on the total emissions of a country, and might have an impact on efforts by all member states to fulfill their (emission) obligations ... and meet air quality standards in the EU," the letter said.

The letter, dated Monday, was written by Austria and Denmark and officially backed by France, the Netherlands, Slovenia and Luxembourg. It did not involve Germany, the home of auto giant Volkswagen that is under fire for massive cheating on emission tests.

The actual target of the letter is the European Commission, the EU's regulatory arm that sets emission rules across the 28-country bloc, but without any power of oversight, which remains with national authorities.

The Commission must "give a concise overview of the actions and measures being taken to clarify the magnitude of the manipulation of diesel cars," the letter said.

The six countries also urged the swift introduction of real-driving tests that are widely known to stamp out the sophisticated cheating carried out by Volkswagen in laboratory tests.

At issue is the date when the real driving tests should be enforced and what delay should be allowed before emissions limits are policed fully. The introduction of these tests "needs to be taken forward more quickly," the letter said. Officially, the real-life tests will begin in January, but only for reference.

The executive's proposal, which remains unofficial, allows car companies until 2019 to fully implement the new standard, a delay seen as unjustified by activists. In its own letter to ministers, Belgium said full implementation should take place no later than 2017.

But the pressure on European governments to not overly upset the auto industry is huge, especially as the economic fallout of the VW scandal remains unknown. According to industry data, the auto sector is responsible for about 12 million jobs across the EU, where economic growth remains sluggish and joblessness is still a concern.

VW FOIA, EPA 06/20/2017 2017-FFP_034886

EU countries warn of Volkswagen scandal fallout

AFP (Oct 19) - Several EU member states including major automaker France will urge Europe's pollution regulator to thoroughly assess the consequences of the Volkswagen emission scandal, according to a document seen by AFP Monday.

"The environmental dimension needs to be clearly assessed and highlighted," said the letter, which was addressed to the EU's 28 environment ministers ahead of talks on October 26 in Luxembourg.

"The case could have a direct bearing on the total emissions of a country, and might have an impact on efforts by all member states to fulfil their (emission) obligations ... and meet air quality standards in the EU," the letter said.

The letter, dated Monday, was written by Austria and Denmark and officially backed by France, the Netherlands, Slovenia and Luxembourg. It did not involve Germany, the home of auto giant Volkswagen that is under fire for massive cheating on emission tests.

The actual target of the letter is the European Commission, the EU's regulatory arm that sets emission rules across the 28-country bloc, but without any power of oversight, which remains with national authorities.

The Commission must "give a concise overview of the actions and measures being taken to clarify the magnitude of the manipulation of diesel cars," the letter said.

The seven countries also urged the swift introduction of real-driving tests that are widely known to stamp out the sophisticated cheating carried out by Volkswagen in laboratory tests.

At issue is the date when the real driving tests should be enforced and what delay should be allowed before emission limits are policed fully.

The introduction of these tests "needs to be taken forward more quickly," the letter said.

Officially, the real-life tests will begin in January, but only for reference.

The Commission proposal, which remains unofficial, allows car companies until 2019 to fully implement the new standard, a delay seen as unjustified by activists.

In its own letter to ministers, Belgium said full implementation should take place no later than 2017.

But the pressure on European governments to not overly upset the auto industry is huge, especially as the economic fallout of the VW scandal remains unknown.

According to industry data, the auto sector is responsible for about 12 million jobs across the EU, where economic growth remains sluggish and joblessness is still a concern.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington D.C.

October 21, 2015

MEETING WITH GERMAN MINISTER OF TRANSPORT AND DIGITAL INFRASTRUCTURE ALEXANDER DOBRINDT

DATE: October 27, 2015
LOCATION: Alm Conference Room
TIME: 11:00 a.m. – 12:00 p.m.
FROM: Anna Phillips, OITA

I. PURPOSE

Minister Dobrindt requested this meeting to discuss the Volkswagen case. He would like to inform EPA about the actions that the German government has taken and will take in response. He also is interested to learn about emission standards and testing in the United States, EPA's plans to further improve the testing process in the future, and learning more about the U.S. enforcement process. Current EU emissions testing regimes are much less rigorous than those in the United States.

Minister Dobrindt has been designated to lead the German government's response to the Volkswagen case. The German Federal Motor Transport Authority, or KBA, recently demanded the recall of 2.4 million cars in Germany after rejecting Volkswagen's proposals to fix vehicles fitted with the software designed to cheat on emissions tests. This mandatory recall is expected to lead to callbacks throughout Europe, where diesel cars comprise more than half of the market. Recent news coverage provides additional context and selected articles are attached for reference.

Minister Dobrindt has been in his position since December 2013. A member of the German Bundestag (Parliament), he has experience and remains active at all levels of government. A brief biography is attached.

This is your first meeting with Minister Dobrindt. The discussion will build on a productive conference call between OTAQ and German Ministry senior staff on this issue in late September.

II. PARTICIPANTS

Attendees
- Minister Dobrindt
- Hans Peter Wittig, German Ambassador to the United States
- Ekhard Zinke, President, Federal Motor Transport Authority (KBA)
- Gerold Reichle, Director-General, Department of Aviation
- Sebastian Rudolph, Director-General, Department of Communication
- Tobias Miethaner, Director-General, Department of Digital Society

- Petra Bethge, Director of International Relations and Foreign Trade
- Benedikt Kuhn, Director of Communications
- Immanuel Wolf, Office of International Relations and Foreign Trade
- Nicole Schreiter, Personal Assistant to Minister Dobrindt
- Stephan Zass, Counselor for Transportation and Digital Infrastructure, German Embassy
- Michael Weber, Energy Policy Advisor, German Embassy
- Konstantina Makridou, Interpreter

Staff
- YOU
- Jane Nishida, OITA
- Chris Grundler, OAR
- Cynthia Giles, OECA
- Evan Belser, OECA
- William Niebling, OAR
- Benjamin Hengst, OAR
- Mark Kasman, OITA
- Anna Phillips, OITA

III. AGENDA

This will be an informal discussion with no set agenda.

- YOU will start the meeting by welcoming the participants and offering very brief introductory comments.
- Minister Dobrindt will provide a brief overview of relevant issues from the EU perspective followed by a general discussion.

IV. PRESS: This is a closed meeting with no press attendance.

V. TALKING POINTS: Talking points are attached, with key messages in bold.

VI. ATTACHMENTS
- Talking Points
- Biographies of Minister Dobrindt and Ambassador Wittig
- Selected News Coverage

EPA Staff Contact: Anna Phillips, OITA; 202-564-6419

VW FOIA, EPA 06/20/2017 2017-FFP_034889

TALKING POINTS:

- Minister Dobrindt, Mr. Ambassador, it is a pleasure to welcome you to EPA. I always appreciate the opportunity to exchange experiences with European partners so that we can learn from each other and meet our common challenges.

- I was pleased to learn that our staffs have already been in touch to exchange initial information regarding the Volkswagen case and we hope that they found the conversation useful.

- **Volkswagen's violations are egregious and serious.**

  - On September 18, EPA sent a Notice of Violation of the Clean Air Act to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. alleging that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards. These cars contain software that turns off emissions controls when driving normally, and turns them on when the car is undergoing an emission test.

  - Known as a "defeat device," this design feature results in the cars emitting up to 40 times the amount of NOx emissions that are allowed to ensure public health is protected.

  - The Volkswagen violations are very serious. Not only because the illegal defeat device results in excess NOx pollution at levels up to 40 times the allowable standard, but also because VW was concealing the facts from EPA, the State of California, and from consumers.

  - Using a defeat device in cars to evade clean air standards is illegal and a threat to public health.

- **EPA and CARB together are taking action.**

  - Working closely with the California Air Resources Board (CARB), EPA is committed to making sure that all automakers play by the same rules. EPA will continue to investigate these very serious matters.

- **EPA's oversight testing is robust and has been successful.**

  - We take seriously our responsibility to oversee the implementation and enforcement of our clean air regulations. It is this oversight that ensures both the benefits of clean air emissions standards; that industry is competing on a level playing field; and that consumers are getting what they pay for.

  - Our regulatory programs for cars and trucks are working. We know this because air quality monitors tell a clear and compelling story: U.S. air quality has dramatically improved as a result of implementing our program, even as vehicle miles and the economy have grown significantly.

  - EPA and California's motor vehicle programs have been very successful at delivering on our agencies' missions to protect human health and the environment.

Background: EPA issued a notice of violation (NOV) of the Clean Air Act (CAA) to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. on September 18, 2015. The NOV alleges that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards for certain air pollutants. The software produced by Volkswagen is a "defeat device," as defined by the Clean Air Act. California also issued its own In-Use Compliance letter to Volkswagen on September 18.EPA and the California Air Resources Board have both initiated investigations based on Volkswagen's alleged actions.

U.S. and European vehicle emission control programs differ in several important ways.

Structurally, EPA has comprehensive responsibility and authority to set vehicle emission standards, certify that vehicles meet those standards before they can be sold, monitor compliance of production vehicles throughout their useful life, and enforce compliance with the standards. Europe also requires manufacturers to secure up-front approval that vehicles meet emission standards. However, unlike EPA's certification process, the EU allows manufacturers to obtain that approval from commercial test labs. The labs must be certified by a member state but manufacturers may choose any certified lab in any member state for the testing. Europe's in-use oversight is also different. The only in-use compliance requirement is that manufacturers randomly test a small sample of their own vehicles and report the results to authorities. Each member state has its own enforcement authority and protocols.

U.S. and European emission standards and test procedures also differ in several ways including stringency. The U.S. NOx standard to which the VW defeat device vehicles were certified was significantly more stringent than the European NOx standard. In addition, the U.S. required much more rigorous test procedures than the EU did to measure compliance with those standards.

EPA adopted a 5-cycle test requirement as part of its Tier 2 emission standards, which phased in starting in MY 2004. The additional cycles were developed to address high-emission conditions such as high-speed, aggressive driving, low temperatures, and heat load/air conditioning use that had not been captured by the previous city and highway driving cycles. Europe also has recognized and is moving to address the gap between emissions measured over its lab testing cycles and real-world road driving. Europe plans to implement new test cycles that capture certain additional operational modes starting with 2017 models. Of course, it is still possible to deliberately defeat known test cycles, which is why we have now incorporated unpredictable procedures to detect defeat devices during certification and as part of our in-use monitoring program.

VW FOIA, EPA 06/20/2017 2017-FFP_034891

ALEXANDER DOBRINDT

GERMAN FEDERAL MINISTER OF TRANSPORT AND DIGITAL INFRASTRUCTURE

Born 7 June 1970 in Peißenberg, Bavaria; Roman Catholic; married, one child

1989: Degree in Sociology at the Ludwig Maximilian University of Munich

1995: Awarded Diploma in Sociology

1996 – present: County Councillor on Weilheim-Schongau County Council

1996 – 2005: Managing Director and silent partner of engineering firm Holzner & Sanamij

1996 – 2011: City Councillor in Peißenberg

2002 – present: Member of the German Bundestag (Parliament)

2005: Deputy Chair of the Bundestag Committee on Economics and Labour

2005 – 2008: Spokesperson for economic policy of the Bundestag CSU Land Association

April 2009 – present: Chair of the Weilheim-Schongau CSU County Association

December 2013 – present: Federal Minister of Transport and Digital Infrastructure

VW FOIA, EPA 06/20/2017 2017-FFP_034892

PETER WITTIG

GERMAN AMBASSADOR TO THE UNITED STATES

Peter Wittig has served as German Ambassador to the United States since April 2014.

Prior to this, he was German Ambassador to the United Nations in New York and represented Germany during its tenure as a member of the UN Security Council from 2011 until 2012. There, he drew on his wide expertise in United Nations matters, having previously served as Director-General for United Nations and Global Issues at the German Foreign Office in Berlin and having been posted to the German Permanent Mission in New York in the late 1980s.

Wittig joined the German Foreign Service in 1982. He has also served in Madrid, at the headquarters as the private secretary to the Foreign Minister, and as Ambassador both in Lebanon and then in Cyprus. He was the German Government Special Envoy on the "Cyprus question" (the division of Cyprus). He has acquired extensive knowledge of the Middle East.

Before starting his career in the German Foreign Service, Wittig studied history, political science, and law at Bonn, Freiburg, Canterbury, and Oxford universities and taught as an assistant professor at the University of Freiburg. His wife, Huberta von Voss-Wittig, has worked as both a journalist and a writer. The couple has four children: Valeska, Maximilian, Augustin, and Felice.

VW FOIA, EPA 06/20/2017 2017-FFP_034893

United States Mission to the European Union

EEST Press Clips
October 20, 2015

Germany says Volkswagen could have broken EU law

Brussels, 19/10/2015 (Agence Europe) - According to a decision made by the Federal Motor Transport Authority (Kraftfahrt-Bundesamt - KBA) on Thursday 15 October, as reported in the German newspaper, Bild Zeitung, Volkswagen has systematically used cheat devices, which would have clearly broken European law.

The German newspaper's article is based on a letter from the German Transport Minister, Alexander Dobrindt, who quotes Article (5, 2) of EC Regulation 715/2007 "on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information". The article in question focuses on the requirements and tests carried out during the trials and categorically prohibits cheat devices, "which reduce the effectiveness of emissions control systems".

The article includes, however, three exceptions to this ban, when: the device is justified in terms of engine protection against damages or accidents and to ensure vehicles function in perfect safety; that they are only activated when the engine starts; or when "the conditions are substantially included in trial procedures for verifying evaporation related emissions and average emissions from the rear exhaust pipe". In the same regulation, another article (3.10) is quite clear about cheat devices, namely, "in all conceptualisation elements used for temperature detection, vehicle speed, engine speed in revolutions / minute, transmission, vacuum or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, which reduces the effectiveness of emission control system under conditions which may reasonably be expected to be in operation and normal vehicle use".

According to some observers, this decision provides a possibility for member states to pursue the German manufacturer in the courts. Article 13 of the same regulation highlights the obligation incumbent on member states to sanction manufacturers that have breached the above-mentioned requirements and to do so in a way that is efficient, proportionate and dissuasive.

There are five kinds of infringements: false declarations during registration or recall procedures; the falsification of registration test results or those pertaining to service compliance; concealing data or technical specifications that could lead to a recall or withdrawal from registration; the use of cheat devices and, finally, a refusal to grant access to information. (Original version in French by Pascal Hansens)

VW FOIA, EPA 06/20/2017 2017-FFP_034894

http://www.bloomberg.com/news/articles/2015-10-15/vw-faces-mandatory-recall-in-germany-over-diesel-cheating

BLOOMBERG BUSINESS

VW Will Recall 8.5 Million Rigged Diesels After German Hard Line

Volkswagen recall in Europe will last beyond the end of 2016

German authorities rejected VW's offer of voluntary repairs

Updated on October 15, 2015 — 4:09 PM EDT

Volkswagen AG will embark on one of the biggest recalls in European automotive history, affecting 8.5 million diesel vehicles, after German authorities threw out the carmaker's proposal for voluntary repairs.

The Federal Motor Transport Authority, or KBA, demanded a recall of 2.4 million cars in Germany after reviewing proposals Volkswagen filed last week to fix vehicles fitted with software designed to cheat on pollution tests, German Transport Minister Alexander Dobrindt said Thursday in Berlin. The mandatory recall is the basis for callbacks throughout Europe, where diesel accounts for more than half the market.

Germany's rare public snub of its biggest carmaker came after Volkswagen circumvented diesel emissions regulations starting in 2008. The country's demands will speed a process that Volkswagen said will last beyond 2016, and give authorities more control.

"It's an unusual measure to be ordering a mandatory recall," said Arndt Ellinghorst, a London-based analyst with Evercore ISI. "It shows to me that the KBA is losing patience with VW's slow response on what to do to fix the engines so far. Customers have been left unsettled."

Biggest Recall

The 8.5 million affected cars represent slightly less than one-third of Volkswagen's auto deliveries in the region from 2009 through August, based on sales figures the company published for the five divisions involved. The recall is also Germany's biggest since its current rules took effect in 1997, more than the record 1.9 million cars the entire auto industry brought back in under repair programs last year, according to data from the Center for Automotive Management in Bergisch Gladbach, Germany.

The mandatory recall will be more expensive for Volkswagen because the company will need to work on the cars more quickly, Evercore's Ellinghorst said. The manufacturer has yet to specify exactly how it will fix the cars, though it has said some will require only a software update while others will need new or rebuilt engine parts.

"The KBA's decision opens up the possibility of a common and coordinated response in all European Union states," Volkswagen Chief Executive Officer Matthias Mueller wrote Dobrindt on Thursday in a letter obtained by Bloomberg. "Such a unified procedure would be in the European spirit as well as in the interests of customers."

Mid-November

Volkswagen must share technical details of its fix with authorities by mid-November, and the recall will begin in January. The KBA will test vehicles to ensure the repairs were successful, Dobrindt said. New parts necessary to fix some vehicles will probably be ready by next September, he said. Throughout Europe, Dobrindt has estimated that Volkswagen will probably need to exchange or rebuild parts for about 3.6 million engines.

For the sake of customers and the image of the automobile, "we will clear up what happened at Volkswagen," Enak Ferlemann, state secretary in Germany's Transport Ministry, said in a speech in the lower house of parliament. "Germany will stay the No. 1 auto country."

U.S. Remedies

Regulators in the U.S. haven't announced a recall yet. The U.S. Environmental Protection Agency, which has jurisdiction over compliance with emission standards, said it will have to evaluate whatever repairs Volkswagen proposes before it's made part of a recall.

"EPA will order a recall in the future, but will not do so until we are confident that VW's fix will work," said Laura Allen, an agency spokeswoman. "EPA will conduct our own testing to confirm this. Then we will order a recall."

The agency expects to receive information on Volkswagen's proposed remedy for diesel vehicles with so-called Gen 2 emissions controls this week, Allen said. There's no timeline for when EPA will order the recalls, she said.

The agency is still waiting on Volkswagen to provide information on vehicles with Gen 1 emissions controls, Allen said. According to VW, there are approximately 325,000 of those models -- about two-thirds of the U.S. cars under investigation.

Leipzig Meeting

As Volkswagen grapples internally with the crisis, about 400 of its top executives met in Leipzig on Thursday. Another of the company's top engineers, Falko Rudolph, chief of a parts factory near Kassel, was suspended as part of the investigation, a person familiar with the situation said, asking not to be named because the suspension is private. Rudolph couldn't be reached for comment.

The carmaker admitted in September to designing software so that 482,000 of its diesel cars in the U.S. would turn on full pollution controls only when undergoing laboratory emissions testing, not on the road. Since then the deception has been shown to be far broader, affecting about 11 million cars worldwide. The software was also active in diesels VW sold with the same EA189 engine in Germany, Dobrindt said Thursday.

"The KBA is under pressure to show to the public they're on top of this and that they're in the driver's seat," said Stefan Bratzel, head of auto research at the University of Applied Sciences. "Recalls to fix key safety issues that go to the core of a vehicle's operation almost always occur voluntarily, with the KBA monitoring. So making this fix -- while the cars are running safely -- a mandatory one shows the political pressure."

The shares fell 3.6 percent to 102.80 euros in Frankfurt. The diesel crisis has wiped 21.5 billion euros ($24.5 billion) off Volkswagen's market value.

VW faces a "large need for change," Mueller told his top executives in Leipzig, according to a transcript of his speech. "I don't think much of revolution. And the Volkswagen group doesn't need one. What we need is courage to act consequently, the will to change."

To: Ex. 7 Ex. 7
From: Belser, Evan
Sent: Thur 10/22/2015 6:39:16 PM
Subject: Fwd: FINAL Briefing Memos for Administrator's Meetings with EU and German Officials
image001.jpg
ATT00001.htm
GM-EU VP Sefcovic Meeting 10 23 2015 FINAL.doc
ATT00002.htm
GM-German Minister Dobrindt Meeting 10 27 2015 FINAL.doc
ATT00003.htm

Useful briefing material FYI.

Evan Belser
Chief, Mobile Source Enforcement Branch
US EPA

Begin forwarded message:

From: "Phillips, Anna" <Phillips.Anna@epa.gov>
Date: October 22, 2015 at 2:32:42 PM EDT
To: "Dieu, Martin" <Dieu.Martin@epa.gov>
Cc: "Grundler, Christopher" <grundler.christopher@epa.gov>, "Cohen, Janet" <cohen.janet@epa.gov>, "Bunker, Byron" <bunker.byron@epa.gov>, "Blubaugh, Jim" <Blubaugh.Jim@epa.gov>, "Niebling, William" <Niebling.William@epa.gov>, "Belser, Evan" <Belser.Evan@epa.gov>, "Kasman, Mark" <Kasman.Mark@epa.gov>, "Almodovar, Lisa" <Almodovar.Lisa@epa.gov>
Subject: FINAL Briefing Memos for Administrator's Meetings with EU and German Officials

Martin, here are the final versions of the subject memos which are ready to be sent to the Administrator's Office.

I also am copying OAR and OECA so that they have the final versions.

Many thanks…
Anna

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington D.C.

October 21, 2015

MEETING WITH EUROPEAN COMMISSION VICE PRESIDENT FOR ENERGY UNION MAROŠ ŠEFČOVIČ

DATE: October 23, 2015
LOCATION: Alm Conference Room
TIME: 11:00 – 11:30 a.m.
FROM: Anna Phillips, OITA

I. PURPOSE

Vice President Šefčovič *[SHEF-cho-veech]* requested this meeting to reaffirm the importance of cooperation with the U.S. on energy and climate issues. He is particularly interested in discussing EU and U.S. efforts to address the Volkswagen case, but he also may raise preparations for UNFCCC COP 21 in Paris and the Montreal Protocol.

Vice President Šefčovič was recently appointed to oversee the EU's efforts to respond to the Volkswagen case. According to the U.S. Mission to the EU, this decision was due to his stature and proven track record as a highly effective diplomat as he personally negotiated the gas deal between Russia and Ukraine and he was responsible for developing and selling the EU's Energy Union Strategy to 28 EU Member States. A brief biography is attached.

Current EU emissions testing regimes are much less rigorous than those in the United States. In addition, the European Commission does not have direct testing or enforcement authority and must rely on individual Member States to take those actions. Therefore, it is still unclear what steps the European Commission will be able to take in response to this case. Recent news coverage provides additional context and selected articles are attached for reference.

While in Washington, Vice President Šefčovič will meet with Energy Secretary Ernest Moniz, the White House, Department of State, U.S. Senate, World Bank, IMF and will speak at the Johns Hopkins University School of Advanced International Studies. The original purpose of his visit to Washington was to co-chair the U.S. - EU Energy Council with Secretary of State John Kerry but the meeting was cancelled at the last minute due to Secretary Kerry's recent decision to travel to the Middle East.

Vice President Šefčovič assumed his responsibilities as part of the new European Commission which took office in November 2014 for a five-year term. At the initiative of incoming European Commission President Jean Claude Juncker, a new matrix management structure was created which established six Vice Presidents responsible for cross-cutting issues who coordinate and oversee the work of other Commissioners with related and sometimes overlapping portfolios.

Vice President Šefčovič's mandate includes responsibility for establishing a European Energy Union (infrastructure connectivity, enforcement and competition); preventing energy shortages, diversifying energy sources and improving energy security; improving energy efficiency, especially for buildings (with a binding target of 30% less energy use by 2030); and ensuring that the EU reaches its climate and energy targets for 2020 and 2030.

This is your first meeting with Vice President Šefčovič. You recently met with EU Commissioner for Environment, Maritime Affairs and Fisheries Karmenu Vella in September.

II. PARTICIPANTS

Attendees
- Vice President Šefčovič
- Caroline Vicini, Deputy Chief of Mission, EU Delegation (Embassy) to the United States
- Juraj Nociar, Head of Cabinet of Vice President Šefčovič
- Bernd Biervert, Deputy Head of Cabinet of Vice President Šefčovič
- Jeffery Piper, International Relations Officer, Directorate-General for Energy
- Fabrice Vareille, Minister Counselor for Environment, Energy and Transport, EU Delegation
- Michael Koplovsky, Minister Counselor, Economic Affairs, U.S. Mission to the EU, Brussels

Staff
- YOU
- Jane Nishida, OITA
- Chris Grundler, OAR/OTAQ
- Cynthia Giles, OECA
- Evan Belser, OECA
- William Niebling, OAR
- Benjamin Hengst, OAR
- Mark Kasman, OITA
- Anna Phillips, OITA

III. AGENDA: This will be an informal discussion with no set agenda.
- YOU will start the meeting by welcoming participants and offering brief opening comments.
- Vice President Šefčovič will provide a brief overview of relevant issues from the EU perspective followed by a general discussion.

IV. PRESS: This is a closed meeting with no press attendance.

V. TALKING POINTS: Talking points are attached with key messages in bold.

VI. ATTACHMENTS
- Talking Points
- Biography of Vice President Šefčovič
- Selected News Articles

EPA Staff Contact: Anna Phillips, OITA; 202-564-6419

VW FOIA, EPA 06/20/2017 2017-FFP_034901

TALKING POINTS:

- Vice President Šefčovič *[SHEF-cho-veech]*, it is a pleasure to welcome you to EPA. I always appreciate the opportunity to exchange experiences with European partners so that we can learn from each other and meet our common challenges.

- I recently had the pleasure of meeting with Commissioner Vella who I understand is a member of your team at the European Commission.

- **Volkswagen's violations are egregious and serious.**

  - On September 18, EPA sent a Notice of Violation of the Clean Air Act to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. alleging that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards. These cars contain software that turns off emissions controls when driving normally, and turns them on when the car is undergoing an emission test.

  - Known as a "defeat device," this design feature results in the cars emitting up to 40 times the amount of NOx emissions that are allowed to ensure public health is protected.

  - The Volkswagen violations are very serious. Not only because the illegal defeat device results in excess NOx pollution at levels up to 40 times the allowable standard, but also because VW was concealing the facts from EPA, the State of California, and from consumers.

  - Using a defeat device in cars to evade clean air standards is illegal and a threat to public health.

- **EPA and CARB together are taking action.**

  - Working closely with the California Air Resources Board, EPA is committed to making sure that all automakers play by the same rules. EPA will continue to investigate these very serious matters.

- **EPA's oversight testing is robust and has been successful.**

  - We take seriously our responsibility to oversee the implementation and enforcement of our clean air regulations. It is this oversight that ensures both the benefits of clean air emissions standards; that industry is competing on a level playing field; and that consumers are getting what they pay for.

  - Our regulatory programs for cars and trucks are working. We know this because air quality monitors tell a clear and compelling story: U.S. air quality has dramatically improved as a result of implementing our program, even as vehicle miles and the economy have grown significantly.

  - EPA and California's motor vehicle programs have been very successful at delivering on our agencies' missions to protect human health and the environment.

Background: EPA issued a notice of violation (NOV) of the Clean Air Act (CAA) to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. on September 18, 2015. The NOV alleges that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards for certain air pollutants. The software produced by Volkswagen is a "defeat device," as defined by the Clean Air Act. California also issued its own In-Use Compliance letter to Volkswagen on September 18.EPA and the California Air Resources Board have both initiated investigations based on Volkswagen's alleged actions.

U.S. and European vehicle emission control programs differ in several important ways.

Structurally, EPA has comprehensive responsibility and authority to set vehicle emission standards, certify that vehicles meet those standards before they can be sold, monitor compliance of production vehicles throughout their useful life, and enforce compliance with the standards. Europe also requires manufacturers to secure up-front approval that vehicles meet emission standards. However, unlike EPA's certification process, the EU allows manufacturers to obtain that approval from commercial test labs. The labs must be certified by a member state but manufacturers may choose any certified lab in any member state for the testing. Europe's in-use oversight is also different. The only in-use compliance requirement is that manufacturers randomly test a small sample of their own vehicles and report the results to authorities. Each member state has its own enforcement authority and protocols.

U.S. and European emission standards and test procedures also differ in several ways including stringency. The U.S. NOx standard to which the VW defeat device vehicles were certified was significantly more stringent than the European NOx standard. In addition, the U.S. required much more rigorous test procedures than the EU did to measure compliance with those standards.

EPA adopted a 5-cycle test requirement as part of its Tier 2 emission standards, which phased in starting in MY 2004. The additional cycles were developed to address high-emission conditions such as high-speed, aggressive driving, low temperatures, and heat load/air conditioning use that had not been captured by the previous city and highway driving cycles. Europe also has recognized and is moving to address the gap between emissions measured over its lab testing cycles and real-world road driving. Europe plans to implement new test cycles that capture certain additional operational modes starting with 2017 models. Of course, it is still possible to deliberately defeat known test cycles, which is why we have now incorporated unpredictable procedures to detect defeat devices during certification and as part of our in-use monitoring program.

UNFCCC COP 21 (if raised):

- EPA continues to foster our relationships with other countries to address global climate change both bilaterally and by participation in UNFCCC international negotiations for which the State Department has the lead for the U.S. Government.

- The United States is fully engaged in the effort to deliver a strong agreement in Paris.

- On March 31, the U.S. announced a target to reduce climate pollution 26-28% below 2005 levels in 2025. This target is both ambitious and achievable. It is consistent with achieving deep, economy-

wide reductions of over 80 percent by 2050. It roughly doubles the pace of emission reductions for the period 2020-2025 as compared to 2005-2020.

- We also have intensified focus on bolstering our domestic resilience to climate change.

Montreal Protocol (if raised):

- The United States, Canada, and Mexico have modified our HFC amendment approach for a two-step process to phase down HFCs:
  - adopt a more limited HFC amendment at the 2015 MOP, and
  - agree to negotiate the rest of the phasedown and other aspects in 2016.

- This approach is our best chance to adopt an amendment this year. We remain committed to the overall ambition of our proposed amendment, and we will revisit the rest in 2016.

- Our overall objectives on HFCs are very similar, and we want to work together.

- **There are two key aspects that may still divide us:**

  - **First, you use a basket approach including both HCFCs and HFCs together, whereas we phase down HFCs alone. I'd urge you to consider whether our simpler approach of addressing HFCs will work for you, as the basket approach you suggest is not a typical Montreal approach and introduces a lot of complexity.**

  - **Second, you are still pushing for a full non-Article 5 (developed) phasedown even if Article 5 (developing) countries only commit to a freeze. We propose limiting our reductions to the first two of the four steps for non-Article 5 because:**

    1. **It gives us something to offer for the negotiations in 2016;**
    2. **Some of our developed country partners have reservations about the last two steps so we will have to push them very hard to get there; and**
    3. **It introduces excessive differentiation just before COP 21 where we are trying to avoid differentiation.**

VW FOIA, EPA 06/20/2017 2017-FFP_034904

- **We also urge your Member States to send a strong signal that they are prepared to provide the financial support necessary for Article 5 to meet HFC obligations. The June G-7 statement on finance for an amendment should be helpful in this regard.**

VW FOIA, EPA 06/20/2017 2017-FFP_034905

EUROPEAN COMMISSION VICE PRESIDENT FOR ENERGY UNION MAROŠ ŠEFČOVIČ

Slovak nationality. Married with three children.

- Commission Vice-President for Energy Union (2014 – present)
- European Commissioner and Vice-President for Inter-Institutional Relations (2010-2014)
- European Commissioner for Education, Training, Culture and Youth (2009-2010)
- Slovak Permanent Representative to the EU (2004-2009)
- Director-General of European Affairs Section, Slovak Ministry of Foreign Affairs (2003)
- Director-General of Bilateral Cooperation Section, Slovak Ministry of Foreign Affairs (2002)
- Ph.D. in international and European law, Comenius University in Bratislava (2000)
- Ambassador, Slovak Embassy, Israel (1999)
- Deputy Head of Mission, Slovak Mission to the EU in Brussels (1998)
- Director, Slovak Foreign Minister's Office (1998)
- Deputy Director, Slovak Foreign Minister's Office (1997)
- Deputy Director for the EU and NATO countries, Slovak Ministry of Foreign Affairs (1996)
- Deputy Chief of Mission, Czech and Slovak Embassy, Canada (1992)
- Doctor of Law (JUDr.), Comenius University in Bratislava (1990)

VW FOIA, EPA 06/20/2017 2017-FFP_034906

http://www.nytimes.com/2015/10/15/business/international/cozy-relations-complicate-europes-bid-for-new-car-tests.html

The New York Times

International Business

VW Scandal Exposes Cozy Ties in Europe's New Car Tests

By DANNY HAKIM and GRAHAM BOWLEY

OCT. 14, 2015

LONDON — Three diesel cars were taken out for a trial run last year by a German engineering and testing company. Employees at the company, TÜV Nord, drove the cars in Stuttgart and in Munich, and in suburbs, on country roads and on highways.

What they found was that all of the cars — a Volkswagen, a BMW and a Mazda — gave off far more pollutants than they did in lab tests, in some cases, more than six times the limit under new European regulations. For TÜV Nord, the research was just another confirmation of the shortcomings of the existing European lab tests.

The Hanover-based TÜV Nord knows as much as any company about how diesels perform on the road and in the lab. Widely regarded for its engineering expertise, the company has been a major force in developing a more accurate testing process for Europe's cars, which is expected to be introduced in the next year or so.

But the scandal at Volkswagen has exposed the deep conflicts in the chummy world of European emissions testing, where car manufacturers hire outside firms to certify their pollution controls in laboratories. Not only is TÜV Nord at the forefront of finding a new testing regimen for automakers, but it is also the company that signed off on VW's emissions tests in Europe.

Many of Volkswagen's vehicles, the automaker admitted last month, included software programmed to cheat on laboratory emissions tests. Given TÜV Nord's testing expertise, the situation raises questions about what, if anything, it knew about VW's tactics. And it highlights the weaknesses in a system that relies on contractors paid by carmakers to carry out the tests.

Since Volkswagen admitted the deception, TÜV Nord has been largely silent. A spokeswoman declined to comment on the specifics of the Volkswagen case, including whether the vehicles it tested were programmed to thwart laboratory tests, or if it had raised concerns about the vehicles' performance on the tests.

In an email, the spokeswoman said little beyond confirming that "TÜV Nord performs emission measurements within the framework of the approval process for models of different vehicle manufacturers (among others for VW)."

Who conducts emissions tests and how they are done remains a central question on both sides of the Atlantic after the Volkswagen scandal. While regulators in the United States allow automakers to do their own testing, the American system is seen as more robust than Europe, because the Environmental Protection Agency conducts random tests of its own.

Although Volkswagen's deception was particularly egregious, testing firms in Europe are generally seen as assisting automakers employ what are legal strategies to help their vehicles reduce their pollution in a lab in ways they never could on the road. Among other problems with the process, automakers in Europe can run their tests on preproduction cars that may not perform like the cars that ultimately come off the assembly line.

"Testing companies assist with the distortion of laboratory test results to produce artificially low results," said Greg Archer, the clean vehicles program manager at Transport & Environment, an advocacy group. "We have testing organizations that are working for the carmakers, exploiting all the loopholes that they can in an obsolete testing procedure."

TÜV Nord, which is privately held, has its roots as one of a number of trade associations set up to inspect steam boilers in 19th-century Germany. Now it has more than 10,000 employees around the world and inspects everything from satellite components to computer networks, and operates a food testing laboratory in Pune, India.

While one of TÜV Nord's promotional videos notes its "objective outside viewpoint," the company has a close relationship with Volkswagen, which goes beyond emissions testing.

TÜV Nord has also worked for Volkswagen in the United States; its engineers spent a week auditing environmental compliance at the carmaker's plant in Chattanooga, Tenn., before production started in 2011. One of the members of TÜV Nord's supervisory board, Stephan Schaller, has also been an executive at both Volkswagen and BMW during his tenure on the TÜV board.

This spring, TÜV Nord's chairman, Guido Rettig, posed for a photograph next to Martin Winterkorn, then the chief executive of Volkswagen. Both men smiled as Mr. Rettig awarded Mr. Winterkorn and Volkswagen with an oversized certificate for overall quality excellence "throughout its entire organization," according to a news release.

"It testifies to the outstanding work of everyone at VW," Mr. Winterkorn said at the time.

Following the Volkswagen scandal, automakers have publicly embraced the on-road tests that TÜV Nord and other groups are helping develop in Europe, though they are also lobbying behind the scenes to make them much easier to pass.

None dispute that their cars emit more on the road than they do in the precise conditions of lab tests, as studies have shown. Volkswagen did not respond to requests for comment, but the two other companies involved in the TÜV Nord test last year acknowledged such differences.

"The driver may brake and accelerate more frequently, and ascend steeper slopes than is done during testing," said Graeme Fudge, a Mazda spokesman. "All of these factors will increase engine emissions."

VW FOIA, EPA 06/20/2017 2017-FFP_034908

Michael Rebstock, a spokesman for BMW, said the company supported "rapid introduction of the new regulations to create clarity for consumers and the industry as quickly as possible."

Concerns about diesel pollution have long festered in Europe, where diesels are more popular than anywhere else, and regulators have spent several years trying to develop tests outside laboratories. The United States has required such tests on large diesel trucks since a similar cheating scandal in 1998, but Europe's will be the first required for cars by regulators anywhere.

With its extensive research, TÜV Nord, which has been developing portable testing equipment for trucks for more than a decade, was a natural partner on the project. The company has been a regular presence at a technical working group advising policy makers in Brussels, the seat of the European Commission.

Even environmental advocacy groups have sought TÜV's help. Transport & Environment has taken part in discussions about the new European tests and has used TÜV Nord for one of its own studies.

The International Council on Clean Transportation, which oversaw the independent tests of diesel emissions that led to the Volkswagen scandal, is currently collaborating on a study with TÜV Nord of emissions from diesel-electric hybrid vehicles.

Vicente Franco, a researcher at I.C.C.T. who has taken part in meetings in Brussels with officials from TÜV Nord, said the company "made meaningful contributions that were meant to make the on-road tests more robust."

Still, Mr. Franco conceded that the interconnectedness underscores the vulnerabilities of the system. "There is a financial dependency between the technical services and manufacturers that at some point should be rethought to improve the confidence in the system, but this is a long-term process, and it takes a lot of political will," he said.

Many policy makers have faulted the passive role played by regulators and believe there is a need for far more independent tests. Regulation in Europe is handled by each of the 28 member states, and there is little enforcement.

"We are definitely against having self-regulatory tests, because obviously they are not working," said Miriam Dalli, a Social Democrat from Malta who sits on the European Parliament's environmental committee. "We need an independent testing system."

Giovanni La Via, the chairman of the Parliament's environmental committee, says there needs to be a new European agency to oversee car testing in the 28 member states.

"European institutions react after a scandal," said Mr. La Via, a member of the center-right European People's Party, the largest bloc in the Parliament. "We need to use the same procedure for all the car producers. We cannot maintain 28 different systems."

Danny Hakim reported from London, and Graham Bowley from Wolfsburg, Germany.

VW FOIA, EPA 06/20/2017 2017-FFP_034909

EEST Press Clips
October 20, 2015

Dieselgate: More EU countries join call for stricter emission tests

EurActiv (Oct 20) - Several EU member states including major automaker France will urge Europe's pollution regulator to thoroughly assess the consequences of the Volkswagen emissions scandal, according to a document seen by AFP Monday (19 October). "The environmental dimension needs to be clearly assessed and highlighted," said the letter, which was addressed to the EU's 28 environment ministers ahead of talks on October 26 in Luxembourg.

"The case could have a direct bearing on the total emissions of a country, and might have an impact on efforts by all member states to fulfill their (emission) obligations ... and meet air quality standards in the EU," the letter said.

The letter, dated Monday, was written by Austria and Denmark and officially backed by France, the Netherlands, Slovenia and Luxembourg. It did not involve Germany, the home of auto giant Volkswagen that is under fire for massive cheating on emission tests.

The actual target of the letter is the European Commission, the EU's regulatory arm that sets emission rules across the 28-country bloc, but without any power of oversight, which remains with national authorities.

The Commission must "give a concise overview of the actions and measures being taken to clarify the magnitude of the manipulation of diesel cars," the letter said.

The six countries also urged the swift introduction of real-driving tests that are widely known to stamp out the sophisticated cheating carried out by Volkswagen in laboratory tests.

At issue is the date when the real driving tests should be enforced and what delay should be allowed before emissions limits are policed fully. The introduction of these tests "needs to be taken forward more quickly," the letter said. Officially, the real-life tests will begin in January, but only for reference.

The executive's proposal, which remains unofficial, allows car companies until 2019 to fully implement the new standard, a delay seen as unjustified by activists. In its own letter to ministers, Belgium said full implementation should take place no later than 2017.

But the pressure on European governments to not overly upset the auto industry is huge, especially as the economic fallout of the VW scandal remains unknown. According to industry data, the auto sector is responsible for about 12 million jobs across the EU, where economic growth remains sluggish and joblessness is still a concern.

VW FOIA, EPA 06/20/2017 2017-FFP_034910

EU countries warn of Volkswagen scandal fallout

AFP (Oct 19) - Several EU member states including major automaker France will urge Europe's pollution regulator to thoroughly assess the consequences of the Volkswagen emission scandal, according to a document seen by AFP Monday.

"The environmental dimension needs to be clearly assessed and highlighted," said the letter, which was addressed to the EU's 28 environment ministers ahead of talks on October 26 in Luxembourg.

"The case could have a direct bearing on the total emissions of a country, and might have an impact on efforts by all member states to fulfil their (emission) obligations ... and meet air quality standards in the EU," the letter said.

The letter, dated Monday, was written by Austria and Denmark and officially backed by France, the Netherlands, Slovenia and Luxembourg. It did not involve Germany, the home of auto giant Volkswagen that is under fire for massive cheating on emission tests.

The actual target of the letter is the European Commission, the EU's regulatory arm that sets emission rules across the 28-country bloc, but without any power of oversight, which remains with national authorities.

The Commission must "give a concise overview of the actions and measures being taken to clarify the magnitude of the manipulation of diesel cars," the letter said.

The seven countries also urged the swift introduction of real-driving tests that are widely known to stamp out the sophisticated cheating carried out by Volkswagen in laboratory tests.

At issue is the date when the real driving tests should be enforced and what delay should be allowed before emission limits are policed fully.

The introduction of these tests "needs to be taken forward more quickly," the letter said.

Officially, the real-life tests will begin in January, but only for reference.

The Commission proposal, which remains unofficial, allows car companies until 2019 to fully implement the new standard, a delay seen as unjustified by activists.

In its own letter to ministers, Belgium said full implementation should take place no later than 2017.

But the pressure on European governments to not overly upset the auto industry is huge, especially as the economic fallout of the VW scandal remains unknown.

According to industry data, the auto sector is responsible for about 12 million jobs across the EU, where economic growth remains sluggish and joblessness is still a concern.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington D.C.

October 21, 2015

MEETING WITH GERMAN MINISTER OF TRANSPORT AND DIGITAL INFRASTRUCTURE ALEXANDER DOBRINDT

DATE: October 27, 2015
LOCATION: Alm Conference Room
TIME: 11:00 a.m. – 12:00 p.m.
FROM: Anna Phillips, OITA

I. PURPOSE

Minister Dobrindt requested this meeting to discuss the Volkswagen case. He would like to inform EPA about the actions that the German government has taken and will take in response. He also is interested to learn about emission standards and testing in the United States, EPA's plans to further improve the testing process in the future, and learning more about the U.S. enforcement process. Current EU emissions testing regimes are much less rigorous than those in the United States.

Minister Dobrindt has been designated to lead the German government's response to the Volkswagen case. The German Federal Motor Transport Authority, or KBA, recently demanded the recall of 2.4 million cars in Germany after rejecting Volkswagen's proposals to fix vehicles fitted with the software designed to cheat on emissions tests. This mandatory recall is expected to lead to callbacks throughout Europe, where diesel cars comprise more than half of the market. Recent news coverage provides additional context and selected articles are attached for reference.

Minister Dobrindt has been in his position since December 2013. A member of the German Bundestag (Parliament), he has experience and remains active at all levels of government. A brief biography is attached.

This is your first meeting with Minister Dobrindt. The discussion will build on a productive conference call between OTAQ and German Ministry senior staff on this issue in late September.

II. PARTICIPANTS

Attendees

- Minister Dobrindt
- Hans Peter Wittig, German Ambassador to the United States
- Ekhard Zinke, President, Federal Motor Transport Authority (KBA)
- Gerold Reichle, Director-General, Department of Aviation
- Sebastian Rudolph, Director-General, Department of Communication
- Tobias Miethaner, Director-General, Department of Digital Society

- Petra Bethge, Director of International Relations and Foreign Trade
- Benedikt Kuhn, Director of Communications
- Immanuel Wolf, Office of International Relations and Foreign Trade
- Nicole Schreiter, Personal Assistant to Minister Dobrindt
- Stephan Zass, Counselor for Transportation and Digital Infrastructure, German Embassy
- Michael Weber, Energy Policy Advisor, German Embassy
- Konstantina Makridou, Interpreter

Staff
- YOU
- Jane Nishida, OITA
- Chris Grundler, OAR
- Cynthia Giles, OECA
- Evan Belser, OECA
- William Niebling, OAR
- Benjamin Hengst, OAR
- Mark Kasman, OITA
- Anna Phillips, OITA

III. AGENDA

This will be an informal discussion with no set agenda.

- YOU will start the meeting by welcoming the participants and offering very brief introductory comments.
- Minister Dobrindt will provide a brief overview of relevant issues from the EU perspective followed by a general discussion.

IV. PRESS: This is a closed meeting with no press attendance.

V. TALKING POINTS: Talking points are attached, with key messages in bold.

VI. ATTACHMENTS
- Talking Points
- Biographies of Minister Dobrindt and Ambassador Wittig
- Selected News Coverage

EPA Staff Contact: Anna Phillips, OITA; 202-564-6419

VW FOIA, EPA 06/20/2017 2017-FFP_034913

TALKING POINTS:

- Minister Dobrindt, Mr. Ambassador, it is a pleasure to welcome you to EPA. I always appreciate the opportunity to exchange experiences with European partners so that we can learn from each other and meet our common challenges.

- I was pleased to learn that our staffs have already been in touch to exchange initial information regarding the Volkswagen case and we hope that they found the conversation useful.

- **Volkswagen's violations are egregious and serious.**

  - On September 18, EPA sent a Notice of Violation of the Clean Air Act to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. alleging that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards. These cars contain software that turns off emissions controls when driving normally, and turns them on when the car is undergoing an emission test.

  - Known as a "defeat device," this design feature results in the cars emitting up to 40 times the amount of NOx emissions that are allowed to ensure public health is protected.

  - The Volkswagen violations are very serious. Not only because the illegal defeat device results in excess NOx pollution at levels up to 40 times the allowable standard, but also because VW was concealing the facts from EPA, the State of California, and from consumers.

  - Using a defeat device in cars to evade clean air standards is illegal and a threat to public health.

- **EPA and CARB together are taking action.**

  - Working closely with the California Air Resources Board (CARB), EPA is committed to making sure that all automakers play by the same rules. EPA will continue to investigate these very serious matters.

- **EPA's oversight testing is robust and has been successful.**

  - We take seriously our responsibility to oversee the implementation and enforcement of our clean air regulations. It is this oversight that ensures both the benefits of clean air emissions standards; that industry is competing on a level playing field; and that consumers are getting what they pay for.

  - Our regulatory programs for cars and trucks are working. We know this because air quality monitors tell a clear and compelling story: U.S. air quality has dramatically improved as a result of implementing our program, even as vehicle miles and the economy have grown significantly.

  - EPA and California's motor vehicle programs have been very successful at delivering on our agencies' missions to protect human health and the environment.

Background: EPA issued a notice of violation (NOV) of the Clean Air Act (CAA) to Volkswagen AG, Audi AG, and Volkswagen Group of America, Inc. on September 18, 2015. The NOV alleges that four-cylinder Volkswagen and Audi diesel cars from model years 2009-2015 include software that circumvents EPA emissions standards for certain air pollutants. The software produced by Volkswagen is a "defeat device," as defined by the Clean Air Act. California also issued its own In-Use Compliance letter to Volkswagen on September 18.EPA and the California Air Resources Board have both initiated investigations based on Volkswagen's alleged actions.

U.S. and European vehicle emission control programs differ in several important ways.

Structurally, EPA has comprehensive responsibility and authority to set vehicle emission standards, certify that vehicles meet those standards before they can be sold, monitor compliance of production vehicles throughout their useful life, and enforce compliance with the standards. Europe also requires manufacturers to secure up-front approval that vehicles meet emission standards. However, unlike EPA's certification process, the EU allows manufacturers to obtain that approval from commercial test labs. The labs must be certified by a member state but manufacturers may choose any certified lab in any member state for the testing. Europe's in-use oversight is also different. The only in-use compliance requirement is that manufacturers randomly test a small sample of their own vehicles and report the results to authorities. Each member state has its own enforcement authority and protocols.

U.S. and European emission standards and test procedures also differ in several ways including stringency. The U.S. NOx standard to which the VW defeat device vehicles were certified was significantly more stringent than the European NOx standard. In addition, the U.S. required much more rigorous test procedures than the EU did to measure compliance with those standards.

EPA adopted a 5-cycle test requirement as part of its Tier 2 emission standards, which phased in starting in MY 2004. The additional cycles were developed to address high-emission conditions such as high-speed, aggressive driving, low temperatures, and heat load/air conditioning use that had not been captured by the previous city and highway driving cycles. Europe also has recognized and is moving to address the gap between emissions measured over its lab testing cycles and real-world road driving. Europe plans to implement new test cycles that capture certain additional operational modes starting with 2017 models. Of course, it is still possible to deliberately defeat known test cycles, which is why we have now incorporated unpredictable procedures to detect defeat devices during certification and as part of our in-use monitoring program.

ALEXANDER DOBRINDT

GERMAN FEDERAL MINISTER OF TRANSPORT AND DIGITAL INFRASTRUCTURE

Born 7 June 1970 in Peißenberg, Bavaria; Roman Catholic; married, one child

1989: Degree in Sociology at the Ludwig Maximilian University of Munich

1995: Awarded Diploma in Sociology

1996 – present: County Councillor on Weilheim-Schongau County Council

1996 – 2005: Managing Director and silent partner of engineering firm Holzner & Sanamij

1996 – 2011: City Councillor in Peißenberg

2002 – present: Member of the German Bundestag (Parliament)

2005: Deputy Chair of the Bundestag Committee on Economics and Labour

2005 – 2008: Spokesperson for economic policy of the Bundestag CSU Land Association

April 2009 – present: Chair of the Weilheim-Schongau CSU County Association

December 2013 – present: Federal Minister of Transport and Digital Infrastructure

VW FOIA, EPA 06/20/2017 2017-FFP_034916

PETER WITTIG

GERMAN AMBASSADOR TO THE UNITED STATES

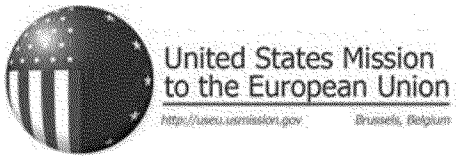
Peter Wittig has served as German Ambassador to the United States since April 2014.

Prior to this, he was German Ambassador to the United Nations in New York and represented Germany during its tenure as a member of the UN Security Council from 2011 until 2012. There, he drew on his wide expertise in United Nations matters, having previously served as Director-General for United Nations and Global Issues at the German Foreign Office in Berlin and having been posted to the German Permanent Mission in New York in the late 1980s.

Wittig joined the German Foreign Service in 1982. He has also served in Madrid, at the headquarters as the private secretary to the Foreign Minister, and as Ambassador both in Lebanon and then in Cyprus. He was the German Government Special Envoy on the "Cyprus question" (the division of Cyprus). He has acquired extensive knowledge of the Middle East.

Before starting his career in the German Foreign Service, Wittig studied history, political science, and law at Bonn, Freiburg, Canterbury, and Oxford universities and taught as an assistant professor at the University of Freiburg. His wife, Huberta von Voss-Wittig, has worked as both a journalist and a writer. The couple has four children: Valeska, Maximilian, Augustin, and Felice.

VW FOIA, EPA 06/20/2017 2017-FFP_034917



EEST Press Clips
October 20, 2015

Germany says Volkswagen could have broken EU law

Brussels, 19/10/2015 (Agence Europe) - According to a decision made by the Federal Motor Transport Authority (Kraftfahrt-Bundesamt - KBA) on Thursday 15 October, as reported in the German newspaper, Bild Zeitung, Volkswagen has systematically used cheat devices, which would have clearly broken European law.

The German newspaper's article is based on a letter from the German Transport Minister, Alexander Dobrindt, who quotes Article (5, 2) of EC Regulation 715/2007 "on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information". The article in question focuses on the requirements and tests carried out during the trials and categorically prohibits cheat devices, "which reduce the effectiveness of emissions control systems".

The article includes, however, three exceptions to this ban, when: the device is justified in terms of engine protection against damages or accidents and to ensure vehicles function in perfect safety; that they are only activated when the engine starts; or when "the conditions are substantially included in trial procedures for verifying evaporation related emissions and average emissions from the rear exhaust pipe". In the same regulation, another article (3.10) is quite clear about cheat devices, namely, "in all conceptualisation elements used for temperature detection, vehicle speed, engine speed in revolutions / minute, transmission, vacuum or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, which reduces the effectiveness of emission control system under conditions which may reasonably be expected to be in operation and normal vehicle use".

According to some observers, this decision provides a possibility for member states to pursue the German manufacturer in the courts. Article 13 of the same regulation highlights the obligation incumbent on member states to sanction manufacturers that have breached the above-mentioned requirements and to do so in a way that is efficient, proportionate and dissuasive.

There are five kinds of infringements: false declarations during registration or recall procedures; the falsification of registration test results or those pertaining to service compliance; concealing data or technical specifications that could lead to a recall or withdrawal from registration; the use of cheat devices and, finally, a refusal to grant access to information. (Original version in French by Pascal Hansens)

VW FOIA, EPA 06/20/2017 2017-FFP_034918

http://www.bloomberg.com/news/articles/2015-10-15/vw-faces-mandatory-recall-in-germany-over-diesel-cheating

BLOOMBERG BUSINESS

VW Will Recall 8.5 Million Rigged Diesels After German Hard Line

Volkswagen recall in Europe will last beyond the end of 2016

German authorities rejected VW's offer of voluntary repairs

Updated on October 15, 2015 — 4:09 PM EDT

Volkswagen AG will embark on one of the biggest recalls in European automotive history, affecting 8.5 million diesel vehicles, after German authorities threw out the carmaker's proposal for voluntary repairs.

The Federal Motor Transport Authority, or KBA, demanded a recall of 2.4 million cars in Germany after reviewing proposals Volkswagen filed last week to fix vehicles fitted with software designed to cheat on pollution tests, German Transport Minister Alexander Dobrindt said Thursday in Berlin. The mandatory recall is the basis for callbacks throughout Europe, where diesel accounts for more than half the market.

Germany's rare public snub of its biggest carmaker came after Volkswagen circumvented diesel emissions regulations starting in 2008. The country's demands will speed a process that Volkswagen said will last beyond 2016, and give authorities more control.

"It's an unusual measure to be ordering a mandatory recall," said Arndt Ellinghorst, a London-based analyst with Evercore ISI. "It shows to me that the KBA is losing patience with VW's slow response on what to do to fix the engines so far. Customers have been left unsettled."

Biggest Recall

The 8.5 million affected cars represent slightly less than one-third of Volkswagen's auto deliveries in the region from 2009 through August, based on sales figures the company published for the five divisions involved. The recall is also Germany's biggest since its current rules took effect in 1997, more than the record 1.9 million cars the entire auto industry brought back in under repair programs last year, according to data from the Center for Automotive Management in Bergisch Gladbach, Germany.

The mandatory recall will be more expensive for Volkswagen because the company will need to work on the cars more quickly, Evercore's Ellinghorst said. The manufacturer has yet to specify exactly how it will fix the cars, though it has said some will require only a software update while others will need new or rebuilt engine parts.

"The KBA's decision opens up the possibility of a common and coordinated response in all European Union states," Volkswagen Chief Executive Officer Matthias Mueller wrote Dobrindt on Thursday in a letter obtained by Bloomberg. "Such a unified procedure would be in the European spirit as well as in the interests of customers."

VW FOIA, EPA 06/20/2017 2017-FFP_034919

Mid-November

Volkswagen must share technical details of its fix with authorities by mid-November, and the recall will begin in January. The KBA will test vehicles to ensure the repairs were successful, Dobrindt said. New parts necessary to fix some vehicles will probably be ready by next September, he said. Throughout Europe, Dobrindt has estimated that Volkswagen will probably need to exchange or rebuild parts for about 3.6 million engines.

For the sake of customers and the image of the automobile, "we will clear up what happened at Volkswagen," Enak Ferlemann, state secretary in Germany's Transport Ministry, said in a speech in the lower house of parliament. "Germany will stay the No. 1 auto country."

U.S. Remedies

Regulators in the U.S. haven't announced a recall yet. The U.S. Environmental Protection Agency, which has jurisdiction over compliance with emission standards, said it will have to evaluate whatever repairs Volkswagen proposes before it's made part of a recall.

"EPA will order a recall in the future, but will not do so until we are confident that VW's fix will work," said Laura Allen, an agency spokeswoman. "EPA will conduct our own testing to confirm this. Then we will order a recall."

The agency expects to receive information on Volkswagen's proposed remedy for diesel vehicles with so-called Gen 2 emissions controls this week, Allen said. There's no timeline for when EPA will order the recalls, she said.

The agency is still waiting on Volkswagen to provide information on vehicles with Gen 1 emissions controls, Allen said. According to VW, there are approximately 325,000 of those models -- about two-thirds of the U.S. cars under investigation.

Leipzig Meeting

As Volkswagen grapples internally with the crisis, about 400 of its top executives met in Leipzig on Thursday. Another of the company's top engineers, Falko Rudolph, chief of a parts factory near Kassel, was suspended as part of the investigation, a person familiar with the situation said, asking not to be named because the suspension is private. Rudolph couldn't be reached for comment.

The carmaker admitted in September to designing software so that 482,000 of its diesel cars in the U.S. would turn on full pollution controls only when undergoing laboratory emissions testing, not on the road. Since then the deception has been shown to be far broader, affecting about 11 million cars worldwide. The software was also active in diesels VW sold with the same EA189 engine in Germany, Dobrindt said Thursday.

"The KBA is under pressure to show to the public they're on top of this and that they're in the driver's seat," said Stefan Bratzel, head of auto research at the University of Applied Sciences. "Recalls to fix key safety issues that go to the core of a vehicle's operation almost always occur voluntarily, with the KBA monitoring. So making this fix -- while the cars are running safely -- a mandatory one shows the political pressure."

The shares fell 3.6 percent to 102.80 euros in Frankfurt. The diesel crisis has wiped 21.5 billion euros ($24.5 billion) off Volkswagen's market value.

VW faces a "large need for change," Mueller told his top executives in Leipzig, according to a transcript of his speech. "I don't think much of revolution. And the Volkswagen group doesn't need one. What we need is courage to act consequently, the will to change."

To: Ex. 7
Cc: Ex. 7
From: Bunker, Byron
Sent: Thur 10/22/2015 9:11:15 PM
Subject: RE: Letter to Ex. 7 from Janet McCabe US EPA

Thanks Ex. 7

I very much appreciate you sharing this. We heard a similar summary from Janet today.

Do you know when we should expect to receive Mr. Ex. 7 written response? I am hoping that it will help all of us (EPA, CARB and VW) to constructively work to move the recall planning forward as quickly as possible.

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Wednesday, October 21, 2015 6:17 PM
To: Bunker, Byron
Cc: Ex. 7
Subject: Re: Letter to Ex. 7 from Janet McCabe US EPA

Thanks Byron,

We had a constructive call with the Dep. Administrator. Ex. 7 received the message clearly and he committed to the process in the letter. Ex. 7 will have the direct engagement of the senior parent company people in his discussions with you, for real time reaction. We will of course send a written reply to Ms. McCabe.

Thank you and best regards,

Ex. 7

Volkswagen Group of America, Inc.

2200 Ferdinand Porsche Drive

Herndon, VA 27101

Ex. 7

On Oct 21, 2015, at 4:55 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

> Dear Ex. 7
>
> Attached please find a letter for Mr. Ex. 7 from our Associate Administrator, Janet McCabe. If you have any questions about this letter, please do not hesitate to contact me.

Best regards,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 9:33 PM
To: Bunker, Byron
Cc: Ex. 7
Subject: Re: Dealer Presentation

Hello Byron,

Mr. Ex. 7 number is Ex. 7 Ex. 7 will give him a heads up that a call and a letter is coming. If you know when she will call we can let him know or also schedule it.

Ex. 7

Sent from my iPhone

On Oct 20, 2015, at 9:17 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

> Thanks Ex. 7
>
> One more, if Janet would like to call Mr. Ex. 7 how do we make that happen?
>
> Thanks,
>
> Byron
>
> **********
>
> Byron Bunker
>
> Director Compliance Division
>
> Office of Transportation and Air Quality
>
> Environmental Protection Agency
>
> 2000 Traverwood Drive
>
> Ann Arbor, MI 48105
>
> Bunker.Byron@epa.gov
>
> Phone: (734) 214-4155
>
> Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 9:16 PM
To: Bunker, Byron
Subject: Re: Dealer Presentation

Hello Byron,

Please send via email to Ex. 7 and me.

Thank you,

Ex. 7

Sent from my iPhone

On Oct 20, 2015, at 8:44 PM, Bunker, Byron <bunker.byron@epa.gov> wrote:

Hi Ex. 7

Janet has some correspondence that she would like to send to Mr. Ex. 7 We have his postal address and will be sending a hard copy there. Does he have an e-mail address where we could send the letter as well? Or, would it be better to send it electronically to you or Ex. 7 to send forward?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Tuesday, October 20, 2015 6:20 PM
To: Bunker, Byron; Ex. 7
Subject: Dealer Presentation

Hello Ex. 7 and Byron,

Many thanks for your feedback on the dealer presentation. I'm not sure if you have spoken but we have heard Byron's concerns and we will revise the slides and share them with you tomorrow morning. Hopefully we can have a short discussion about the revised and simpler presentation tomorrow.

Thanks again and I appreciate the comments,

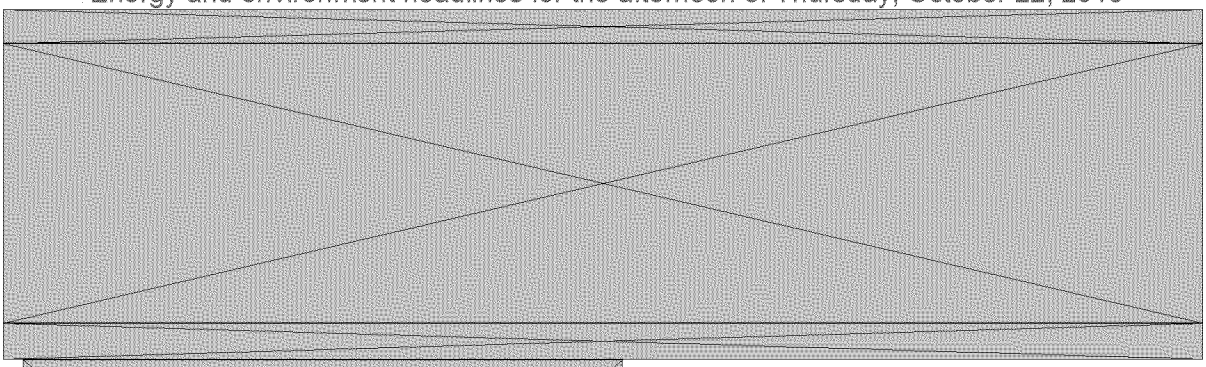
Ex. 7

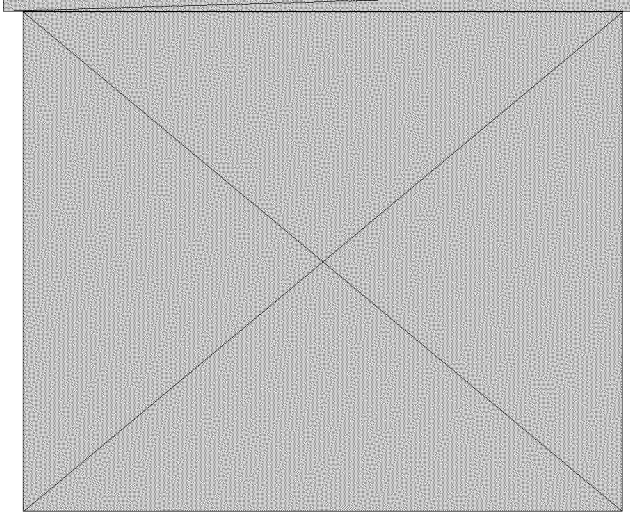
<Agency letter to Volkswagen Group of America 10-21-2015.pdf>

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Thur 10/22/2015 9:29:24 PM
Subject: First since '96: NRC approves Watts Bar 2 license

Advertise | Contact

Energy and environment headlines for the afternoon of Thursday, October 22, 2015





First since '96: NRC approves Watts Bar 2 license

By Kevin Rogers

The Nuclear Regulatory Commission on Thursday approved its first nuclear generating license in nearly 20 years, authorizing the Tennessee Valley Authority to run the second reactor at its Watts Bar Nuclear Plant, more than four decades after ground was first broken.

Supporters said it was a "hallmark day" for the nuclear industry, but one critic called Watts Bar 2 a "zombie reactor" and said its approval was merely an "anomaly" that doesn't represent a turnaround for the nuclear sector.

The license -- the first granted by NRC since Unit 1 at Watts Bar was authorized in 1996 -- allows Unit 2, under construction since January 1973, to operate until 2055.

NRC said the unit will be the first nuclear site in the U.S. to fully comply with post-Fukushima safety requirements.

"After devoting more than 200,000 hours over eight years conducting extensive safety reviews and inspections, we're satisfied Unit 2 is safe to operate and we've issued TVA the operating license," Office of Nuclear Reactor Regulation Bill Dean said in a statement.

Construction stopped on the second unit in 1985, when TVA suspended the project to focus on completing the first reactor. It applied to renew the Unit 2 construction permit in 2000, and the NRC has been reviewing its license application since 2007.

TVA said the reactor was set to begin operating in early 2016, and would power as many as 650,000 homes. Combined, the two Watts Bar reactors will power 1.3 million homes.

"Completing Watts Bar Unit 2 was a sound business decision made for the long-term good of the Tennessee Valley," TVA CEO Bill Johnson said in a statement. "The unit is essential to diversifying TVA's power sources to assure the more than 9 million people served by TVA and its local power company partners have affordable and reliable electricity generated in an environmentally friendly manner."

Nuclear Energy Institute President Marvin Fertel said in a statement that the license proved that nuclear power can remain relevant, especially as the nation looks to reduce greenhouse gas emissions.

"This is a hallmark day for the U.S. nuclear energy industry," he said. "All told, nuclear energy facilities provide 63 percent of America's zero-carbon electricity supply -- evidence that significant greenhouse gas reductions in the electric sector can't be achieved unless our nation keeps the nuclear facilities we already have and builds more of them."

But Greenpeace Nuclear Policy Analyst Jim Riccio said the nuclear industry had little to celebrate, pointing to the reactor's estimated $4.5 billion cost and its nearly 43-year construction history.

"I don't think even the industry should be cheering too loudly for this one, because it's an example of everything that's wrong with nuclear power," Riccio said.

He also contended that TVA, as a federally owned corporation, had credit opportunities that other power companies can't hope to access.

"No other corporation could afford to have left this reactor -- we call them zombie reactors -- sitting on its books as long as TVA did," he said. "But because TVA has the unique situation where it has a $30 billion debt ceiling, that's why you see this weird anomaly of them actually finishing Watts Bar 2."

The announcement was celebrated by Sen. Lamar Alexander, R-Tenn., one of the leading proponents of nuclear power in Congress. He has said that nuclear would be a far more effective path forward for low-carbon energy than renewable sources such as wind power.

"Watts Bar Unit 2 is the country's first new reactor built in the 21st Century, and I am very pleased to see it is ready to go online," he said in a statement. "Soon, it will bring cheap, clean and reliable energy, as well as good-paying jobs, to the Tennessee Valley."

Quick Links

EPA to publish carbon rule Friday, open gates for legal challenges

VW says newer engine may also have had trick software

Flooring company pleads guilty to environmental crimes

Caterpillar weighed down by slowing global economic growth

Venezuela's ex oil czar dismisses media report of corruption

US-led forces strike IS-controlled oil field in Syria

Southern Thailand hit by the worst haze from Indonesia ever

Steyer promises no letup in campaign climate spending

Cybersecurity main topic as NRC, FERC confer

Bloomberg analysts predicting sustained low oil prices

Oil and gas woes drag Freeport McMoRan to big 3Q loss

Oil posts gains on bargain hunting

Think tank predicts drop in demand for fossil fuels

EQT to narrow its gas drilling focus

Noble looks to midstream IPO to raise cash

Dow cutting back in Kuwait but building U.S. Gulf Coast plant

Sponsored Links

Dyson getting into the battery business

Upcoming Events

EPA to publish carbon rule Friday, open gates for legal challenges

By Kevin Rogers

The Environmental Protection Agency on Thursday announced that it would move to publish its final Clean Power Plan in Friday's Federal Register, opening the door for industry and state governments to pursue legal action against the power plant carbon rules.

The federal government will publish the two rules: One for existing plants—which relies on state-specific carbon emission-reduction targets—and one for new fossil fuel-fired plants—which includes hard emissions limits. The rules seek to cut, by 2030, sector carbon pollution to 32 percent below 2005 levels.

Publication starts a 60-day countdown for states and industry to file legal action against the regulation and for Congress to act on any review process to attempt to block the regulations.

States led by West Virginia, have threatened to sue over the rules, as has the coal company Murray Energy Corporation. They argue that the new rules infringe on state authority. Senate Majority Leader Mitch McConnell, R-Ky., has said he would consider using the Congressional Review Act in an attempt to overrule the regulations.

The agency on Friday will also publish a proposed federal implementation plan, which would be used in the absence of a state plan. That proposal will be open for comment from stakeholders until January 21, 2016.

On a call with reporters, Acting Assistant Administrator for Air and Radiation Janet McCabe said the more than two-month gap between finalization and publication wasn't intended to forestall legal challenges, as some opponents have alleged.

"This has actually moved fairly rapidly considering the length of these rules and the fact that there were three packages," she said.

She also said there were no "substantive" changes made between the pre-publication version and the rules that will be published.

The American Coalition for Clean Coal Electricity, an industry group opposed to the regulations, said the publication would "finally" allow states and industries to take legal action against the agency.

"We are hopeful they will be successful and that the courts act quickly and decisively to quash this illegal rule," President and CEO Mike Duncan said in a statement.

VW says newer engine may also have had trick software

By The Associated Press

BERLIN (AP) — German automaker Volkswagen said Thursday that the U.S. cars identified as having been fitted with software to cheat on emissions tests include some vehicles with a newer diesel engine.

The company said after the emissions-rigging scandal became public last month that the software was installed on cars with variants of the EA 189 diesel engine built to the "Euro 5" emissions standard.

The company is now looking at cars with the EA 288 diesel engine and that same emissions standard, Volkswagen spokesman Pietro Zollino said. Vehicles with that engine built to the newer "Euro 6" standard are not affected, he added.

He said 70,000 cars in the U.S. with the early version of the EA 288 engine — including certain Golf models, the Beetle, Jetta, Passat and Audi A3, all from 2015 — are among the 482,000 vehicles which have been identified in the U.S. as containing the suspect software.

More

Flooring company pleads guilty to environmental crimes

By The Associated Press

NORFOLK, Va. (AP) — Lumber Liquidators has pleaded guilty to environmental crimes related to its importation of illegally sourced wood products.

The Toano, Virginia-based company pleaded guilty Thursday to four misdemeanors and one felony and agreed to pay $13.2 million to end a federal investigation. Sentencing was set for Feb. 1 in U.S. District Court in Norfolk.

According to prosecutors, much of the illegally imported hardwood flooring was manufactured in China from timber illegally logged in eastern Russia, the habitat for the world's last remaining Siberian tigers and Amur leopards. The government said the company should have known the wood was illegally sourced.

The plea agreement is unrelated to the controversy over some of Lumber Liquidators' laminate flooring from China, which CBS "60 Minutes" has reported contains high levels of the carcinogen formaldehyde.

Caterpillar weighed down by slowing global economic growth

By The Associated Press

PEORIA, Ill. (AP) — Caterpillar was stung by ongoing weakness in the mining and oil and gas industries during the third quarter and revenue fell short of expectations.

The construction and mining equipment maker lowered its full-year earnings forecast with expectations that the costs of restructuring the company will rise sharply.

Shares fell more than 2 percent before the opening bell Thursday.

Last month Caterpillar announced another round of job cuts that could exceed 10,000 people through 2018. The company said that it would cut as many as 5,000 people mostly by the end of this year from its salaried and management workforce. It then could cut thousands more, raising the total above 10,000, as it figures out which factories and manufacturing sites to close through 2018.

More

Venezuela's ex oil czar dismisses media report of corruption

By The Associated Press

CARACAS, Venezuela (AP) — Venezuela's representative to the United Nations is dismissing a Wall Street Journal article about a U.S. probe into billions of dollars in bribes allegedly paid to executives at the country's state-run oil giant that he used to run.

Rafael Ramirez posted messages on Twitter Thursday describing the report as attacks by "enemies of the people" in retaliation for the late President Hugo Chavez's recovery of the nation's oil wealth for the benefit of Venezuelans.

The Journal report Thursday is based on anonymous sources and law enforcement documents. It says a consulting business belonging to Ramirez's cousin demanded huge kickbacks from international vendors in exchange for awarding contracts with the PDVSA oil company.

Venezuela's government has yet to respond to the report.

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

Learn more at EnergyTomorrow.org

US-led forces strike IS-controlled oil field in Syria

By Vivian Salama

BAGHDAD (AP) — U.S.-led coalition forces in Iraq and Syria carried out a large-scale attack on Syria's Omar oil field as part of its mission to target the Islamic State group's ability to generate money, a coalition spokesman said Thursday.

Operations officer Maj. Michael Filanowski told journalists in Baghdad that airstrikes late Wednesday struck IS-controlled oil refineries, command and control centers and transportation nodes in the Omar oil field near the town of Deir el-Zour. Coalition spokesman Col. Steven Warren said the attack hit 26 targets, making it one of the largest set of strikes since launching the air campaign last year.

The refinery generates between $1.7 and $5.1 million per month for the Islamic State group.

"It was very specific targets that would result in long-term incapacitation of their ability to sell oil, to get it out of the ground and transport it," Filanowski said.

More

Southern Thailand hit by the worst haze from Indonesia ever

By The Associated Press

BANGKOK (AP) — Southern Thailand was hit Thursday by the most severe haze ever from forest fires in Indonesia, forcing all schools in a province to close and disrupting flights in a popular tourist area, officials said.

Thailand's south boasts beaches popular among tourists in Surat Thani and Phuket, two of the seven provinces suffering from the haze.

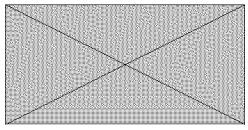
The haze, which has shrouded parts of Malaysia and Singapore for nearly two months,

reached hazardous levels in the Thai city of Songkhla, with the pollution index hitting a record-high reading of 365. A reading of 101-200 is unhealthy, 201-300 is very unhealthy and above 300 is hazardous.

"This is a crisis," said Halem Jemarican, head of the Southern Environment Office. He said the pollution index in southern Thailand has never exceeded 300 before.

More

Sponsored Links



Week in Review – Carbon Dioxide Study Shows Benefits

Kasich Announces Energy Plan.

Click here to read the brief

Steyer promises no letup in campaign climate spending

Activist Tom Steyer says he'd be "shocked" if his climate action groups didn't spend as aggressively in the 2016 elections as they did last year, and maintains they are "definitely" part of the process of getting Americans to take the issue of climate change more seriously, The Hill reports.

More

Cybersecurity main topic as NRC, FERC confer

Members of the Nuclear Regulatory Commission and the Federal Energy Regulatory Commission ran down the cyber risks they face from contaminated vendor systems, addressed communications risks, and looked at potential cybersecurity regulations when they held a high-level meeting Wednesday, E&E reports.

More

Bloomberg analysts predicting sustained low oil prices

Bloomberg Intelligence analysts are predicting oil prices will go "even lower" and stay there for "even longer," likening the current picture to the decade-long downturn in the mid-1980s.

More

Oil and gas woes drag Freeport McMoRan to big 3Q loss

Freeport McMoRan Inc., hit hard by low prices that torpedoed its venture into the oil and gas industry, has posted a loss of $3.8 billion in the third quarter, compared to a profit of $552 million in the period a year ago, The Wall Street Journal reports.

More

Oil posts gains on bargain hunting

Bargain hunting in the wake of this week's steep slide helped oil prices recover some equilibrium Thursday, if only temporarily, following yesterday's report of a big build in stockpiles. West Texas Intermediate crude for December delivery rose 18 cents to settle at $45.38 a barrel on the Nymex, while in London, Brent ended 23 cents higher to $48.08, Marketwatch reports.

More

Think tank predicts drop in demand for fossil fuels

An analysis from the London think tank Carbon Tracker Initiative offers reasons why there may be a big drop in demand for fossil fuels over the next 25 years, E&E reports.

More

EQT to narrow its gas drilling focus

Faced with falling natural gas prices, EQT Corp. will suspend drilling operations outside of its most profitable core of wells in the Marcellus and Utica Shale plays, the Pittsburgh Business Times reports.

More

Noble looks to midstream IPO to raise cash

Noble Energy says it hopes to raise $100 million from an initial public offering of shares in Noble Midstream Partners, which will own infrastructure in the Colorado DJ Basin, FuelFix reports.

More

Dow cutting back in Kuwait but building U.S. Gulf Coast plant

Dow Chemical chief Andrew Liveris describes the decision to reduce the company's stake in Kuwait ventures as "disciplined portfolio management," as the chemical giant also announced plans to build a monoethylene glycol plant on the U.S. Gulf Coast, FuelFix reports.

More

Dyson getting into the battery business

Vacuum cleaner maker Dyson has acquired University of Michigan-based startup Sakti3 and plans to construct a battery production plant, potentially positioning it to compete with Tesla and Panasonic in the electric car battery market , USA Today reports.

More

Upcoming Events

- Oct. 22, Washington: The House Energy and Commerce Subcommittee on Energy and Power to hold a hearing on the legality of the Environmental Protection Agency's final Clean Power Plan. 2:00 pm , 2123 Rayburn.
- Oct. 22, Washington: The House Science, Space and Technology Committee to hold a hearing on the Environmental Protection Agency's final rule to set the ground-level ozone standard to 70 parts per billion. 10:00 am , 2318 Rayburn.
- Oct. 22, Washington: Environmental Protection Agency Administrator Gina McCarthy to discuss her agency's proposed rule to limit methane emissions from the oil and gas sector at an event hosted by the Center for American Progress. 10:00 am , 1333 H St. NW.
- Oct. 22, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on a bill to assist rural communities to meet Environmental Protection Agency drinking water rules. 10:00 am , 2123 Rayburn.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Grundler, Christopher[grundler.christopher@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]
Cc: Kasman, Mark[Kasman.Mark@epa.gov]
From: Phillips, Anna
Sent: Thur 10/22/2015 9:39:10 PM
Subject: Car emissions testing: 'The whole system is corrupt' (EU Observer)

Car emissions testing: 'The whole system is corrupt'

EUObserver (BRUSSELS, 21. OCT) - Volkswagen is not the only car company that used illegal devices to cheat emissions tests, said Axel Friedrich, a German emissions testing expert who is a co-founder of the NGO that notified US authorities something was wrong with VW's test results. "You will see tomorrow night on German television the next case", Friedrich said on Wednesday (21 October) in the European Parliament.

"It's not only diesel, it's also gasoline. The whole system is corrupt", he added.

Although he refused to single out companies, he noted that he "heard a number of statements [from other car companies] which I know are lies. We'll realise this in the next couple of weeks."

According to Friedrich, it was already well-known to those involved that car companies must have been cheating during the laboratory tests.

But Volkswagen "tried to keep it secret. This is when journalists get more interested. If it's open, nobody cares. If it's secret, you jump on it", he told a group of around twenty journalists during a round-table discussion organised by the parliament's left-wing Green group.

But the signs were there. While the cars did well on the laboratory tests, air quality in Europe's cities did not improve in tandem.

More than half of the EU's member states are currently facing infringement procedures from the European Commission for failing to comply with EU targets on air quality.

"If the car [industry] would not [have been] cheating, we would have met all these goals of the air quality

directive", said Friedrich.

The German retiree is former director of the Environment, Transport and Noise Division of the German federal environmental agency, but recently became a regular voice in German media after the Volkswagen scandal involving illegal software which allowed VW's cars to appear much cleaner than they actually were.

The scandal was exposed after US authorities investigated claims from the International Council on Clean Transportation, an NGO of which Friedrich was one of the founders.

Friedrich praised the US Environmental Protection Agency (EPA) which carries out random checks even after cars are certified.

Industry lobby

"We have 28 European agencies for certification. They compete. We have more than 50 certification test labs. They compete. And nobody controls them. … We make laws, but no enforcement. We have big industries which lobby heavily to avoid these controls."

Under EU rules that came into force in 2007, member states should have had by 2009 "effective, proportionate and dissuasive" penalties in place for the use of defeat devices.

"It's 2015, can somebody name me one member state that has done this? I don't know one", said Friedrich.

A Commission spokesperson told this website that all 28 EU countries have told the Commission that they transposed the relevant directive.

"This information suggests that they have implemented a system of penalties, although many Member States have not communicated their national rules to the Commission separately", the spokesperson said.

She did not want to comment on whether the Commission has started infringement procedures against those countries, but did stress the Commission is "following national authorities' policing and enforcement

of EU rules in the automobile sector very closely".

Real driving

Friedrich proposes scrapping laboratory tests altogether, and only having random surprise checks under real driving conditions.

"We spend billions per year on tests in a lab. Useless. … We want to clean up the environment, not the labs", he noted.

The Commission has introduced a new test called the Real Driving Emission (RDE) test, the final elements of which are currently being negotiated.

In a written response to questions from MEPs during a heated plenary debate earlier in October, industry commissioner Elzbieta Bienkowska wrote that the RDE test procedures "will be an appropriate answer to the shortcomings of laboratory testing and will considerably reduce the risk of defeat devices being used".

However, Friedrich does not share this assessment, saying that industry is doing its utmost to ensure that this 'real drive' test does not replicate real driving conditions.

He noted that the conditions during which RDE tests will be taken, are not average driving conditions and exclude, for example, a car motor standing idle for a while (as would be the case in a traffic jam).

Coming up in plenary

The European Parliament, meanwhile, is working on a text to adopt next week during its plenary session in Strasbourg. The MEPs will vote to decide whether they want the Commission to launch an investigation, or failing that, a parliamentary investigation. A call for an independent EU agency that oversees emissions compliance is also proposed.

The Commission has repeatedly stated that it does not have the power to investigate the scandal.

Dutch Green MEP Bas Eickhout says that while strictly legally speaking that may be true, there are "plenty angles" which the Commission could use, such as a state aid probe.

"The EU also does not have power over taxation, yet it still investigated tax rulings via a state aid case."

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

To: Ex. 7
Belser, Evan[Belser.Evan@epa.gov]; Ex. 7
Ex. 7
Ex. 7 Kaul, Meetu[Kaul.Meetu@epa.gov]; Ex. 7
Ex. 7 orehowsky.greg@epa.gov[orehowsky.greg@epa.gov]; Ex. 7
Ex. 7 Shinkman,
Susan[Shinkman.Susan@epa.gov]; Ex. 7 Werner,
Jacqueline[Werner.Jacqueline@epa.gov]
From: Ex. 7
Sent: Thur 10/22/2015 9:41:36 PM
Subject: VW News Blast
+ENV_ENFORCEMENT-#2549843-v1-VW_News Article Log.xlsx

Good afternoon All,

Please see the attached spreadsheet, which contains a list of new articles that we've collected so far. The entries on the attached log are arranged by date and include a brief synopsis of the article as well as a link to the article. For those of you that have access to the "R" drive, the articles are available on the "R" drive at:

R:\Database\EES\U.S_v_Volkswagen_90-5-2-1-11386\News Articles

If you do not have access to the "R" drive and are unable to access the article using the link above, please contact me or Ex. 7 and we will provide you with a copy of the article.

Everyone that receives this e-mail has been added to the VW news blast that originates from Justice Libraries. Within the next day or two, you should start receiving media blasts from Lila Faulkner that will contain recent Volkswagen Audi news headlines as well as summaries and links to those articles. We will continue to monitor other sources and will continue to save new articles to the "R" drive. And, to the extent that an article is saved that was not included in the media blast from Justice Libraries, a separate e-mail will be sent to supplement Justice Libraries' media blast.

Lastly, if you would like to be removed from the e-mail distribution list, please e-mail me or Ex. 7 with the words "unsubscribe" in the body of the e-mail.

Thank you,

Ex. 7

Volkswagen News Article Log		
Date	Author(s)	Title
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 1 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 2 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 3 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 4 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 5 of 5)
20090630	Kiley, David	Clean Diesel is Coming! Clean Diesel is Coming!
20130806	Lienert, Anita	New Diesel Engine set for 2015 Volkswagen Golf, Beetle, Passat and Jetta
20130905	Achorn, George	The Station TDI Commercial from Audi of America May Prove Familiar for those Already Driving Diesel Cars
20150918		Volkswagen's Statement Regarding EPA Investigation
20150918	Davenport, Coral; Ewing, Jack	VW is Said to Cheat on Diesel Emissions; U.S. to Order Big Recall

20150918	Neat, Rupert	Volkswagen under investigation over illegal software that masks emissions
20150918	Goodwin, Antuan	Volkswagen, Audi accused of using software to cheat US diesel emissions tests
20150918	Plungis, Jeff	Volkswagen Admits to Cheating on U.S. Emissions Tests
20150918	Chappell, Bill	Volkswagen Used 'Defeat Device' to Skirt Emissions Rules, EPA Says
20150918	Hirsch, Jerry	VW cheated on U.S. pollution tests for 'clean diesels'
20150920	Lampersbach, Andreas	Press Release: Statement of Prof. Dr. Martin Winterkorn, CEO of Volkswagen AG
20150920	Robinson, Julian	VW stop selling Diesel cars in US after firm rigged emissions tests on up to 500,000 vehicles as CEO says sorry for broken trust
20150920	Plungis, Jeff; Hull, Dana	VW's Emissions Cheating found by Curious Clean-Air Group
20150921	Reuters	Volkswagen Shares Tank after company admits to Cheating the EPA
20150921	Hulac, Benjamin; ClimateWire	Volkswagen uses software to Fool EPA Pollution Tests

20150921	Quick, Darren	Volkswagen admits "defeat device" used to circumvent US emissions tests
20150921	Plungis, Jeff; Levin, Alan; Vekshin, Alison	Volkswagen Owners Want Payback
20150922	Ewing, Jack	Volkswagen Says 11 Million Cars Worldwide are Affected in Diesel Deception
20150922	Boston, William; Sloat, Sarah	Volkswagen Emissions Scandal Relates to 11 Million Cars
20150922	Frankel, Alison	How U.S. lawyers were so quick off the mark to sue Volkswagen
20150922	Chappell, Bill	11 Million Cars Worldwide have Emissions 'Defeat Device,' Volkswagen Says
20150922	Harder, Amy; Spector, Mike	EPA Accuses Volkswagen of Dodging Emissions Rules
20150922		Volkswagen admits 11 million diesel cars worldwide have pollution test cheating 'defeat device'
20150922	Seib, Christine	Volkswagen's US boss: We totally screwed up
20150922	Campbell, Lucy	Volkswagen Facing Nationwide Lawsuit over Environmental Emissions Deception

20150922		N.Y. Attorney General's Office joins Volkswagen Emissions Cheating Probe
20150922		Statement from A.G. Schneiderman on Volkswagen Investigation
20150922		Volkswagen's diesel fraud goes beyond regulatory failure
20150923	Lampersbach, Andreas	Press Release: Statement by Prof. Dr. Winterkorn
20150923	Lampersbach, Andreas	Press Release: Statement from the Executive Committee of Volkswagen AG's Supervisory Board
20150923	Mouison, Geir; Pylas, Pan	Volkswagen CEO steps down amid emissions scandal
20150923	Massey, Ray	Did Merkel cover up Volkswagen scandal? As car maker's boss quits, German leader accused of accepting trickery 'with a wink'
20150923	Mathiesen, Karl; Neslen, Arthur	VW Scandal caused nearly 1M tonnes of extra pollution, analysis show
20150923	Pemberton, Nathan	VW's Clean Diesel Ads Now Make Us Feel Dirty
20150924	Bachelor, Lisa; Brignall, Miles	Volkswagen emissions scandal: how it affects you
20150924	Sage, Alexandria	Exclusive: VW recall letters in April warned of an emissions glitch
20150924	Lynes, Jennifer	Volkswagen committed the cardinal sin of greenwashing: Lying
20150924		Class action lawsuit filed against Iowa Volkswagen dealers

20150924		Va. Attorney General Multistate Investigation into Volkswagen
20150924		German ministers were reportedly warned of VW test-beating software
20150924	Massey, Ray	Test Every Diesel car in the UK after the Volkswagen Scandal - Minister orders urgent action to check whether other manufacturers have cheated emissions data
20150924		Volkswagen to fire executives appoint CEO
20150924	Gardner, Timothy; Lienert, Paul; Morgan, David	After a year of stonewalling, Volkswagen finally came clean
20150924		Volkswagen Faces Canadian Class Action over Fraudulent Defeat Device
20150924	Plumer, Brad	How many deaths did Volkswagen's pollution scandal cause?
20150925	Farrell, Sean	Volkswagen poised to appoint Porsche's Matthias Muller as boss
20150925	Hotten, Russell	Volkswagen: The scandal explained
20150925	Lampersbach, Andreas	Press Release: Matthias Muller Appointed CEO of the Volkswagen Group
20150925	Lampersbach, Andreas	Press Release: The Volkswagen Group is Restructuring: Supervisory Board Passes Resolution for New Organization

20150925	Lampersbach, Andreas	Press Release: Statement by the Supervisory Board of Volkswagen AG
20150925	Thul, Peter	Press Release: Dr. Herbert Diess, CEO of the Volkswagen Passenger Car Brand, Explains: "We are working at full Speed on a solution."
20150925	Bomey, Nathan	EPA to road test cars after Volkswagen emissions scandal
20150925	Miller, Hugo; Weiss, Richard	VW Faces more European Lawsuits over Emissions Cheating
20150926	Mendick, Robert	VW Scandal: Cover-up of British tests that showed diesel fume cheating
20150926	Boyle, Darren	Volksboten! Switzerland bans VW diesel cars equipped with 'defeat devices' for cheating emissions tests
20150927	Craigball	Fahrvergnügen: eDiscovery in the Volkswagen Vortex
20150927	Gitlin, Jonathan M.	Report: VW was warned about cheating emissions in 2007
20150927	LaCroix, Kevin	Volkswagen Vehicle Emissions Scandal Triggers U.S. Securities Suit, Dutch Collective Action Initiative
20150927	Priddle, Alisa	VW Scandal puts Diesel Engines on Trial
20150928	Sanger-Katz, Margot; Schwartz, John	How many deaths did Volkswagen Deception Cause in the U.S.?

20150928	Bradshaw, Julia	VW Scandal: German Prosecutors probe Winterkorn as Volkswagen emissions-rigging crisis spreads to 2.1 million Audi cars and Skoda models
20150928	Charlton, Alistair	Audi admits 2.1 million cars use VW emissions cheat software
20150928	Sorokanioh, Robert	Report Bosch Warned VW about Diesel Emissions Cheating in 2007
20150929	Banks, Gabrielle	Harris County seeks millions from Volkswagen for unlawful fumes
20150930	Jaffe, Eric	A Texas County Just Sued VW for $100 Million over its Emissions Scandal
20150930	McClintock, Peter	Test emissions where cars pollute: On the Road
20150930	Wray, Dianna	Harris County Attorney Vince Ryan is (Of Course) Suing Volkswagen
20150930	Rascoe, Ayesha	Update 2 Texas county sues Volkswagen over diesel-emissions scandal
20150930	Tomlinson, Simon	We were crooks, Volkswagen admits: Board member says those who knew about emissions test cheating acted criminally
20150930	Turner, Heidi	Attorney: Volkswagen Owner Could Suffer Tremendous Financial Impact
20151001	Bode, Hans-Gerd	Press Release: Statement from the Executive Committee of Volkswagen AG's Supervisory Board following its meeting on September 30, 2015
20151001	The National Trial Lawyers	Texas County is First Government Agency to sue VW for Environmental Harm

20151002	Varli, Harun	Switzerland bans Volkswagen in wake of scandal
20151002	Ivory, Danielle	U.S. States Jumping into Investigation of VW emissions Deception
20151002	Handelsblatt Staff	Volkswagen Scandal: The Scene of Crime
20151004	Donahue, Patrick	VW Chief Warns Cheating Scandal may Threaten Company's Existence
20151004	Henning, Eyk; Varnholt, Hendrik	Volkswagen Assesses Emissions Scandal's Impact on Its Finances
20151004	Berlin Associated Press	Merkel calls on VW to clear up emissions-rigging scandal
20151004	Borenstien, Beth	Analysis: Dozens of death likely from VW pollution dodge
20151004	Scully, Matt	Second-hand Volkswagen cars may lose value following emissions scandal
20151004	Ewing, Jack	Volkswagen Engine-Rigging Scheme Said to have begun in 2008
20151005	Woodyard, Chris	Top VW Exec warns emission crisis could kill company
20151005	Flaccus, Gillian; Pritchard, Justin	Volkswagen Pollution Testing Center Comes Under Scrutiny
20151005	McHugh, David; Pylas, Pan	For Volkswagen, costs of scandal will be piling up
20151005		A Scandal Reverberates in a Company Town

20151005		Volkswagen admits rigging of 8M cars in EU Report
20151005	Associated Press	VW tells German lawmakers 8M cars in EU affected by probe into rigged emissions tests
20151005	Elliott, Susannah	Columbus Answers: Why didn't Ohio's emissions test catch Volkswagen's clean-air violations?
20151005	Roberts, Daniel	These 2 Volkswagen Engineers are at the Center of the Emissions Probe
20151005	Capon, Felicity	Volkswagen Scandal: Why is it falling to the U.S. to Regulate Europe?
20151005	San Diego Union-Tribune	Engine Shortfall Said to Push VW to Cheat
20151005	Banerjee, Devin; Collins, Margaret	Schwarzman Says 'Heroic' Volkswagen Scandal will be Temporary
20151005	Silverman, Stan	VW employees responsible for Dieselgate: Where's the legal, moral, & ethical compass?
20151005	Niquette, Mark	Tennessee Review Clawbacks for VW Tax Incentives after Cheating
20151005	Pearson, Sophia; Fisk, Margaret Cronin	Volkswagen Sued Over Share Drop Amid Emissions Test Scandal
20151005		Volkswagen Official to Testify Before Congress

20151005	Magnusson, Niklas	VW's 'Serious' Failure Triggers Review at Skandia Fonder
20151005	Boston, William	Volkswagen Emissions Investigation Zeroes in on Two Engineers
20151005	Pettersson, Edvard	Volkswagen Sued by West Virginia Over Clean Diesel Claims
20151005	International New York Times	Engine Flaw Led VW to Use the Software to Fool Tests - Vital 'clean diesel' project failed to meet emissions and performance goals
20151005	Hruska, Joel	Early Report sheds first list on why VW cheated chairman warns emissions scandal could kill the company
20151005	Ambrosio, Patrick	West Virginia Sues Volkswagen Over Emissions Scandal
20151006	Lampersbach, Andreas	Press Release: Matthias Muller: We will Overcome This Crisis
20151006	Behrmann, Elisabeth; Reiter, Chris; Rauwald, Christoph	VW to Delay, Cancel Non-Essential Investments Due to Scandal
20151006	Pelton, Jeffrey	Volkswagen wasn't the first Auto Scandal
20151006	McHugh, David	VW chief warns workers of 'pain' to come because of scandal
20151006	Associated Press	Costs from scandal piling up for Volkswagen, with spot as No. 1 carmaker likely to be lost
20151006	Sloan, Allan	The real question: What will VW's cheating scandal cost car owners?

20151006	Donahue, Patrick	Volkswagen Chief Warns on Existential Threat of Cheating Scandal
20151006	Bryant, Chris	Volkswagen's 'uniquely awful' governance at fault in emissions scandal
20151006	Amin, Ayat	Blissful Ignorance
20151006	AFP	Several VW engineers admit to installing cheat device: Report
20151007	Tovey, Alan; Bradshaw, Julia	VW scandal: Volkswagen to start fixing emissions rigged diesel cars in January
20151007	Admin	VW CEO: Deception stemmed from German HQ
20151008		Testimony of Michael Horn, President and CEO of Volkswagen Group of America, Inc. Before the House Committee on Energy and Commerce Subcommittee on Oversight and Investigations
20151008	News Wires	Volkswagen's US Chief knew of Possible emissions problem in 2014
20151008		Press Release: Texas Sues Volkswagen and Audi over Deceptive Trade Practices, Environmental Violations
20151008	Fisk, Margaret Cronin; Calkins, Laura Brubaker	Texas Sues Volkswagen Claiming Deception, Diesel Pollution
20151008	Howard, Bill	Das Blunder? VW blames engineers, not execs, for diesel woes, then bails on US diesels

20151008	CNN Money	Volkswagen HQ raided by German police
20151009	Morgan, David; Gardner, Timothy	House slams regulators for not catching VW for years
20151009		VW alleges software engineers not company at fault
20151009	Mohan, Geoffrey; Welsh, Ben	Q&A How much pollution did VW's emissions cheating create?
20151009	Carrington, Damian	Four more carmakers join diesel emissions row
20151009	Staff Reports	Dallas decides not to go after Volkswagen over air quality after state files lawsuit Thursday
20151009		CORRECTED-California gives VW Nov. 20 deadline for technical fix in diesel scandal
20151010	Bloomberg, Kyle Stock	Used-car shoppers haven't stopped buying Volkswagen's dirty diesels
20151010	Associated Press	Volkswagen may compensate vehicle owners for loss of value, CEO says

20151011		Schumer: Volkswagen fine should include rebates for buyers
20151011	Behrmann, Elisabeth; Plungis, Jeff	EPA's new VW probe may reveal failure to disclose
20151011	Read, Richard	The Volkswagen debacle could cost $25 billion
20151012	Carpenter, Susan	VW diesel owners sue for immediate buyback of models tainted by emissions cheating scandal
20151012	McDonald, Joe	VW diesel cars recalled in China, sales halted in Singapore
20151012	Babcock, Chris	Texas Sues Volkswagen Over Emissions Cheating
20151012	Buergin, Rainer; Jenne, Birgit	VW Loans for Clean Engine Development Under Scrutiny, EIP Says
20151012	Lavell, Tom	S&P cuts Volkswagen's credit rating to A-
20151012		Press Release: Sloan, Bagley, Hatcher & Perry Law Firm Well-Equipped to Support Consumers Affected by Volkswagen Emissions Scandal with Depth in Product Liability Matters, Launches Dedicated Web Site www.volkswagenemissionsscandal.com

20151013		VW Chattanooga staffing firm says it's "business as usual" for now
20151013	Martinez, Michael	Ann Arbor EPA lab tests other cars after VW scandal
20151013	Cooke, David	Automaker Rankings Revisited - Does Volkswagen Now have the "Dirtiest Tailpipe
20151013	Associated Press	DiCaprio, Paramount option Volkswagen scandal book proposal
20151013	Associated Press	VW fallout: Training center plan postponed
20151013	McHugh, David	Scandal-hit VW to change diesel emissions technology
20151013	Henning, Peter	Taking Measure of Volkswagen's Cooperation
20151013	Lienert, Paul	EPA hasn't decided if new software on 2016 VW diesels is legal
20151013	Eddy, Melissa	Volkswagen in Future Cars, to Adopt New System for Controlling Diesel Emissions
20151013	Kresge, Naomi; Rauwald, Christoph	Volkswagen to Cut Spending by 1.1 Billion Amid Diesel Scandal
20151013		VW to cut investment in core brand to cope with scandal

20151013	Dalton, Matthew	Volkswagen Scandal Puts Spotlight on Europe's Dirty Air
20151013	Hjelmgaurd, Kim	VW unveils new strategy after emissions fiasco
20151013		Press Release: Volkswagen Brand Board of Management Takes Strategic Decisions
20151014	Santoro, Ernie	Ernie Santoro: Let's hope VW scandal doesn't hurt diesel
20151014	Ydsite, John	Germans Worry Volkswagen's Problems could Drag Down Country's Economy
20151014	Sharp, Matt	Sens. Demand WV Return $200M in Tax Credits
20151014	Trudell, Craig; Hagiwara, Yuki	Toyota Targets 90% Emissions Reduction by 2050 on Fuel Cells
20151014	Reuters	Volkswagen to shift focus to electric, hybrid vehicles
20151014	Field, Emily	Volkswagen North America CEO Quits After Three Weeks
20151014	Associated Press	Volkswagen to change its diesel emissions technology

20151014	Associated Press	Volkswagen: secret emissions tool in 2016 cars is separate from 'defeat' cheat
20151014	Sundar, Sindhu	VW Hit with Texas Consumer Suit over Emissions Software
20151014	Prodhan, Georgina; Schwartz, Jan	At least 30 managers were involved in VW emissions cheating
20151014	Hakim, Danny; Bowley, Graham	VW Scandal Exposes Cozy Ties in Europe's New Car Tests
20151014	Orr, Steve	DMV gives VW diesel owners a pass on inspections
20151015		How Volkswagen Got Away with Diesel Deception
20151015	Carrington, Damian	UK Volkswagen boss denies cars emitted higher pollution than expected
20151015	Ruddick, Graham; Topham, Gwyn	VW deserves to suffer substantial damage, UK minister says
20151015	Associated Press	Italy police search VW offices in Verona as part of local investigation into emissions scandal

20151015	Associated Press	VW plot thickens on disclosure of new emissions software
20151015	Gleckman, Howard	Could a carbon tax have prevented the Volkswagen scandal?
20151015	Boston, William; Houston-Waesch	Volkswagen Suspends 4th Engineer; Berlin Orders Mandatory Recall -- Update
20151015		German order triggers recall of 8.5 million VW cars in Europe
20151015	Eddy, Melissa	Volkswagen to Recall 8.5 Million Vehicles in Europe
20151016	Viswanatha, Aruna; Specter, Mike	U.S. Pursues Several Paths in Volkswagen Probe
20151016	Vittorio, Andrea	VW Sustainability Reports May Have Hinted at Problems
20151016	McHugh, David; Rising, David	VW hires anti-corruption exec as it deals with scandal

20151016		Press Release: Volkswagen Group Delivers 7.43 Million Vehicles to Customers in First Three Quarters.
20151016	Timu, Andra; Vilcu, Irina	VW Scandal Won't Harm U.S.-EU Trade-Accord Talks, Malmstrom Says
20151016	Associated Press	German investigators putting together special team for VW case to deal with volumes of data
20151016	Collen, Barry	VW market share dips in Europe amid emissions scandal
20151016	Associated Press	Volkswagen sales in Europe rise in September despite emissions scandal
20151017		Former VW Chief to Vacate Top Post at Holding Company
20151018	Associated Press	French police search VW offices as part of local investigation into emissions scandal
20151018	Jensen, Christopher	Essential Part of the Volkswagen Diesel Repair is the Owner
20151019	Plank, Dave	Did One Company Spot Volkswagen's Diesel Deception Six Years Before Anyone Else?

20151019		Press Release: Volkswagen Announces Pricing for the New 2016 Passat
20151019		Volkswagen's Voluntary Recall for the Passenger Occupant Detection System
20151019	Levick, Richard	Volkswagen's Long and Winding Road Ahead
20151019	Behrmann, Elisabeth	Will the Scandal Force VW to Sacrifice Its Iconic Brands?
20151020	Ewing, Jack	Volkswagen Suspends 5th Executive in Emissions Scandal
20151020	Marsh, Alastair; Freke, Tom	Volkswagen Scandal Impact $3 Billion of Securitized Car Loans
20151020	Associated Press	VW employee reps, union demand transparency
20151020	Greene, Ronnie; Foley, Ryan	Eyeing major settlement, US states move quickly in VW case
20151020	Gibbs, Alexandra	Volkswagen's brand value still high with Germans: Survey
20151020	Read, Richard	Volkswagen offices raided, this time in France
20151021	Associated Press	German State Files Criminal Complaint Over Missing VW File

20151021	Matussek, Karin	Porsche Manipulation Trial Kicks Off Amid VW Emissions Mess
20151021	Lawrence, Dune; Elgin, Benjamin; Silver, Vernon	How Could Volkswagen's Top Engineers Not Have Known?
20151021	Krok, Andrew	Volkswagen halts sale of European diesels linked to emissions scandal
20151021		Volkswagen CEO says emissions scandal bill could rise
20151021	Doyle, Alister	Volkswagen has a new $50 million headache caused by its cheating engines
20151022	Ewing, Jack	Volkswagen Investigating if Diesel Emissions Deception Was More Extensive
20151022	Smith, Geoffrey	Now Volkswagen's newest diesel engines are under suspicion
20151022	Fisk, Margaret Cronin	Volkswagen asks to combine fraud claims in Virginia or Detroit
20151022	Rauwald, Christoph	Volkswagen Says Recall Will Be Limited to Older Diesel Engines

20151022		Volkswagen to recall Brazil pickups in emissions cheating scandal
20151022	Plungis, Jeff; Katz, Alan	VW's Emissions Retrofit May be Among Costliest Recalls Ever
		Volkswagen Group Strategy 2018

Volkswagen AG said that Vahland decided to leave because of

VW's TDI engines and advanced diesels that are on sale in Europe are nothing like the poky, smoky oil burners sold here during the gas crunches of past decades. Now they're smooth, quiet, and powerful, and they typically endure beyond 200,000 miles and require less maintenance than gas engines.

Bohl and the Bosch believe the emissions battle can be successfully waged in the cylinder. Furthermore, EGR absorbs heat, which reduces NOX.

Space-age fuel-injection systems in development are expected to finish the cleanup job and account for a large part of the cost differential between modern diesel and gasoline engines.

At the top of the heap is the VW Touareg V-10 TDI, whose state-of-the art aluminum-block engine uses unit injectors good for 31,200 psi of squirt.

Volkswagen will sell the Touareg V-10 TDI later this year, and it's pretty likely to blaze a trail that will be followed by other large diesel-powered SUVs. The point is that, despite its brisk acceleration, the Touareg never seems lithe or nimble—always brutishly powerful.

With diesel fuel prices down and rivals' diesel programs halted, German carmaker Audi has launched a U.S. marketing push.

A new diesel engine that is expected to return 45-46 mpg on the highway will power the 2015 Volkswagen Golf, Beetle, Passat and Jetta, Volkswagen Group of America. The new Volkswagen EA288 diesel engine "will eventually replace all the 2.0-liter TDI Clean Diesel engines fitted in Audi and Volkswagen TDI Clean Diesel mode

Audi introduces their 2014 clean diesel vehicles with 60 second spot called The Station. The Director of Marketing for Audi said, “Since the introduction of TDI in 2009, Audi has been at the forefront of clean diesel with an increased commitment to providing drivers with more options."

VW takes this matter very seriously and is cooperating with the investigation. The company is committed to fixing this issue as soon as possible.

Agency officials issued the car company a notice of violation and said it had admitted to the use of a so-called defeat device. The recall involves 4-cylinder Volkswagen and Audi vehicles from model years 2009-15.

The US government has ordered Volkswagen to recall almost 500,000 cars after discovering that the company deployed sophisticated software to cheat emission tests allowing its cars to produce up to 40 times more pollution than allowed.

For years we've been praising Volkswagen's TDI vehicles for their excellent blend of driving performance and fuel efficiency, but a recent claim by the US Environmental Protection Agency asserts that VW's diesel emissions may not be as clean as we've been led to believe.

Volkswagen AG admitted to systematically cheating U.S. air pollution tests, leaving the automaker vulnerable to billions in fines and possible criminal prosecution.

Installed in four-cylinder cars, the software, which the EPA calls a "defeat device" allowed diesel Jettas, Beetles and other cars to "emit up to 40 times more pollution" than allowed under U.S. emission standards.

The world's largest automaker has admitted selling 482,000 such diesels in the United States since 2009. The scandal could cost billions of dollars in fines and threatens to stunt the development of all diesel vehicles.

As a result of this scandal, VW CEO Winterkorn issued the following, "I personally am deeply sorry that we have broken the trust of our customers and the public. We will cooperate fully with the responsible agencies, with transparency and urgency, to clearly, openly, and completely establish all of the facts of this case"
VW is to stop selling four cylinder diesel cars in the US after the firm was found to have rigged emissions test on up to 500,000 vehicles, it has emerged.

The Volkswagens were spewing harmful exhaust when testers drove them on the road. In the lab, they were fine. Discrepancies in the European tests on the diesel models of the VW Passat, the VW Jetta and the BMW X5 last year gave Peter Mock an idea

Volkswagen shares plunged more than 20 percent on Monday, their biggest one-day fall, after the German carmaker admitted it had rigged emissions tests in the United States, and U.S. authorities said they would widen their probe to other manufacturers.

The defeat software allowed VW cars to activate emission controls during emission tests but during normal use the vehicles would release up to 40 times the permitted amount of nitrogen oxides, which causes breathing issues and is linked to millions of early deaths.

The device, which is described in the NOV as a sophisticated software algorithm on certain Volkswagen vehicles detects when the car is undergoing official emissions testing and activates full emissions controls is found in four-cylinder VW and Audi diesel cars from models.

Consumers who own cars that aren't doing what they're intended to do will expect compensation.

The company said that 11 million of its diesel cars were equipped with software that could be used to cheat on emissions tests. The company said it would set aside 6.5 billion euros ($7.3 billion), which is equivalent to a half a year's profit, to cover the cost of making the cars comply with pollution standards.

CEO Martin Winterkorn apologized that VW betrayed customers' trust and promised that the company would clarify the origin and extent of the issue. He added that everything will be put on the table at this time, as quickly, thoroughly and transparently as possible.

VW's strategy to market their vehicles to upscale professional has backfired and allowed class action lawyers to mobilize quickly. Reason being, the Plaintiffs lawyers do not have to look far for clients because many of their friends and colleagues owned the cars.

The software that allegedly causes Volkswagen cars to cheat official emissions tests exists in only one type of diesel engine, according to the carmaker — and it has sold 11 million of them around the world. The company says it's setting aside 6.5 billion euros (around $7.25 billion) to fix the cars.

EPA officials said the software, dubbed a "defeat device," made about 482,000 Volkswagen diesel-powered cars appear cleaner running than they were.

Volkswagen has revealed that 11 million diesel cars worldwide are equipped with devices that can cheat pollution tests, a dramatic expansion of a scandal that immediately sent its shares plummeting by another 20 per cent.

Michael Horn, chief executive of the Volkswagen Group of America, used the launch of the 2016 Passat to issue an abject apology saying "Our company was dishonest, with the EPA and the California Air Resources board, and with all of you and in my German words, we have totally screwed up."

The lawsuit contends that Volkswagen's decision to prey on environmentally-conscious consumers who paid thousands of dollars for a cleaner-running vehicle is despicable and in violation of multiple state and federal consumer and environmental laws.

Attorney General Eric Schneiderman said Tuesday that his office will join investigations of Volkswagen following reports about how the automaker installed software in diesel-powered cars to cheat emissions tests.

No company should be allowed to evade our environmental laws or promise consumers a fake bill of goods. My office is investigating troubling reports that millions of Volkswagen cars carried software designed to cheat emissions tests

Volkswagen has been cheating on its US government emissions tests for years. And it was a small, independent research institution that caught it.

"Above all, I am stunned that misconduct on such a scale was possible in the Volkswagen Group. As CEO I accept responsibility for the irregularities that have been found in diesel engines and have therefore requested the Supervisory Board to agree on terminating my function as CEO of the Volkswagen Group."

The Executive Committee discussed the manipulation of emissions data and recognizes economic damages as well as loss of trust among customers. Recommendation for new personnel will be presented at Friday's meeting.

Volkswagen CEO Martin Winterkorn stepped down Wednesday over a scandal in which the German carmaker admitted to rigging its diesel cars' emissions to pass U.S. emissions tests

The German Green Party said ministers knew in summer about Volkswagen rigging emissions tests but that 'tricks and deceits' were 'accepted with a wink'.

If these vehicles were driven at the average annual US mileage, the vehicles would have spewed between 10,392 and 41,571 tons of toxic gas into the air each year.

Volkswagen's "clean diesel" vehicles have been responsible for emitting aggravating nitrogen oxide for the last six years.

The authors explore the possible ramifications for UK owners of Volkswagen vehicles.

In April of 2015, Volkswagen of America, Inc. sent letters to California owner of diesel-powered Audis and Volkswagen informing them of an emissions service action" affecting the vehicles.

The company's use of a "defeat device" to skirt emissions testing has rocked both the business world and countless unwitting drivers.

A class-action lawsuit has been filed on behalf of anyone who bought diesel-engine Volkswagens in Iowa.

Attorney General Mark R. Herring announced that Virginia has joined the executive committee of a multistate investigation into Volkswagen for altering emissions software to produce favorable test results.

German government ministers reportedly turned a blind eye to Volkswagen installing cheat devices to fool U.S. diesel emissions tests, raising the possibility that the mushrooming scandal could cause embarrassment for Chancellor Angela Merkel.

All diesel car models in Britain are to be retested amid fears the Volkswagen scandal is an industrywide problem.

The research and development chiefs of Audi and Porsche, Ulrich Hackenberg and Wolfgang Hatz, will be removed by the supervisory board, as will VW's top executive in the United States, Michael
Horn, the senior source said.

After more than a year of stonewalling investigators, Volkswagen stunned two senior officials with the U.S. Environmental Protective Agency and California's environmental watchdog by admitting the automaker hacked its own cars to deceive U.S. regulators about how much their diesel engines pollute.

A $1-billion consumer fraud class action lawsuit has been filed in
Edmonton, Canada against Volkswagen stemming from the admission by the automaker that it sold vehicles that were designed to skirt emissions laws.

The extra pollution from Volkswagen's US cars can be expected to lead to an additional 5 to 27 premature deaths per year. If
extrapolated worldwide to all 11 million vehicles, VW's vehicle would be responsible for causing somewhere between 74 and 404 premature deaths each year.

Volkswagen board is meeting to appoint a new CEO following Martin Winterkorn resignation over the emissions scandal. Mattias Muller is the front runner.

Volkswagen fitted about 11 million cars worldwide (482,000 in the US) with a defeat device that would put the vehicle in a "safe mode" during testing and the engine ran below normal power and performance. Once on the road, the engine switched from this test mode and the engines emitted nitrogen oxide pollutants up to 40 times above what is allowable in the U.S.

Matthias Müller has been appointed CEO of Volkswagen AG with immediate effect. This was decided by the Supervisory Board at its meeting in Wolfsburg today (Friday).

The Supervisory Board of Volkswagen AG approved a new management structure for the Group and the brands as well as for the North America region on 9/25/2015 in Wolfsburg.

The Volkswagen Supervisory Board consulted intensively on the current situation at its meeting today. There is absolutely no excuse for the manipulations which have deeply shocked Volkswagen. The company will leave no stone unturned in getting to the bottom of this, will call those responsible to account, and take the necessary actions.

The internal evaluation revealed that approximately five million Volkswagen Passenger Cars brand vehicles are affected worldwide

The Environmental Protection Agency announced that it will begin road tests of all new vehicle models and vehicles already on the road to examine emissions claims following the exposure of Volkswagen's regulation-cheating scandal.

Volkswagen AG is facing a new round of legal challenges after admitting it cheated on emissions tests for years, with French, German and Swiss lawyers taking action against Europe's largest automaker.

A team of British scientists repeatedly warned the Government that emissions of a deadly pollutant from diesel cars far exceeded official safety levels. The scientists measured emissions from tens of thousands of diesel engine cars as they drove past sensors on roads in tests carried out since 2011.

Switzerland has banned sales of Volkswagen Group cars with outdated emissions systems in the
wake of the test-rigging scandal that started in the United States.

Since 2008, ,VW programed vehicles sold in the U.S. to falsify government emissions tests, which enabled diesel VWs to spew forty times more pollutants than the law allowed.

The cheat software (defeat device) was present in 11 million cars worldwide.

In addition to regulatory enforcement proceedings, the company faces possible criminal action as well as a host of consumer lawsuits. In addition, on September 25, 2015, plaintiff's lawyers filed a securities class lawsuit in the Eastern District of Virginia against VW.

Volkswagen's admission it cheated on emissions testing of its "clean diesel" engines has sullied the automaker's reputation, disrupted the entire industry and put diesel engines on trial in a country that was finally starting to embrace them.

The estimated VW pollution, about 46,000 tons since late 2008, is equivalent of about 4% of the power plant pollution reduction measured, meaning it could be expected to cause an estimated 106 deaths if it had similar effects.

The investigation aims to establish who was responsible and will look at Mr. Winterkorn's role in the worst crisis to hit VW in its 78-year history, according to a statement from prosecutors in Braunschweig, Germany.

Audi has admitted that 2.1 million of its cars sold contain the software designed to cheat emissions tests – 1.42 million are in Western Europe, 577,000 are in Germany, and 13,000 were sold by Audi in the US.

According to the report, Bosch claims to have supplied diesel engine-management software to Volkswagen under the impression that it would be used only in vehicle testing. That software, which was able to activate emissions control devices when a testing environment was detected and deactivate them during normal driving, somehow ended up in production vehicles.

Harris County seized on the outrage of the Volkswagen emissions scandal, saying in a multimillion dollar lawsuit that the German automaker contributed to the region's poor air quality.
Harris County Attorney is suing VW for $100 million dollars under Texas' Health and Safety Codes.

Op-Ed Contributor - The EPA should establish a network of roadside devices that would monitor vehicles more methodically for abnormal emissions.

Ryan is claiming that 6,000 rigged-up diesel cars would have made a difference in the pollution levels of a county with a population of more than 4 million people, most of them drivers.

The county estimated that beginning with the 2009 model year through the end of August 2015, Volkswagen sold more than 6,000 of the manipulated emissions vehicles within the county's borders.

A Volkswagen board member has admitted that
some staff acted criminally over the emissions
cheat tests.

The article indicates that whatever the fix is, there will be a loss of value, there will be degraded performance, the cars will have less efficient gas mileage, and they will still be polluting the environment.

The Executive Committee of the Supervisory Board of Volkswagen AG yesterday (September 30) discussed the current status with respect to the manipulation of diesel engine exhaust emissions.

Harris County filed the lawsuit against the car manufacturer claiming that emissions from 6,000 diesel cars circulating on roadways in the region have caused harm to the population and environment. This may be the first lawsuit filed by a government entity against the
car company since management admitted to falsifying emissions numbers of certain cars released since 2009.

Swiss officials say that new VW cars and newly imported vehicles may not receive registration for road use. According to AMAG, 129,000 vehicles in Switzerland have the software.

Attorneys general from at least 30 states and the District of Columbia are organizing a bipartisan coalition to investigate possibilities of consumer fraud and environmental violations.

The scandal swirling around Germany's largest listed company had its beginnings in an attempt to crack the U.S. market, the missing link in VW's global footprint. But what began as expansion ended in deception.

Volkswagen AG's designated Chairman Hans Dieter Poetsch warned managers that the diesel-emissions scandal could pose "an existence-threatening crisis for the company," as it pleaded for public trust with full-page ads in national newspapers.

Finance officials at embattled car maker Volkswagen AG are evaluating the impact of the company's emissions-cheating scandal on its finances, and assessing options should the crisis take a greater-than-anticipated toll on its €25 billion ($28 billion) cash cushion.

German Chancellor Angela Merkel has called Volkswagen's emissions-rigging scandal a "far-reaching event" and demanded the world's largest automaker quickly investigate it.

Volkswagen's pollution-control chicanery has not just been victimless tinkering, killing between five and 20 people in the United States annually in recent years, according to an Associated Press statistical and computer analysis.

A reduction in car values on Volkswagen AG models after its emissions scandal is the biggest risk to its bonds tied to auto loans, leases and dealerships worldwide.

Volkswagen began installing software devised to cheat on emissions tests in 2008 after realizing that a new diesel engine, developed at great expense, could not meet pollution standards in the United States and other countries.

The crisis has wiped out $34 billion in the company's value as shares have fallen. VW is yet to pinpoint who was responsible for cheating but several engineers admitted to creating the software aimed at cheating the tests.

The article question whether anyone at Volkswagen's Pollution Testing Center was complicit in this scheme.

The cost of its cheating on emissions tests in the U.S. is likely to run into the tens of billions of dollars and prematurely end its long-sought status as the world's biggest carmaker

After the news of the Volkswagen scandal, the mayor of Wolfsburg, Germany said that it was too soon to cite numbers, but announced a municipal hiring freeze and a halt on any new projects, despite the city's current balanced budget.

Volkswagen has admitted that 8 million vehicles were fitted with software capable of cheating diesel emissions tests in the European Union, a German newspaper said on Monday, citing a letter the carmaker sent to members of parliament.

Volkswagen told lawmakers, in a letter signed by VW lobbyists Thomas Steg and Michael Jansen obtained by the Associated Press, that 8 million type EA 189 diesel engines with a 1.2 liter, 1.6 liter, and 2.0 liter engine capacity are affected.

Volkswagen's sneaky violation of clean air standards were carried out by installing in-vehicle software that would make certain Volkswagen models emit lower levels of pollutants while being tested.

Two men (Ulrich Hackenberg and Wolfgang Hatz) who were top aides Martin Winterkorn during his time at Audi and were put in charge of R&D when Winterkorn became CEO are among individuals that the company is centering its efforts around and have been suspended during the investigation.

The news that Volkswagen was deliberately rigging the emissions test of some of its diesel models around the world was curiously caught by the EPA instead of Europe.

Volkswagen installed software designed to cheat on emissions tests in 2008 after realizing that a new diesel engine, developed at great expense, could not meet pollution standards in the United States and other countries.

This is obviously a heroic problem, but ongoing they make terrific products," Schwarzman said. "This will work its way through the legal system in some time. It just will be a very unfortunate time for their securities."

The emission scandal was a deliberate action to violate the law and fraudulently sell cars to customers who thought that they were buying vehicles that met mandated pollution standards.

Tennessee lawmakers will review the state's investment of hundreds of millions in incentives for VW AG's Chattanooga plant and provisions for recouping money if the company's emissions-cheating scandal threatens jobs.

Volkswagen AG was accused in a lawsuit of scheming to defraud investors who paid artificially inflated prices for the company's foreign shares while it cheated on vehicle emissions tests.

Michael Horn, president and chief executive officer of Volkswagen Group of America, will appear before a House Energy and Commerce subcommittee to address Volkswagen's use of defeat devices to cheat on federal emissions tests. The Subcommittee on Oversight and Investigations will hold the first hearing on Oct. 8.

The minority shareholder also signaled it might be open to investing separately in Scania --a Swedish truck maker that was the target of a hostile takeover by VW last year -- should the scandal result in a divestment of the unit.

VW's investigation focuses on two men elevated after Winterkorn was made CEO who found that they couldn't deliver as promised a clean diesel engine for the U.S. market.

There are about 2,684 Volkswagen vehicles registered in the state that have diesel engines with the software to cheat emission tests, according to the complaint filed Friday in Kanawha County Circuit Court.

Volkswagen began installing software designed to cheat on emissions tests in 2008 after realizing that a new diesel engine, developed at great expense, could not meet pollution standards in the United States and other countries, people with knowledge of the automaker's internal inquiry said on Sunday.

VW didn't have time to retrofit the engine with the AdBlue system or to make the changes that would've been necessary to retrofit the system to existing vehicles. It looks as though VW had to choose
between missing the 2009 model year in the United States or cheating on its tests — and chose to cheat.

The complaint, filed Oct. 2, asked the Kanawha County Circuit Court to require Volkswagen to pay at least $43 million in civil penalties and restitution over the sale of its "clean diesel" vehicles, which the company has admitted
Muller announces swift and relentless clarification of emission scandal.

Volkswagen AG CEO Matthias Mueller said the company will delay or cancel non-essential projects as pressure mounts to slash spending in the wake of the diesel-emissions scandal.

While this was an egregious attempt by Volkswagen, history is full of similar scandalous behavior by automakers and in two cases large suppliers to the auto-making industry.

Volkswagen's new CEO has told more than 20,000 workers that overcoming its emissions-rigging scandal will "not happen without pain" and that the company will have to review its investment plans.

The cost of its cheating on emissions tests in the U.S. is likely to run into the tens of billions of dollars and prematurely end its long-sought status as the world's biggest carmaker

Unless VW can come up with a miraculous fix that lets the affected vehicles meet pollution standards without diminishing mileage and performance — fat chance of that happening! — the vehicles' owners will take a financial hit.

Volkswagen and German industry have been rocked by charges that the VW used software to hoodwink regulators about the true emissions of its diesel cars for years. The crisis has wiped out almost 30 billion euros ($34 billion) of the company's value.

Volkswagen's decision to nominate a long-serving executive as chairman has once more highlighted the carmaker's corporate governance and culture, which some experts argue were a root cause of the diesel-emissions scandal.

Instead of rising to the difficult task of developing new technology to meet emission standards, Volkswagen cheated. It built a device that could detect when the car was being tested for emissions standards, and would temporarily change performance to pass the test.

Several engineers stated that they installed deception software in 2008 according to Bild newspaper. Bild did not reveal their identifies, but indicated that their statements had so far failed to unmask those who masterminded the scam.

Mueller told a German newspaper that it would take a year to fix all 11 million diesel vehicles world wide which contain emissions-cheating software.

Manipulations of emissions readings in diesel cars came from Volkswagen's headquarters in Wolfsburg, Germany, not the United States, Volkswagen CEO Matthias Mueller said Tuesday.

"On behalf of our company, and my colleagues in Germany, I would like to offer a sincere apology for Volkswagen's use of a software program that served to defeat the regular emissions testing regime."

Volkswagen of America CEO Michael Horn is scheduled to testify Thursday before a U.S. House subcommittee investigating last month's admission the company had installed on-board computer software designed to cheat on government emissions tests in nearly 500,000 of its four-cylinder "clean diesel" cars starting with the 2009 model year.

Texas Attorney General Ken Paxton today filed a lawsuit against Volkswagen Group of America, Inc. and Audi of America, LLC over violations of state consumer protection laws, along with a separate suit charging that the companies violated clean air standards in Texas.

The state's claims, in two lawsuits by Texas Attorney General Ken Paxton in state court in Austin, follow similar actions brought by West Virginia on Friday and a separate case by the county that encompasses Houston.

CEO of VW of America testified before the House Energy and Commerce subcommittee that he first learned about the potential problems with VW's diesel emissions in early 2014 and blames the installation of a defeat device on a couple of software engineers.

State prosecutors and police searched Volkswagen's offices in the Wolfsburg in a bid to secure documents and databases that could shed light on which employees were responsible for cheating pollution tests.

Lawmakers slammed an Environmental Protection Agency official who testified after Horn for not catching Volkswagen. Representative Michael Burgess, a Texas Republican, questioned the size of EPA's annual budget, noting that the cheating was uncovered by a West Virginia University study that had a budget of less than $70,000.

Police swooped on Volkswagen's headquarters carrying away files and hard disks as the investigation into the massive pollution cheating scandal expanded. Head of VW Group of America said that he believed a couple of software engineers were responsible for the software that allowed nearly a half million diesel powered cars to be sold in the US since 2008.

With nearly a half-million cars driving an average of 11,000 miles per year for nearly seven years, that could amount to anywhere from about 14,000 to 59,000 tons of additional nitrogen oxides.

Mercedes-Benz, Honda, Mazda and Mitsubishi have joined the growing list of manufacturers whose diesel cars are known to emit significantly more pollution on the road than in regulatory tests.

The city of Dallas said in a prepared statement Friday that it will not follow through on plans announced earlier this week to sue Volkswagen over possible emissions violations. The statement said the city was prepared to file the suit Thursday but shifted gears after learning that the state of Texas had already filed suit against the German automaker over alleged violations of air quality standards.

California has given carmaker Volkswagen until November 20 to come up with a plan to fix the diesel cars affected by its rigging of emissions tests. The CARB spokesman said the deadline represents 45 business days from an in-use compliance letter sent to Volkswagen dated Sept. 18.

Volkswagen's diesels don't appear to have been dented nearly as much on secondary markets, where owners sell used cars directly. Carlypso, a California based car-shopping startup, reported a price drop of .3 percent. That's right-all the hue and cry about a sinister plot to cheat emissions tests sent prices plunging by about $30.

Volkswagen could compensate owners of diesel-powered cars that emit high levels of pollutants, possibly by paying them for the lost value of their vehicles, the company's top U.S. executive said. Speaking to lawmakers investigating the emissions cheating, U.S. CEO Michael Horn said fixing most of the 500,000 affected cars in the United States could take one to two years, possibly more.

U.S. Sen. Charles Schumer says the federal government should seek the maximum possible fine from Volkswagen and demand that the automaker give rebates to buyers following the recent scandal over emissions testing

The EPA is investigating a second emissions-control software program in Volkswagen cars that were rigged to pass pollution tests, one that the automaker may have failed to properly disclose. The computer program is on the EA 189 diesel engines used since 2009 that are also fitted with software that the automaker has admitted was designed to fool emissions tests, according to a person familiar with the matter who asked not to be named because the information is private.

The diesel emissions scandal is going to be very expensive for Volkswagen. While the final figures will not be available for months, if not years, the estimated costs could be $25 billion if you make the calculations.

California owners of Volkswagen diesel vehicles affected by the emissions cheating scandal are demanding the company buy back their cars immediately, according to a new class action lawsuit filed against the German automaker Monday in federal district court in Santa Ana.

VW is recalling 1,950 diesel vehicles in China to change engine software it has admitted cheats on emissions tests and Singapore suspended sales of the company's diesel cars.

Following in the footsteps of Harris County and the city of Dallas, the state announced it is suing Volkswagen in connection with the German automaker's admitted use of software that allowed its vehicles to circumvent emissions limits.

The European Investment Bank is looking into loans made to Volkswagen AG to help fund the development of cleaner engines in light of the emissions scandal, EIB chief Werner Hoyer said. Volkswagen's cheating on diesel emissions is a "great shock" and must be analyzed since it threatens to hurt the climate credentials of the development bank.

S&P lowered the Wolfsburg-based company's rating on long- term debt to A-, the fourth-lowest investment grade, from A, and said another cut of as much as two notches is possible.

Volkswagen owners based in Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma, and Texas who are affected by this recall can seek legal counsel from seasoned product liability attorneys practicing at Sloan, Bagley, Hatcher & Perry Law Firm. The firm's website is: http://www.volkswagenemissionsscandal.com

A staffing company for Volkswagen's Chattanooga assembly plant said Monday the automaker has indicated it's "business as usual" for now in the wake of the emissions-rigging scandal. Lucas Hiler of VW contractor Aerotek said it's "maintaining the headcount" of about 200 workers who were hired this summer in connection with the $900 million expansion underway at the factory.

Janet McCabe said the agency is “upping our game” following VW’s admission last month that it cheated on emissions tests for more than 11 million diesel cars worldwide. The EPA will conduct more spot checks of light-duty cars and trucks, testing vehicles owned by individuals and rental companies in real-world driving conditions.

Last year VW ranked third in the semi-regular report card. Reports concerning VW's diesel vehicles is not only a black eye on the company, but it also calls into question how queen the VW fleet truly is.

Paramount Pictures and Leonardo DiCaprio’s production company Appian Way have optioned the rights to a book proposal from New York Times journalist Jack Ewing about the ongoing debacle.

Volkswagen-backed Bundesliga club Wolfsburg postponed the construction of a youth training center Tuesday because of the German car manufacturer’s emissions-rigging scandal.

Volkswagen's flagship brand plans to change its diesel technology in Europe and North America as well as develop new hybrid and electric vehicles in response to its emissions scandal.

VW's cooperation with investigators will be the true measure of how it will be treated by the Justice Department in its criminal investigation. And on that front, there is reason to question just how cooperative Volkswagen will be as it faces scrutiny that now includes a second computer program that affected how emission controls operated in its cars.

The 2016 models have not been certified for sale by the U.S. Environmental Protection Agency.

Volkswagen announced that it would revamp the technology it uses for controlling diesel exhaust in future models as it struggles to overcome an emissions cheating scandal that has battered its reputation and threatened its financial stability.

Volkswagen AG will reduce annual investment by about 1 billion euros ($1.1 billion) at its namesake car brand as the automaker steps up a cost-cutting push to weather the impact of the diesel-emissions scandal.

Volkswagen announced that it will cut investment at its biggest division by 1 billion euros and will overhaul the model strategy at its
core VW division, giving a greater focus to electric and hybrid vehicles.

The Volkswagen scandal is putting new pressure on European policy makers to roll out tougher vehicle-testing standards that measure emissions based on how cars are actually driven, not how they perform in a lab. It is also reinforcing plans by some European cities to restrict diesel vehicles from their streets, a blow to the European auto industry's huge investments in diesel technology.

VW announced that they will switch to a different technology for treating diesel emissions in Europe and North America "as soon as possible" and that VW cars "will only be equipped with exhaust emissions systems that use the best environmental technology."

The newly-formed Volkswagen Brand Board of Management took further strategic decisions at a special meeting. CEO Dr. Herbert Diess announced major product decisions: a reorientation of the diesel strategy with the most advanced technologies, the development of a standardized electric architecture for passenger cars and light commercial vehicles, and a new approach for the next generation of the Phaeton.

The author contends that the diesel industry as a whole is a potential victim of VW's scandal and questions whether the scandal will taint the proven benefits of clean diesel technology.

Following revelations that Volkswagen cheated on emissions tests, the automaker is anticipating a decline in sales. VW is also cutting production and freezing hiring.

Sens said that Volkswagen AG should repay more than $200 million in ill-gotten tax credits over its alleged use of software to cheat emissions testing and urged the U.S. Environmental Protection Agency to set the maximum possible fine.

Toyota Motor Corp announced that it is targeting a 90% reduction in emissions from its new vehicles by 2050. The chairman also said that Volkswagen's rigging of diesel engines with software has damaged trust in the industry.

Volkswagen announced that it will cut investment plans at its biggest division by $1.1 billion a year and step up development of electric vehicles as it battles to cope with the fallout from its cheating of diesel emissions tests.

Volkswagen AG said that Vahland decided to leave because of conflicting ideas about the structuring of the division and explicitly said that his resignation isn't connected to the emissions testing scandal embroiling the company. Vahland had been appointed at the same time Matthias Muller took the German automaker's reins after its previous CEO stepped down last month.

Volkswagen division head Herbert Diess announced that the company would adopt selective catalytic converter technology, which is a system that injects the chemical substance urea into the exhaust stream to neutralize harmful nitrogen oxides.

US regulators contend that they have a lot more questions for Volkswagen, which was triggered by the company's recent disclosure of additional suspect engineering of 2016 diesel models that potentially would help exhaust systems run cleaner during government tests.

In six separate petitions all filed in state court in Dallas, plaintiffs including Mark Azam, Placido Ballariano and nearly 100 others made nearly identical claims arising from the U.S. Environmental Protection Agency's announcement last month that certain Volkswagen AG diesel models were fitted with a so-called "defeat device" software.

At least 30 managers were involved in Volkswagen's emissions test cheating, German magazine Spiegel reported. Spiegel, citing preliminary results of probes by law firm Jones Day and Volkswagen itself, said the dozens of managers would be suspended.

Volkswagen has exposed the deep conflicts in the world of European emissions testing, where car manufacturers hire outside firms to certify their pollution controls in laboratories. Not only is TÜV Nord at the forefront of finding a new testing regimen for automakers, but it is also the company that signed off on VW's emissions tests in Europe.

At the present time, New Yorkers who own affected Volkswagens will not be prevented from driving their cars," Department of Motor Vehicles spokesman Joe Morrissey told the Democrat and Chronicle

Volkswagen has used two basic types of technology to reduce emissions of nitrogen oxides from diesel engines, by either trapping the pollutants or treating them with urea.

Paul Willis, managing direct of VW UK, claims that the company's cars have not emitted any more toxic nitrogen oxides than expected, despite the use of cheat devices which drastically reduced
pollution emissions in official tests.

Volkswagen deserves to suffer "substantial damage" because of the diesel emissions scandal that has rocked the carmaker and affected 11m vehicles worldwide, the British transport secretary has told MPs.

Italian authorities have searched the headquarters of Volkswagen Italia as part of a local investigation into the emissions testing scandal at the German automaker. Volkswagen bought a full-page advertisement in Turin daily La Stampa on Tuesday apologizing for the "grave error" and promising to do everything to win back the trust of Italians.

Regulators say they have more questions for Volkswagen, triggered by the company's recent disclosure of additional suspect software in 2016 diesel models that potentially would help exhaust systems run cleaner during government tests. The delay means that thousands of 2016 Beetles, Golfs and Jettas will remain quarantined in U.S. ports until a fix can be developed, approved and implemented.

A lot of this could have been avoided with a carbon tax. A carbon tax would not help reduce local air pollutants such as NOx so it would not replace all auto pollution regulations. But it could supplant those that aim to reduce carbon emissions from vehicles.

Volkswagen AG to conduct a mandatory recall of diesel models installed with software that cheats emission tests. Winfried Vahland, the chief executive of the auto maker's Skoda Auto business and CEO-designate of a new organization that would group its U.S., Canadian and Mexican operations, resigned abruptly.

German authorities on Thursday ordered a recall of all Volkswagen cars fitted with emissions test-cheating software, a decision that will affect 8.5 million VW diesel vehicles across the 28-nation European Union.

The move reflects the difficulty that Volkswagen faces in fixing the 11 million vehicles worldwide that contain a so-called defeat device, which effectively lowered emissions for testing purposes. The company is indicating that the repairs may stretch beyond the end of 2016.

The U.S. attorney's office in Detroit and the Justice Department's Fraud Section joined a sweeping federal probe of Volkswagen AG over emissions-test cheating signaling the government's intent to cast a broad net and explore numerous paths to a possible criminal case. The involvement of the U.S. attorney in Detroit, Barbara McQuade, signals her office may take a key role in what is expected to be a major case.

Research suggests there may have been hints of the still unfolding diesel emissions scandal at Volkswagen AG hidden in corporate sustainability reports.

Volkswagen has announced that they've hired Christine Hohmann-Dennhardt as an executive on its top management body tasked with integrity and legal affairs. Hohmann-Dennhardt begins on January 1 and has served as a judge on Germany's Federal Constitutional Court and as justice minister.

The VW Group brands grew deliveries by 3.5 percent on the overall European market in the first three quarters, handing over a total of 3.07 million vehicles to customers. Between January 2015 to September 2015, 453,500 delivers were made to customers in the United States, which is a 3.2% increase over last year.

The scandal around Volkswagen AG won't have a direct impact on trade talks between the European Union and the U.S., though it's bad for the company's trustworthiness, EU Trade Commissioner Cecilia Malmstrom said

Prosecutors investigating Volkswagen's use of emissions test-cheating software in some of its diesel engines say they're putting together a group of about 20 investigators to evaluate the massive amount of data seized from the car manufacturer.

Volkswagen saw its market share in Europe drop fractionally in September, when its emissions scandal broke mid-month, as its sales growth lagged the wider market. However, VW Group sales, comprising all VW brands including its luxury marquees, rose by 8.4 percent in the European Union.

The European carmaker's association ACEA said Friday that sales of VW brand cars in the EU rose by 6.6 percent, while the group's overall sales, also including other brands, were up 8.4 percent.

Even after quitting as chief executive of the carmaker on Sept. 23, Winterkorn continued to hold the title of chief executive of Porsche Automobile Holding SE, which owns more than half of Volkswagen's voting shares. Winterkorn will resign as chief executive of the company that holds a majority of Volkswagen shares, which will end his formal influence over the carmaker.

French authorities have searched the headquarters of Volkswagen France as part of a local investigation into the emissions testing scandal and seized computer equipment.

Even as Volkswagen embarks on the task of fixing the emissions systems it disabled on almost 500,000 of its diesel vehicles in the United States, the automaker faces another hurdle: persuading owners to make the repair at all. So for owners, the prospect of having a car's emissions cleaned up, only to have the car perform worse — whatever the pollution — is not sitting well

Gary Bishop and Donald Stedman of the University of Denver, cited test data from California and Colorado showing that, beginning in 2008 and through 2014, emissions from passenger cars with 2.0-liter class diesel engines were significantly higher than allowed by USEPA Tier 2 emissions standards.

Pricing starts at $22,440 for the 1.8T S model with automatic transmission. At the top, the 1.8T range, the SEL Premium starts at $34,270.

VW issued a voluntary safety recall affecting the Passenger Occupant Detection System (PODS) control module on certain 2015 model year Volkswagen e-Golf, Golf and Jetta vehicles.

Volkswagen's betrayal ripples on: Lane relied on Green Car Journal, which, in making its now-rescinded award, relied on data from the Environmental Protection Agency, which, in turn, relied on the honesty of Volkswagen. That trust has been broken.

Volkswagen AG may have to consider an overhaul of a 12-brand empire built in the last two decades that makes everything from cheap cars to motorbikes to heavy trucks.

Frank Tuch, Volkswagen's head of quality control, is the fifth high-ranking executive to be suspended in connection with revelations that 11 million Volkswagen vehicles were equipped with software designed to trick emissions tests

Volkswagen said 2.6 billion euros ($3 billion) of loans or leases for vehicles built with engines using emissions=cheating software were packaged into asset-backed securities. The loans were found in 15 securitizations.

Volkswagen's employee council and Germany's biggest industrial union are demanding "transparency at all levels" of the company following the emissions-rigging scandal.

With billions of dollars at stake in restitution and penalties,
U.S. states are moving quickly to try to hold Volkswagen accountable for its emissions cheating scandal. But, "[u]ntil the criminal case clears, nobody is going to talk civil. Volkswagen will not settlement until the criminal investigations are resolved," said James Tierney.

Over two thirds of German consumers (65 percent) believe that the embattled German carmaker still builds "outstanding" cars and that the emissions scandal was overdone. 63 percent either agreed or strongly agreed that the emissions scandal would be forgotten and, within a year, no one would be discussing the affair surrounding the rigged diesel engines

Police raided two Volkswagen offices near Paris. Volkswagen officials have confirmed the raids and said that they are cooperating with French officials to uncover the truth behind the worsening scandal surrounding emissions-test-cheating software installed on a range of Volkswagen's diesel vehicles.

The German state of Lower Saxony has filed a criminal complaint after discovering that a file on scandal-hit Volkswagen had disappeared. A spokeswoman for the state government says the file, which included internal government memos on the emissions

Volkswagen AG's "dieselgate" isn't the only scandal involving the German automaker, as the company's major shareholder, Porsche SE, and its two former executives face a trial on market manipulation charges. When VW managers called for clean diesel without the urea system, "they must have known that it's impossible, or else it's not possible they have degrees as engineers," Dudenhöffer says.

It's not credible that top managers were unaware corners had been cut, says Dudenhöffer, who worked at Porsche and other carmakers before entering academia. VW is a company where the engineers are in charge.

VW ordered a halt to sales in Europe of all models that feature diesel engines equipped with defeat devices meant to falsify emissions compliance, the latest in a global scandal expected to cost the German automaker billions of dollars. Volkswagen told Reuters that this stop-sale only affects a small number of vehicles, and those cars would be sold once fixed.

Volkswagen may have to set aside more than the 6.5 billion euros ($7.4 billion) it has so far allocated to cover the costs of an emissions scandal if car sales suffer.

Norwegian shipowner I.M. Skaugen has disclosed it is seeking $50 million in compensation from a marine unit of Volkswagen for rigging performance tests of ship engines produced over a decade ago. I.M. Skaugen sees similarities between MAN's handling of the ship engine tests under VW ownership and the German company's response to the biggest scandal in its 78-year history

Volkswagen said it was investigating whether some versions of another diesel motor line, known as the EA 288, also had software intended to detect when a vehicle was undergoing emissions testing and turn on pollution controls. The EA 288 was installed in cars sold in the United States.

The news follows a slow drip of circumstantial evidence suggesting that its doctoring of emissions data involved more people and more cars than previously admitted. If substantiated, that could lead to VW facing far larger fines and criminal penalties than reckoned with so far.

The automaker asked a panel of federal judges to combine the more than 350 lawsuits against it in federal court in Alexandria, Va., a venue known for moving cases quickly and also the one closest to its U.S. headquarters in Herndon. Volkswagen listed Detroit as an alternate choice, while opposing requests by some car owners' lawyers to send the case to California.

Volkswagen AG said its current-generation diesel engine doesn't have software designed to cheat on emissions tests, meaning its global recall of as many as 11 million cars won't need to be even bigger. "After a thorough review it is now clear" that the offending software isn't installed in vehicles with EA 288 motors built under previous Euro-5 standards, Volkswagen said.

VW plans to recall 17,057 Amarok pickup trucks sold in Brazil to correct software allowing the vehicles to cheat on emissions tests. The recall affects Amaroks with 2.0-liter diesel engines built in Argentina during model year 2011 and part of 2012.

The German carmaker will need to install parts for vehicles already on the road that weren't designed to accommodate the equipment. The work may need to be done in special shops set up for the purpose. And it will have to pass muster with dozens of countries with their own regulations.

The strategy focuses on positioning the Volkswagen Group as a global economic and environmental leader among automobile manufacturers.

Source	Link to Article
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-emissions-targets-page-2
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-how-diesels-differ-page-3
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-from-pt-cruisers-to-audis-page-4
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-will-diesels-succeed-in-america-page-5
Blomberg Business	http://www.bloomberg.com/bw/stories/2009-06-30/clean-diesel-is-coming-clean-diesel-is-coming-businessweek-business-news-stock-market-and-financial-advice
Edmunds	http://www.edmunds.com/car-news/new-diesel-engine-set-for-2015-volkswagen-golf-beetle-passat-and-jetta.html
Fortitude New	http://fourtitude.com/news/Audi_News_1/the-station-tdi-commercial-from-audi-may-prove-familiar-for-current-diesel-owners/
VW US Media Newsroom	https://media.vw.com/release/1064/
The New York Times	http://www.nytimes.com/2015/09/19/business/volkswagen-is-ordered-to-recall-nearly-500000-vehicles-over-emissions-software.html?_r=0

The Guardian	http://www.theguardian.com/business/2015/sep/18/epa-california-investigate-volkswagen-clean-air-violations
CNET	http://www.cnet.com/news/volkswagen-audi-accused-of-using-software-to-cheat-us-diesel-emissions-tests/
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-09-18/epa-says-volkswagon-software-circumvented-car-emissions-testing
NPR	http://www.npr.org/sections/thetwo-way/2015/09/18/441467960/volkswagen-used-defeat-device-to-skirt-emissions-rules-epa-says
The Los Angeles Times	http://www.latimes.com/business/autos/la-fi-hy-volkswagen-probe-20150918-story.html
VW US Media Newsroom	http://media.vw.com/release/1066/
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3242211/VW-chief-sorry-EPA-says-firm-skirted-clean-air-law.html
The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NUXWZM6JTSE901-44SIDIDMH3F
Newsweek	http://www.newsweek.com/volkswagen-epa-cheat-recall-374698
ClimateWire	http://www.scientificamerican.com/article/volkswagen-uses-software-to-fool-epa-pollution-tests/

GizMag	http://www.gizmag.com/volkswagen-emissions-defeat-device/39507/
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-09-22/volkswagen-owners-want-payback-over-pollution-control-cheating
The New York Times	http://www.nytimes.com/2015/09/23/business/international/volkswagen-diesel-car-scandal.html
The Wall Street Journal	http://www.wsj.com/articles/volkswagen-emissions-scandal-relates-to-11-million-cars-1442916906
Reuters	http://www.reuters.com/article/2015/09/22/us-usa-volkswagen-lawyers-idUSKCN0RM2QZ20150922
NPR	http://www.npr.org/sections/thetwo-way/2015/09/22/442457697/11-million-cars-worldwide-have-emissions-problem-volkswagen-says
The Wall Street Journal	http://www.wsj.com/articles/epa-accuses-volkswagen-of-dodging-emissions-rules-1442595129
ABC News	http://www.abc.net.au/news/2015-09-22/vw-admits-11-million-cars-have-pollution-test-cheating-device/6796740
CNBC	http://www.cnbc.com/2015/09/21/
Lawyers and Settlement	http://www.lawyersandsettlements.com/articles/defective_products/Volkswagen-emissions-deception-20931.html#.Vifa8P_luUk

CBS New York	http://newyork.cbslocal.com/2015/09/22/n-y-attorney-generals-office-volkswagen/
NY Attorney General Office	http://www.ag.ny.gov/press-release/statement-ag-schneiderman-volkswagen-investigation
Live Mint	http://www.livemint.com/Opinion/hZnXw6ZOlF10og07i69FRO/Volkswagens-diesel-fraud-goes-beyond-regulatory-failure.html
VW US Media Newsroom	http://media.vw.com/release/1070/
VW US Media Newsroom	http://media.vw.com/release/1071/
BC Local News	http://www.bclocalnews.com/business/328857951.html
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3246844/Did-Merkel-cover-Volkswagen-scandal-car-maker-s-boss-quits-German-leader-accused-accepting-trickery-wink.html
The Guardian	http://www.theguardian.com/business/2015/sep/22/vw-scandal-caused-nearly-1m-tonnes-of-extra-pollution-analysis-shows
NY Magazine	http://nymag.com/daily/intelligencer/2015/09/vws-clean-diesel-ads-now-make-us-feel-dirty.html
The Guardian	http://www.theguardian.com/money/2015/sep/24/volkswagen-emission-scandal-how-it-affects-you
Reuters	http://in.reuters.com/article/2015/09/24/usa-volkswagen-letters-idINKCN0RO0NG20150924
The Globe and Mail	http://www.theglobeandmail.com/report-on-business/rob-commentary/volkswagen-committed-the-cardinal-sin-of-greenwashing-lying/article26500698/
KCCI Des Moines	http://www.kcci.com/news/class-action-lawsuit-filed-against-iowa-volkswagen-dealers/35468190

NBC29	http://www.nbc29.com/story/30110806/va-attorney-general-multistate-investigation-into-volkswagen
Fox News	http://www.foxnews.com/world/2015/09/24/german-ministers-reportedly-were-warned-vw-test-beating-software/
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3248287/Test-diesel-UK-Volkswagen-storm-grows-minister-orders-urgent-checks-models.html
Aljazeera America	http://america.aljazeera.com/articles/2015/9/24/volkswagen-set-to-fire-executives-appoint-new-ceo.html
Reuters	http://www.reuters.com/article/2015/09/24/us-usa-volkswagen-deception-insight-idUSKCN0RO2IP20150924
Big Class Action	http://www.bigclassaction.com/lawsuit/volkswagen-faces-canadian-class-action-over.php
Vox	http://www.vox.com/2015/9/23/9383641/volkswagen-scandal-pollution
The Guardian	http://www.theguardian.com/business/2015/sep/25/volkswagen-appoint-porsche-matthias-muller-new-boss
BBC News	http://www.bbc.com/news/business-34324772
VW US Media Newsroom	http://media.vw.com/release/1073/
VW US Media Newsroom	http://media.vw.com/release/1074/

VW US Media Newsroom	http://media.vw.com/release/1075/
VW US Media Newsroom	http://media.vw.com/release/1076/
USA Today	http://www.usatoday.com/story/money/cars/2015/09/25/epa-volkswagen-emissions-testing/72793818/
BNA Daily Environment Report	https://convergenceapi.bna.com/ui/public/content/articlePrint/243532800000000418/43871
The Telegraph	http://www.telegraph.co.uk/news/uknews/road-and-rail-transport/11893851/VW-scandal-Cover-up-of-British-tests-that-showed-diesel-fume-cheating.html
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3249964/EU-environment-watchdogs-uncovered-evidence-use-defeat-devices-car-manufacturers-FOUR-years-ago.html
E-Discovery	https://ballinyourcourt.wordpress.com/2015/09/27/fahrvergnugen-ediscovery-in-the-volkswagen-vortex/
Ars Technica	http://arstechnica.com/cars/2015/09/report-vw-was-warned-about-cheating-emissions-in-2007/
The D&O Diary	http://www.dandodiary.com/2015/09/articles/securities-litigation/volkswagen-vehicle-emissions-scandal-triggers-u-s-securities-suit-dutch-collective-action-initiative/
Detroit Free Press	http://www.freep.com/story/money/cars/2015/09/26/vw-cheat-emissions-diesel-engine-fallout/72612616/
The New York Times	http://www.nytimes.com/2015/09/29/upshot/how-many-deaths-did-volkswagens-deception-cause-in-us.html

The Telegraph	http://www.telegraph.co.uk/finance/newsbysector/industry/11895848/BREAKING-2.1-million-Audi-cars-fitted-with-VW-emissions-cheat-devices.html
International Business Times	http://www.ibtimes.co.uk/audi-admits-2-1-million-cars-use-vw-emissions-cheat-software-1521512
Car and Driver	http://blog.caranddriver.com/report-bosch-warned-vw-about-diesel-emissions-cheating-in-2007/
Houston Chronicle	http://www.houstonchronicle.com/news/houston-texas/houston/article/Harris-County-seeks-millions-from Volkwagen-for-6538895.php
The City Lab	http://www.citylab.com/crime/2015/09/texas-sues-vw-for-100-million-over-its-emissions-scandal/408163/
The New York Times	http://www.nytimes.com/2015/10/01/opinion/test-emissions-where-cars-pollute-on-the-road.html
Houston Press	http://www.houstonpress.com/news/harris-county-attorney-vince-ryan-is-of-course-suing-volkswagen-7804745
Reuters	http://www.reuters.com/article/2015/09/30/volkswagen-emissions-texas-idUSL1N12028T20150930
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3254533/We-crooks-Volkswagen-admits-Board-member-says-knew-emissions-test-cheating-acted-criminally.html
Lawyers and Settlement	http://www.lawyersandsettlements.com/articles/vw/interview-volkswagen-lawsuit-vw-volkswagon-3-20951.html#.VifvXv_luUk
VW US Media Newsroom	http://media.vw.com/release/1081/
Lawyers and Settlement	http://www.lawyersandsettlements.com/articles/vw/texas-sues-vw-20952.html#.Vif8kf_luUk

Video News	http://news.videonews.us/switzerland-bans-volkswagens-in-wake-of-scandal-0234256.html
The New York Times	http://www.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html
Global Edition Handelsblatt	https://global.handelsblatt.com/edition/276/ressort/companies-markets/article/investigating-the-scene-of-the-crime
The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NVP5HP6S972I01-2LC9JT1NONIAV
The Wall Street Journal	http://www.wsj.com/articles/volkswagen-evaluating-emissions-scandals-impact-on-companys-finances-1443980626
Associated Press	http://bigstory.ap.org/article/3233bd7a816148299ec681542d33c4c5/merkel-calls-vw-clear-emissions-rigging-scandal
Associated Press	http://bigstory.ap.org/article/a6925f0af82e44aaa1a1ed4b55d030f6/ap-analysis-dozens-deaths-likely-vw-pollution-dodge
Business World	http://www.independent.ie/business/world/secondhand-volkswagen-cars-may-lose-value-following-emissions-scandal-31579692.html
The New York Times	http://www.nytimes.com/2015/10/05/business/engine-shortfall-pushed-volkswagen-to-evade-emissions-testing.html
USA Today	http://www.usatoday.com/story/money/cars/2015/10/04/volkswagen-emissions-crisis/73356630/
TIME	http://time.com/4062216/volkswagen-testing-center-scandal/
Associated Press	http://bigstory.ap.org/article/e38d40286de345ec84d2f11da64c2646/volkswagen-costs-scandal-will-be-piling
The New York Times	https://convergenceapi.bna.com/ui/content/articleStandalone/243538320000000394/43871

Reuters	http://in.reuters.com/article/2015/10/05/volkswagen-emissions-eu-idINKCN0RZ24R20151005
Fox News	http://www.foxnews.com/world/2015/10/05/vw-tells-german-lawmakers-8m-cars-in-eu-affected-by-probe-into-rigged-emissions/
The Columbia Dispatch	http://www.dispatch.com/content/stories/local/columbus-answers/why-didnt-state-e-checks-catch-vw-scam.html
TIME	http://time.com/4061462/volkswagen-engineers-scandal/
Newsweek	http://europe.newsweek.com/volkswagen-scandal-why-it-falling-u-s-regulate-europe-334021
The San Diego Union-Tribune	http://www.sandiegouniontribune.com/news/2015/oct/05/tp-engine-shortfall-said-to-push-vw-to-cheat/
The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NVQXO66KLVR801-7PPEJQ0SORP54MLHUEI8K0M8BB
Philadelphia Business Journal	http://www.bizjournals.com/philadelphia/morning_roundup/2015/10/volkswagen-dieselgate-legal-ethics-silverman.html
Bloomberg Politics	http://www.bloomberg.com/politics/articles/2015-10-05/tennessee-reviews-clawbacks-for-vw-tax-incentives-after-cheating
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-09-25/volkswagen-sued-by-pension-fund-over-diesel-emissions-scandal
BNA - Daily Environment Report	https://convergenceapi.bna.com/ui/public/content/articlePrint/243532800000000433/43871

The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NVLDR96S972K01-7NTHLKP2OSII4IONAL5VB2AQAM
The Wall Street Journal	http://www.wsj.com/articles/vw-emissions-probe-zeroes-in-on-two-engineers-1444011602
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-06/volkswagen-sued-by-west-virginia-over-clean-diesel-claims-ifer2tox
ASQ	http://asq.org/qualitynews/qnt/execute/displaySetup?newsID=20888
Extreme Tech	http://www.extremetech.com/extreme/215615-early-report-sheds-first-light-on-why-vw-cheated-chairman-warns-scandal-could-kill-the-company
BNA State Environment Daily	http://www.bna.com/west-virginia-sues-n57982059134/
VW US Media Newsroom	http://media.vw.com/release/1085/
Blomberg Business	http://www.bloomberg.com/news/articles/2015-10-06/vw-ceo-faces-employees-on-diesel-scandal-as-cost-cuts-loom
GasBuddy	https://blog.gasbuddy.com/posts/Volkswagen-wasn-t-the-first-Auto-Scandal/1715-626560-3325.aspx
Associated Press	http://bigstory.ap.org/article/e77d5ab90cea49a4a69a175b21c5aa2d/new-vw-chief-brief-workers-fallout-scandal
Fox News	http://www.foxnews.com/world/2015/10/06/costs-from-scandal-piling-up-for-volkswagen-with-spot-as-no-1-carmaker-likely/
The Washington Post	http://www.washingtonpost.com/business/get-there/the-real-question-what-will-vws-cheating-scandal-cost-car-owners/2015/10/05/11ca840a-6b8e-11e5-b31c-d80d62b53e28_story.html

Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-04/volkswagen-chief-warns-of-existential-threat-of-cheating-scandal
CNBC	http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html
UCSD Guardian	http://ucsdguardian.org/2015/10/04/blissful-ignorance/
TimesLive	http://www.timeslive.co.za/motoring/2015/10/04/Several-VW-engineers-admit-to-installing-cheat-device-report
The Telegraph	http://www.telegraph.co.uk/finance/newsbysector/industry/11916115/VW-scandal-Volkswagen-to-start-fixing-emissions-rigged-diesel-cars-in-January.html
Rodexo	http://en.rodexo.com/2015/10/06/vw-ceo-deception-stemmed-from-german-hq/
VW US Media Newsroom	http://media.vw.com/release/1087/
France 24	http://www.france24.com/en/20151008-volkswagen-us-horn-knew-possible-emissions-problem-2014
Texas Attorney General	https://www.texasattorneygeneral.gov/news/releases/texas-sues-volkswagen-and-audi-over-deceptive-trade-practices-environmental
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-08/texas-sues-volkswagen-claiming-deception-emissions-violations-ifiqscqq
Extreme Tech	https://www.extremetech.com/extreme/215921-das-blunder-vw-blames-engineers-not-execs-for-diesel-woes-then-bails-on-us-diesels

CBS 6 TV	http://wtvr.com/2015/10/08/volkswagen-hq-raided-by-german-police/
Reuters	http://www.reuters.com/article/2015/10/09/us-volkswagen-emissions-idUSKCN0S217M20151009
Baltimore News	http://www.baltimorenews.net/index.php/sid/237492687
Los Angeles Times	http://www.latimes.com/business/la-fi-vw-pollution-footprint-20151007-htmlstory.html
The Guardian	http://www.theguardian.com/environment/2015/oct/09/mercedes-honda-mazda-mitsubishi-diesel-emissions-row
City Hall Blog	http://cityhallblog.dallasnews.com/2015/10/dallas-decides-not-to-go-after-volkswagen-over-air-quality-after-state-files-lawsuit-thursday.html/
Reuters	http://www.reuters.com/article/2015/10/09/volkswagen-emissions-california-idUSL8N1293RN20151009
The Chicago Tribune	http://www.bloomberg.com/news/articles/2015-10-07/used-car-shoppers-haven-t-stopped-buying-volkswagen-s-dirty-diesels
Trib Live	http://triblive.com/business/headlines/9240139-74/cars-horn-owners#axzz3pJXVs0N1

SFGate	http://www.sfgate.com/news/article/Schumer-Volkswagen-fine-should-include-rebates-6564538.php
JM&A Group	http://www.autonews.com/article/20151011/OEM11/151019998?template=printart
The Christian Science Monitor	http://www.csmonitor.com/Business/In-Gear/2015/1011/The-Volkswagen-debacle-could-cost-25-billion
The Orange County Register	http://www.ocregister.com/articles/diesel-687253-berman-emissions.html
The Kansas City Star	http://www.kansascity.com/news/business/national-international/article38798238.html
El Paso Herald-Post	http://elpasoheraldpost.com/texas-sues-volkswagen-over-emissions-cheating/
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-12/vw-loans-for-clean-engine-development-under-scrutiny-eib-says
The Salt Lake Tribune	http://www.sltrib.com/home/3055487-155/sp-cuts-volkswagens-credit-rating-to
CNBC	http://www.cnbc.com/2015/10/12/business-wire-sloan-bagley-hatcher-perry-law-firm-well-equipped-to-support-consumers-affected-by-volkswagen-emissions-scandal-with-depth.html

Chattanooga Times Free Press	http://www.bloomberg.com/research/markets/news/article.asp?docKey=600-201510130403KRTRIB__BUSNEWS_2013_63316-1
The Detroit News	http://www.detroitnews.com/story/business/autos/2015/10/13/ann-arbor-epa-lab-diesel-tests-vw-scandal/73888296/
The Equation	http://blog.ucsusa.org/automaker-rankings-revisited-does-volkswagen-now-have-the-dirtiest-tailpipe-922
ABQ Journal	http://www.abqjournal.com/659148/biz/biz-most-recent/dicaprio-paramount-option-volkswagen-scandal-book-proposal.html
The Salt Lake Tribune	http://www.sltrib.com/home/3057944-155/vw-fallout-training-center-plan-postponed
Los Angeles Times	http://www.latimes.com/business/la-fi-1014-volkswagen-diesel-change-20151013-story.html
New York Times	http://www.nytimes.com/2015/10/14/business/dealbook/takingmeasure-of-volkswagens-cooperat
Reuters	http://www.reuters.com/article/2015/10/13/volkswagen-emissions-epa-idUSL1N12D2A220151013
The New York Times	http://www.nytimes.com/2015/10/14/business/international/volkswagen-diesel-emissions.html?
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-13/volkswagen-to-cut-spending-by-1-1-billion-amid-diesel-scandal
CNBC	http://www.cnbc.com/2015/10/13/vw-to-cut-investment-in-core-brand-to-cope-with-scandal.html

The Wall Street Journal	http://www.wsj.com/articles/vw-scandal-raises-scrutiny-of-emissions-tests-and-diesel-pollution-in-europe-1444728624
USA Today	http://www.usatoday.com/story/money/business/2015/10/13/vw-unveils-new-strategy-after-emissions-fiasco/73855160/
VW US Media Newsroom	http://media.vw.com/release/1088/
Providence Journal	http://www.providencejournal.com/article/20151014/OPINION/151019713
NPR	http://www.npr.org/2015/10/14/448544863/germans-worry-volkswagen-s-problems-could-drag-down-country-s-economy
Law360	http://www.law360.com/articles/714146/sens-demand-vw-return-200m-in-tax-credits
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-14/toyota-targets-90-emissions-drop-by-2050-as-fuel-cells-ramp-up
Trib Live	http://triblive.com/business/headlines/9259097-74/vehicles-volkswagen-division?printerf#axzz3pEurr0ll
Law360	http://www.law360.com/articles/714165/volkswagen-north-america-ceo-quits-after-three-weeks
Denver Post	http://www.denverpost.com/business/ci_28965367/volkswagen-change-its-diesel-emissions-technology

The Guardian	http://www.theguardian.com/business/2015/oct/15/volkswagen-secret-emissions-tool-in-2016-cars-is-separate-from-defeat
Law360	http://www.law360.com/articles/714464/vw-hit-with-texas-consumer-suits-over-emissions-software
St. Louis Post-Dispatch	http://www.stltoday.com/business/local/at-least-managers-were-involved-in-vw-emissions-cheating/article_8c4ddf95-3775-5f72-a837-4421605742e2.html
The New York Times	http://www.nytimes.com/2015/10/15/business/international/cozy-relations-complicate-europes-bid-for-new-car-tests.html?partner=rss&emc=rss
Democrat and Chronicle	http://www.democratandchronicle.com/story/news/2015/10/14/dmv-volkswagen-inspections/73915598/
The New York Times	http://www.nytimes.com/interactive/2015/business/international/vw-diesel-emissions-scandal-explained.html?_r=0
The Guardian	http://www.theguardian.com/environment/2015/oct/15/uk-volkswagen-boss-denies-cars-emitted-higher-pollution-than-expected
The Guardian	http://www.theguardian.com/business/2015/oct/12/vw-volkswagen-diesel-emissions-deserves-to-suffer-substantial-damage-uk-minister-says
Fox News	http://www.foxnews.com/world/2015/10/15/italy-police-search-vw-offices-in-verona-as-part-local-investigation-into/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+foxnews%2Fworld+%28Internal+-+World+Latest+-+Text%29

Trib Live	http://triblive.com/business/headlines/9264332-74/software-company-emissions#ixzz3odaYWsPq
The Christian Science Monitor	http://www.csmonitor.com/Business/Tax-VOX/2015/1015/Could-a-carbon-tax-have-prevented-the-Volkswagen-scandal
MorningStar	http://news.morningstar.com/all/dow-jones/durables/201510155553/volkswagen-suspends-4th-engineer-berlin-orders-mandatory-recall-update.aspx
The Spokeman-Review	http://www.spokesman.com/stories/2015/oct/15/german-order-triggers-recall-of-85-million-vw-cars/
The New York Times	http://www.nytimes.com/2015/10/16/business/international/volkswagen-germany-recall.html?sm
The Wall Street Journal	http://www.wsj.com/articles/u-s-pursues-several-paths-in-volkswagen-probe-1444938924?mod=rss_law&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+wsj%2Fxml%2Frss%2F3_7091+%28WSJ.com%3A+Law%29
BBNA Convergence	http://www.bna.com/vw-sustainability-reports-n57982059519/
The Charlotte Observer	http://www.charlotteobserver.com/news/nation-world/world/article39384090.html

VW US Media Newsroom	http://media.vw.com/release/1090/
Bloomberg	http://www.bloomberg.com/news/articles/2015-10-16/vw-scandal-won-t-harm-u-s-eu-trade-accord-talks-malmstrom-says
Fox News	http://www.foxnews.com/world/2015/10/16/german-investigators-putting-together-special-team-for-vw-case-to-deal-with/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+foxnews%2Fworld+%28Internal+-+World+Latest+-+Text%29
The Charlotte Observer	http://www.charlotteobserver.com/news/business/national-business/article39382224.html
Fox News	http://www.foxnews.com/world/2015/10/16/volkswagen-sales-in-europe-rise-in-september-despite-emissions-scandal/
Bloomberg BNA	https://convergenceapi.bna.com/ui/content/articleStandalone/243607440000000340/438719?redirect=1&ReportGuid=944CA8B3-72AB-48B3-9F5A-C44AE2127890
Fox News	http://www.foxnews.com/world/2015/10/18/french-police-search-vw-offices-as-part-local-investigation-into-emissions/
New York Times	http://www.nytimes.com/2015/10/19/business/the-owner-has-a-crucial-part-in-volkswagen-diesel-repair.html?partner=rss&emc=rss
Jalopnik	http://jalopnik.com/did-one-company-spot-volkswagens-diesel-deception-six-y-1737309474

VW US Media Newsroom	http://media.vw.com/release/1091/
VW US Media Newsroom	http://media.vw.com/release/1091/
Congresswoman Diana Degette News	http://degette.house.gov/media-center/in-the-news/volkswagen-s-long-and-winding-road-ahead
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-19/vw-s-12-brand-behemoth-under-scrutiny-as-costs-of-scandal-mount
The New York Times	http://www.nytimes.com/2015/10/21/business/volkswagen-suspends-5th-executive-in-emissions-scandal.html?_r=0
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-20/volkswagen-scandal-impacts-3-billion-of-securitized-car-loans
The Salt Lake Tribune	http://www.sltrib.com/home/3082117-155/vw-employee-reps-union-demand-transparency
St. Louis Post-Dispatch	http://www.stltoday.com/news/national/govt-and-politics/eyeing-major-settlement-us-states-move-quickly-in-vw-case/article_793c7bf1-9693-5e09-bcd9-f56e1e3fa616.html
CNBC	http://www.cnbc.com/2015/10/20/volkswagens-brand-value-still-high-with-german-consumers-survey.html
The Christian Science Monitor	http://www.csmonitor.com/Business/In-Gear/2015/1020/Volkswagen-offices-raided-this-time-in-France
US News & World Report	http://www.usnews.com/news/business/articles/2015/10/21/german-state-files-criminal-complaint-over-missing-vw-file

Bloomberg News	http://www.bloomberg.com/news/articles/2015-10-21/porsche-manipulation-trial-kicks-off-amid-vw-emissions-scandal
Bloomberg Business+E178	http://www.bloomberg.com/news/articles/2015-10-21/how-could-volkswagen-s-top-engineers-not-have-known-
CNET	http://www.cnet.com/news/volkswagen-european-diesel-stop-sale/
First Post	http://www.firstpost.com/fwire/volkswagen-ceo-says-emissions-scandal-bill-could-rise-reuters-2477880.html
Reuters	http://www.businessinsider.com/r-dispute-over-rigged-ship-engine-tests-adds-to-volkswagens-woes-2015-10
The New York Times	http://www.nytimes.com/2015/10/23/business/international/volkswagen-diesel-investigation.html
Fortune	http://fortune.com/2015/10/22/now-volkswagens-newest-diesel-engines-are-under-suspicion/
Automotive News	http://www.autonews.com/article/20151022/OEM11/151029943/volkswagen-asks-to-combine-fraud-claims-in-virginia-or-detroit
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-22/volkswagen-says-recall-will-be-limited-to-older-diesel-engines

Reuters	http://www.reuters.com/article/2015/10/22/us-volkswagen-emissions-brazil-idUSKCN0SG1N720151022
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-22/vw-s-emissions-retrofit-may-be-among-costliest-recalls-ever
VW	http://www.volkswagenag.com/content/vwcorp/content/en/investor_relations/Warum_Volkswagen/Strategy.html

To: Senn, John[Senn.John@epa.gov]
From: Belser, Evan
Sent: Thur 10/22/2015 9:51:33 PM
Subject: Fwd: VW News Blast
+ENV_ENFORCEMENT-#2549843-v1-VW_News Article Log.xlsx
ATT00001.htm

FYI. Thought you'd appreciate.

Evan Belser
Chief, Mobile Source Enforcement Branch
US EPA

Begin forwarded message:

From: "Kemp, Detric (ENRD)" <Detric.Kemp@usdoj.gov>
Date: October 22, 2015 at 5:41:36 PM EDT
To: "Allen, Leslie (ENRD)" <Leslie.Allen@usdoj.gov>, "Anderson, Alison" <Alison.Anderson@usdoj.gov>, "belser.evan@epa.gov" <belser.evan@epa.gov>, **Ex. 7** @usdoj.gov>, **Ex. 7** **Ex. 7** @usdoj.gov>, "Dworkin, Karen (ENRD)" <Karen.Dworkin@usdoj.gov>, "Engel, Bethany (ENRD)" <Bethany.Engel@usdoj.gov>, "Fisherow, Walter Benjamin (ENRD)" <Walter.Benjamin.Fisherow@usdoj.gov>, "gavin.hilgemeier@usdoj.gov" <gavin.hilgemeier@usdoj.gov>, "Glaser, Danica (ENRD)" <Danica.Glaser@usdoj.gov>, "Greenberg, Diana (ENRD)" <Diana.Greenberg@usdoj.gov>, "Henderson, Heather (ENRD)" <Heather.Henderson2@usdoj.gov>, "Himmelhoch, Sarah (ENRD)" <Sarah.Himmelhoch@usdoj.gov>, "kaul.meetu@epa.gov" <kaul.meetu@epa.gov>, "Kemp, Detric (ENRD)" <Detric.Kemp@usdoj.gov>, "orehowsky.greg@epa.gov" <orehowsky.greg@epa.gov>, "Patterson-Chandler, Ashley (ENRD)" <Ashley.Patterson-Chandler@usdoj.gov>, "shinkman.susan@epa.gov" <shinkman.susan@epa.gov>, "Van Eaton, Josh (ENRD)" <Josh.Van.Eaton@usdoj.gov>, "werner.jacqueline@epa.gov" <werner.jacqueline@epa.gov>
Subject: VW News Blast

Good afternoon All,

Please see the attached spreadsheet, which contains a list of new articles that we've collected so far. The entries on the attached log are arranged by date and include a brief synopsis of the article as well as a link to the article. For those of you that have access to

the "R" drive, the articles are available on the "R" drive at:

Ex. 7

If you do not have access to the "R" drive and are unable to access the article using the link above, please contact me or Heather Henderson and we will provide you with a copy of the article.

Everyone that receives this e-mail has been added to the VW news blast that originates from Justice Libraries. Within the next day or two, you should start receiving media blasts from Lila Faulkner that will contain recent Volkswagen Audi news headlines as well as summaries and links to those articles. We will continue to monitor other sources and will continue to save new articles to the "R" drive. And, to the extent that an article is saved that was not included in the media blast from Justice Libraries, a separate e-mail will be sent to supplement Justice Libraries' media blast.

Lastly, if you would like to be removed from the e-mail distribution list, please e-mail me or Heather Henderson with the words "unsubscribe" in the body of the e-mail.

Thank you,

Detric

Volkswagen News Article Log		
Date	Author(s)	Title
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 1 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 2 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 3 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 4 of 5)
20040300	Markus, Frank	Diesel's Last Stand? Diesels now offer superior performance, fuel economy, and longevity but have CARB and the EPA made outlaws of them? (Document 5 of 5)
20090630	Kiley, David	Clean Diesel is Coming! Clean Diesel is Coming!
20130806	Lienert, Anita	New Diesel Engine set for 2015 Volkswagen Golf, Beetle, Passat and Jetta
20130905	Achorn, George	The Station TDI Commercial from Audi of America May Prove Familiar for those Already Driving Diesel Cars
20150918		Volkswagen's Statement Regarding EPA Investigation
20150918	Davenport, Coral; Ewing, Jack	VW is Said to Cheat on Diesel Emissions; U.S. to Order Big Recall

20150918	Neat, Rupert	Volkswagen under investigation over illegal software that masks emissions
20150918	Goodwin, Antuan	Volkswagen, Audi accused of using software to cheat US diesel emissions tests
20150918	Plungis, Jeff	Volkswagen Admits to Cheating on U.S. Emissions Tests
20150918	Chappell, Bill	Volkswagen Used 'Defeat Device' to Skirt Emissions Rules, EPA Says
20150918	Hirsch, Jerry	VW cheated on U.S. pollution tests for 'clean diesels'
20150920	Lampersbach, Andreas	Press Release: Statement of Prof. Dr. Martin Winterkorn, CEO of Volkswagen AG
20150920	Robinson, Julian	VW stop selling Diesel cars in US after firm rigged emissions tests on up to 500,000 vehicles as CEO says sorry for broken trust
20150920	Plungis, Jeff; Hull, Dana	VW's Emissions Cheating found by Curious Clean-Air Group
20150921	Reuters	Volkswagen Shares Tank after company admits to Cheating the EPA
20150921	Hulac, Benjamin; ClimateWire	Volkswagen uses software to Fool EPA Pollution Tests

20150921	Quick, Darren	Volkswagen admits "defeat device" used to circumvent US emissions tests
20150921	Plungis, Jeff; Levin, Alan; Vekshin, Alison	Volkswagen Owners Want Payback
20150922	Ewing, Jack	Volkswagen Says 11 Million Cars Worldwide are Affected in Diesel Deception
20150922	Boston, William; Sloat, Sarah	Volkswagen Emissions Scandal Relates to 11 Million Cars
20150922	Frankel, Alison	How U.S. lawyers were so quick off the mark to sue Volkswagen
20150922	Chappell, Bill	11 Million Cars Worldwide have Emissions 'Defeat Device,' Volkswagen Says
20150922	Harder, Amy; Spector, Mike	EPA Accuses Volkswagen of Dodging Emissions Rules
20150922		Volkswagen admits 11 million diesel cars worldwide have pollution test cheating 'defeat device'
20150922	Seib, Christine	Volkswagen's US boss: We totally screwed up
20150922	Campbell, Lucy	Volkswagen Facing Nationwide Lawsuit over Environmental Emissions Deception

20150922		N.Y. Attorney General's Office joins Volkswagen Emissions Cheating Probe
20150922		Statement from A.G. Schneiderman on Volkswagen Investigation
20150922		Volkswagen's diesel fraud goes beyond regulatory failure
20150923	Lampersbach, Andreas	Press Release: Statement by Prof. Dr. Winterkorn
20150923	Lampersbach, Andreas	Press Release: Statement from the Executive Committee of Volkswagen AG's Supervisory Board
20150923	Mouison, Geir; Pylas, Pan	Volkswagen CEO steps down amid emissions scandal
20150923	Massey, Ray	Did Merkel cover up Volkswagen scandal? As car maker's boss quits, German leader accused of accepting trickery 'with a wink'
20150923	Mathiesen, Karl; Neslen, Arthur	VW Scandal caused nearly 1M tonnes of extra pollution, analysis show
20150923	Pemberton, Nathan	VW's Clean Diesel Ads Now Make Us Feel Dirty
20150924	Bachelor, Lisa; Brignall, Miles	Volkswagen emissions scandal: how it affects you
20150924	Sage, Alexandria	Exclusive: VW recall letters in April warned of an emissions glitch
20150924	Lynes, Jennifer	Volkswagen committed the cardinal sin of greenwashing: Lying
20150924		Class action lawsuit filed against Iowa Volkswagen dealers

20150924		Va. Attorney General Multistate Investigation into Volkswagen
20150924		German ministers were reportedly warned of VW test-beating software
20150924	Massey, Ray	Test Every Diesel car in the UK after the Volkswagen Scandal - Minister orders urgent action to check whether other manufacturers have cheated emissions data
20150924		Volkswagen to fire executives appoint CEO
20150924	Gardner, Timothy; Lienert, Paul; Morgan, David	After a year of stonewalling, Volkswagen finally came clean
20150924		Volkswagen Faces Canadian Class Action over Fraudulent Defeat Device
20150924	Plumer, Brad	How many deaths did Volkswagen's pollution scandal cause?
20150925	Farrell, Sean	Volkswagen poised to appoint Porsche's Matthias Muller as boss
20150925	Hotten, Russell	Volkswagen: The scandal explained
20150925	Lampersbach, Andreas	Press Release: Matthias Muller Appointed CEO of the Volkswagen Group
20150925	Lampersbach, Andreas	Press Release: The Volkswagen Group is Restructuring: Supervisory Board Passes Resolution for New Organization

20150925	Lampersbach, Andreas	Press Release: Statement by the Supervisory Board of Volkswagen AG
20150925	Thul, Peter	Press Release: Dr. Herbert Diess, CEO of the Volkswagen Passenger Car Brand, Explains: "We are working at full Speed on a solution."
20150925	Bomey, Nathan	EPA to road test cars after Volkswagen emissions scandal
20150925	Miller, Hugo; Weiss, Richard	VW Faces more European Lawsuits over Emissions Cheating
20150926	Mendick, Robert	VW Scandal: Cover-up of British tests that showed diesel fume cheating
20150926	Boyle, Darren	Volksboten! Switzerland bans VW diesel cars equipped with 'defeat devices' for cheating emissions tests
20150927	Craigball	Fahrvergnügen: eDiscovery in the Volkswagen Vortex
20150927	Gitlin, Jonathan M.	Report: VW was warned about cheating emissions in 2007
20150927	LaCroix, Kevin	Volkswagen Vehicle Emissions Scandal Triggers U.S. Securities Suit, Dutch Collective Action Initiative
20150927	Priddle, Alisa	VW Scandal puts Diesel Engines on Trial
20150928	Sanger-Katz, Margot; Schwartz, John	How many deaths did Volkswagen Deception Cause in the U.S.?

20150928	Bradshaw, Julia	VW Scandal: German Prosecutors probe Winterkorn as Volkswagen emissions-rigging crisis spreads to 2.1 million Audi cars and Skoda models
20150928	Charlton, Alistair	Audi admits 2.1 million cars use VW emissions cheat software
20150928	Sorokanioh, Robert	Report Bosch Warned VW about Diesel Emissions Cheating in 2007
20150929	Banks, Gabrielle	Harris County seeks millions from Volkswagen for unlawful fumes
20150930	Jaffe, Eric	A Texas County Just Sued VW for $100 Million over its Emissions Scandal
20150930	McClintock, Peter	Test emissions where cars pollute: On the Road
20150930	Wray, Dianna	Harris County Attorney Vince Ryan is (Of Course) Suing Volkswagen
20150930	Rascoe, Ayesha	Update 2 Texas county sues Volkswagen over diesel-emissions scandal
20150930	Tomlinson, Simon	We were crooks, Volkswagen admits: Board member says those who knew about emissions test cheating acted criminally
20150930	Turner, Heidi	Attorney: Volkswagen Owner Could Suffer Tremendous Financial Impact
20151001	Bode, Hans-Gerd	Press Release: Statement from the Executive Committee of Volkswagen AG's Supervisory Board following its meeting on September 30, 2015
20151001	The National Trial Lawyers	Texas County is First Government Agency to sue VW for Environmental Harm

20151002	Varli, Harun	Switzerland bans Volkswagen in wake of scandal
20151002	Ivory, Danielle	U.S. States Jumping into Investigation of VW emissions Deception
20151002	Handelsblatt Staff	Volkswagen Scandal: The Scene of Crime
20151004	Donahue, Patrick	VW Chief Warns Cheating Scandal may Threaten Company's Existence
20151004	Henning, Eyk; Varnholt, Hendrik	Volkswagen Assesses Emissions Scandal's Impact on Its Finances
20151004	Berlin Associated Press	Merkel calls on VW to clear up emissions-rigging scandal
20151004	Borenstien, Beth	Analysis: Dozens of death likely from VW pollution dodge
20151004	Scully, Matt	Second-hand Volkswagen cars may lose value following emissions scandal
20151004	Ewing, Jack	Volkswagen Engine-Rigging Scheme Said to have begun in 2008
20151005	Woodyard, Chris	Top VW Exec warns emission crisis could kill company
20151005	Flaccus, Gillian; Pritchard, Justin	Volkswagen Pollution Testing Center Comes Under Scrutiny
20151005	McHugh, David; Pylas, Pan	For Volkswagen, costs of scandal will be piling up
20151005		A Scandal Reverberates in a Company Town

20151005		Volkswagen admits rigging of 8M cars in EU Report
20151005	Associated Press	VW tells German lawmakers 8M cars in EU affected by probe into rigged emissions tests
20151005	Elliott, Susannah	Columbus Answers: Why didn't Ohio's emissions test catch Volkswagen's clean-air violations?
20151005	Roberts, Daniel	These 2 Volkswagen Engineers are at the Center of the Emissions Probe
20151005	Capon, Felicity	Volkswagen Scandal: Why is it falling to the U.S. to Regulate Europe?
20151005	San Diego Union-Tribune	Engine Shortfall Said to Push VW to Cheat
20151005	Banerjee, Devin; Collins, Margaret	Schwarzman Says 'Heroic' Volkswagen Scandal will be Temporary
20151005	Silverman, Stan	VW employees responsible for Dieselgate: Where's the legal, moral, & ethical compass?
20151005	Niquette, Mark	Tennessee Review Clawbacks for VW Tax Incentives after Cheating
20151005	Pearson, Sophia; Fisk, Margaret Cronin	Volkswagen Sued Over Share Drop Amid Emissions Test Scandal
20151005		Volkswagen Official to Testify Before Congress

20151005	Magnusson, Niklas	VW's 'Serious' Failure Triggers Review at Skandia Fonder
20151005	Boston, William	Volkswagen Emissions Investigation Zeroes in on Two Engineers
20151005	Pettersson, Edvard	Volkswagen Sued by West Virginia Over Clean Diesel Claims
20151005	International New York Times	Engine Flaw Led VW to Use the Software to Fool Tests - Vital 'clean diesel' project failed to meet emissions and performance goals
20151005	Hruska, Joel	Early Report sheds first list on why VW cheated chairman warns emissions scandal could kill the company
20151005	Ambrosio, Patrick	West Virginia Sues Volkswagen Over Emissions Scandal
20151006	Lampersbach, Andreas	Press Release: Matthias Muller: We will Overcome This Crisis
20151006	Behrmann, Elisabeth; Reiter, Chris; Rauwald, Christoph	VW to Delay, Cancel Non-Essential Investments Due to Scandal
20151006	Pelton, Jeffrey	Volkswagen wasn't the first Auto Scandal
20151006	McHugh, David	VW chief warns workers of 'pain' to come because of scandal
20151006	Associated Press	Costs from scandal piling up for Volkswagen, with spot as No. 1 carmaker likely to be lost
20151006	Sloan, Allan	The real question: What will VW's cheating scandal cost car owners?

20151006	Donahue, Patrick	Volkswagen Chief Warns on Existential Threat of Cheating Scandal
20151006	Bryant, Chris	Volkswagen's 'uniquely awful' governance at fault in emissions scandal
20151006	Amin, Ayat	Blissful Ignorance
20151006	AFP	Several VW engineers admit to installing cheat device: Report
20151007	Tovey, Alan; Bradshaw, Julia	VW scandal: Volkswagen to start fixing emissions rigged diesel cars in January
20151007	Admin	VW CEO: Deception stemmed from German HQ
20151008		Testimony of Michael Horn, President and CEO of Volkswagen Group of America, Inc. Before the House Committee on Energy and Commerce Subcommittee on Oversight and Investigations
20151008	News Wires	Volkswagen's US Chief knew of Possible emissions problem in 2014
20151008		Press Release: Texas Sues Volkswagen and Audi over Deceptive Trade Practices, Environmental Violations
20151008	Fisk, Margaret Cronin; Calkins, Laura Brubaker	Texas Sues Volkswagen Claiming Deception, Diesel Pollution
20151008	Howard, Bill	Das Blunder? VW blames engineers, not execs, for diesel woes, then bails on US diesels

20151008	CNN Money	Volkswagen HQ raided by German police
20151009	Morgan, David; Gardner, Timothy	House slams regulators for not catching VW for years
20151009		VW alleges software engineers not company at fault
20151009	Mohan, Geoffrey; Welsh, Ben	Q&A How much pollution did VW's emissions cheating create?
20151009	Carrington, Damian	Four more carmakers join diesel emissions row
20151009	Staff Reports	Dallas decides not to go after Volkswagen over air quality after state files lawsuit Thursday
20151009		CORRECTED-California gives VW Nov. 20 deadline for technical fix in diesel scandal
20151010	Bloomberg, Kyle Stock	Used-car shoppers haven't stopped buying Volkswagen's dirty diesels
20151010	Associated Press	Volkswagen may compensate vehicle owners for loss of value, CEO says

20151011		Schumer: Volkswagen fine should include rebates for buyers
20151011	Behrmann, Elisabeth; Plungis, Jeff	EPA's new VW probe may reveal failure to disclose
20151011	Read, Richard	The Volkswagen debacle could cost $25 billion
20151012	Carpenter, Susan	VW diesel owners sue for immediate buyback of models tainted by emissions cheating scandal
20151012	McDonald, Joe	VW diesel cars recalled in China, sales halted in Singapore
20151012	Babcock, Chris	Texas Sues Volkswagen Over Emissions Cheating
20151012	Buergin, Rainer; Jenne, Birgit	VW Loans for Clean Engine Development Under Scrutiny, EIP Says
20151012	Lavell, Tom	S&P cuts Volkswagen's credit rating to A-
20151012		Press Release: Sloan, Bagley, Hatcher & Perry Law Firm Well-Equipped to Support Consumers Affected by Volkswagen Emissions Scandal with Depth in Product Liability Matters, Launches Dedicated Web Site www.volkswagenemissionsscandal.com

20151013		VW Chattanooga staffing firm says it's "business as usual" for now
20151013	Martinez, Michael	Ann Arbor EPA lab tests other cars after VW scandal
20151013	Cooke, David	Automaker Rankings Revisited - Does Volkswagen Now have the "Dirtiest Tailpipe
20151013	Associated Press	DiCaprio, Paramount option Volkswagen scandal book proposal
20151013	Associated Press	VW fallout: Training center plan postponed
20151013	McHugh, David	Scandal-hit VW to change diesel emissions technology
20151013	Henning, Peter	Taking Measure of Volkswagen's Cooperation
20151013	Lienert, Paul	EPA hasn't decided if new software on 2016 VW diesels is legal
20151013	Eddy, Melissa	Volkswagen in Future Cars, to Adopt New System for Controlling Diesel Emissions
20151013	Kresge, Naomi; Rauwald, Christoph	Volkswagen to Cut Spending by 1.1 Billion Amid Diesel Scandal
20151013		VW to cut investment in core brand to cope with scandal

20151013	Dalton, Matthew	Volkswagen Scandal Puts Spotlight on Europe's Dirty Air
20151013	Hjelmgaurd, Kim	VW unveils new strategy after emissions fiasco
20151013		Press Release: Volkswagen Brand Board of Management Takes Strategic Decisions
20151014	Santoro, Ernie	Ernie Santoro: Let's hope VW scandal doesn't hurt diesel
20151014	Ydsite, John	Germans Worry Volkswagen's Problems could Drag Down Country's Economy
20151014	Sharp, Matt	Sens. Demand WV Return $200M in Tax Credits
20151014	Trudell, Craig; Hagiwara, Yuki	Toyota Targets 90% Emissions Reduction by 2050 on Fuel Cells
20151014	Reuters	Volkswagen to shift focus to electric, hybrid vehicles
20151014	Field, Emily	Volkswagen North America CEO Quits After Three Weeks
20151014	Associated Press	Volkswagen to change its diesel emissions technology

20151014	Associated Press	Volkswagen: secret emissions tool in 2016 cars is separate from 'defeat' cheat
20151014	Sundar, Sindhu	VW Hit with Texas Consumer Suit over Emissions Software
20151014	Prodhan, Georgina; Schwartz, Jan	At least 30 managers were involved in VW emissions cheating
20151014	Hakim, Danny; Bowley, Graham	VW Scandal Exposes Cozy Ties in Europe's New Car Tests
20151014	Orr, Steve	DMV gives VW diesel owners a pass on inspections
20151015		How Volkswagen Got Away with Diesel Deception
20151015	Carrington, Damian	UK Volkswagen boss denies cars emitted higher pollution than expected
20151015	Ruddick, Graham; Topham, Gwyn	VW deserves to suffer substantial damage, UK minister says
20151015	Associated Press	Italy police search VW offices in Verona as part of local investigation into emissions scandal

20151015	Associated Press	VW plot thickens on disclosure of new emissions software
20151015	Gleckman, Howard	Could a carbon tax have prevented the Volkswagen scandal?
20151015	Boston, William; Houston-Waesch	Volkswagen Suspends 4th Engineer; Berlin Orders Mandatory Recall -- Update
20151015		German order triggers recall of 8.5 million VW cars in Europe
20151015	Eddy, Melissa	Volkswagen to Recall 8.5 Million Vehicles in Europe
20151016	Viswanatha, Aruna; Specter, Mike	U.S. Pursues Several Paths in Volkswagen Probe
20151016	Vittorio, Andrea	VW Sustainability Reports May Have Hinted at Problems
20151016	McHugh, David; Rising, David	VW hires anti-corruption exec as it deals with scandal

20151016		Press Release: Volkswagen Group Delivers 7.43 Million Vehicles to Customers in First Three Quarters.
20151016	Timu, Andra; Vilcu, Irina	VW Scandal Won't Harm U.S.-EU Trade-Accord Talks, Malmstrom Says
20151016	Associated Press	German investigators putting together special team for VW case to deal with volumes of data
20151016	Collen, Barry	VW market share dips in Europe amid emissions scandal
20151016	Associated Press	Volkswagen sales in Europe rise in September despite emissions scandal
20151017		Former VW Chief to Vacate Top Post at Holding Company
20151018	Associated Press	French police search VW offices as part of local investigation into emissions scandal
20151018	Jensen, Christopher	Essential Part of the Volkswagen Diesel Repair is the Owner
20151019	Plank, Dave	Did One Company Spot Volkswagen's Diesel Deception Six Years Before Anyone Else?

20151019		Press Release: Volkswagen Announces Pricing for the New 2016 Passat
20151019		Volkswagen's Voluntary Recall for the Passenger Occupant Detection System
20151019	Levick, Richard	Volkswagen's Long and Winding Road Ahead
20151019	Behrmann, Elisabeth	Will the Scandal Force VW to Sacrifice Its Iconic Brands?
20151020	Ewing, Jack	Volkswagen Suspends 5th Executive in Emissions Scandal
20151020	Marsh, Alastair; Freke, Tom	Volkswagen Scandal Impact $3 Billion of Securitized Car Loans
20151020	Associated Press	VW employee reps, union demand transparency
20151020	Greene, Ronnie; Foley, Ryan	Eyeing major settlement, US states move quickly in VW case
20151020	Gibbs, Alexandra	Volkswagen's brand value still high with Germans: Survey
20151020	Read, Richard	Volkswagen offices raided, this time in France
20151021	Associated Press	German State Files Criminal Complaint Over Missing VW File

20151021	Matussek, Karin	Porsche Manipulation Trial Kicks Off Amid VW Emissions Mess
20151021	Lawrence, Dune; Elgin, Benjamin; Silver, Vernon	How Could Volkswagen's Top Engineers Not Have Known?
20151021	Krok, Andrew	Volkswagen halts sale of European diesels linked to emissions scandal
20151021		Volkswagen CEO says emissions scandal bill could rise
20151021	Doyle, Alister	Volkswagen has a new $50 million headache caused by its cheating engines
20151022	Ewing, Jack	Volkswagen Investigating if Diesel Emissions Deception Was More Extensive
20151022	Smith, Geoffrey	Now Volkswagen's newest diesel engines are under suspicion
20151022	Fisk, Margaret Cronin	Volkswagen asks to combine fraud claims in Virginia or Detroit
20151022	Rauwald, Christoph	Volkswagen Says Recall Will Be Limited to Older Diesel Engines

20151022		Volkswagen to recall Brazil pickups in emissions cheating scandal
20151022	Plungis, Jeff; Katz, Alan	VW's Emissions Retrofit May be Among Costliest Recalls Ever
		Volkswagen Group Strategy 2018

Volkswagen AG said that Vahland decided to leave because of

VW's TDI engines and advanced diesels that are on sale in Europe are nothing like the poky, smoky oil burners sold here during the gas crunches of past decades. Now they're smooth, quiet, and powerful, and they typically endure beyond 200,000 miles and require less maintenance than gas engines.

Bohl and the Bosch believe the emissions battle can be successfully waged in the cylinder. Furthermore, EGR absorbs heat, which reduces NOX.

Space-age fuel-injection systems in development are expected to finish the cleanup job and account for a large part of the cost differential between modern diesel and gasoline engines.

At the top of the heap is the VW Touareg V-10 TDI, whose state-of-the art aluminum-block engine uses unit injectors good for 31,200 psi of squirt.

Volkswagen will sell the Touareg V-10 TDI later this year, and it's pretty likely to blaze a trail that will be followed by other large diesel-powered SUVs. The point is that, despite its brisk acceleration, the Touareg never seems lithe or nimble—always brutishly powerful.

With diesel fuel prices down and rivals' diesel programs halted, German carmaker Audi has launched a U.S. marketing push.

A new diesel engine that is expected to return 45-46 mpg on the highway will power the 2015 Volkswagen Golf, Beetle, Passat and Jetta, Volkswagen Group of America. The new Volkswagen EA288 diesel engine "will eventually replace all the 2.0-liter TDI Clean Diesel engines fitted in Audi and Volkswagen TDI Clean Diesel mode

Audi introduces their 2014 clean diesel vehicles with 60 second spot called The Station. The Director of Marketing for Audi said, “Since the introduction of TDI in 2009, Audi has been at the forefront of clean diesel with an increased commitment to providing drivers with more options."

VW takes this matter very seriously and is cooperating with the investigation. The company is committed to fixing this issue as soon as possible.

Agency officials issued the car company a notice of violation and said it had admitted to the use of a so-called defeat device. The recall involves 4-cylinder Volkswagen and Audi vehicles from model years 2009-15.

The US government has ordered Volkswagen to recall almost 500,000 cars after discovering that the company deployed sophisticated software to cheat emission tests allowing its cars to produce up to 40 times more pollution than allowed.

For years we've been praising Volkswagen's TDI vehicles for their excellent blend of driving performance and fuel efficiency, but a recent claim by the US Environmental Protection Agency asserts that VW's diesel emissions may not be as clean as we've been led to believe.

Volkswagen AG admitted to systematically cheating U.S. air pollution tests, leaving the automaker vulnerable to billions in fines and possible criminal prosecution.

Installed in four-cylinder cars, the software, which the EPA calls a "defeat device" allowed diesel Jettas, Beetles and other cars to "emit up to 40 times more pollution" than allowed under U.S. emission standards.

The world's largest automaker has admitted selling 482,000 such diesels in the United States since 2009. The scandal could cost billions of dollars in fines and threatens to stunt the development of all diesel vehicles.

As a result of this scandal, VW CEO Winterkorn issued the following, "I personally am deeply sorry that we have broken the trust of our customers and the public. We will cooperate fully with the responsible agencies, with transparency and urgency, to clearly, openly, and completely establish all of the facts of this case"
VW is to stop selling four cylinder diesel cars in the US after the firm was found to have rigged emissions test on up to 500,000 vehicles, it has emerged.

The Volkswagens were spewing harmful exhaust when testers drove them on the road. In the lab, they were fine. Discrepancies in the European tests on the diesel models of the VW Passat, the VW Jetta and the BMW X5 last year gave Peter Mock an idea

Volkswagen shares plunged more than 20 percent on Monday, their biggest one-day fall, after the German carmaker admitted it had rigged emissions tests in the United States, and U.S. authorities said they would widen their probe to other manufacturers.

The defeat software allowed VW cars to activate emission controls during emission tests but during normal use the vehicles would release up to 40 times the permitted amount of nitrogen oxides, which causes breathing issues and is linked to millions of early deaths.

The device, which is described in the NOV as a sophisticated software algorithm on certain Volkswagen vehicles detects when the car is undergoing official emissions testing and activates full emissions controls is found in four-cylinder VW and Audi diesel cars from models.

Consumers who own cars that aren't doing what they're intended to do will expect compensation.

The company said that 11 million of its diesel cars were equipped with software that could be used to cheat on emissions tests. The company said it would set aside 6.5 billion euros ($7.3 billion), which is equivalent to a half a year's profit, to cover the cost of making the cars comply with pollution standards.

CEO Martin Winterkorn apologized that VW betrayed customers' trust and promised that the company would clarify the origin and extent of the issue. He added that everything will be put on the table at this time, as quickly, thoroughly and transparently as possible.

VW's strategy to market their vehicles to upscale professional has backfired and allowed class action lawyers to mobilize quickly. Reason being, the Plaintiffs lawyers do not have to look far for clients because many of their friends and colleagues owned the cars.

The software that allegedly causes Volkswagen cars to cheat official emissions tests exists in only one type of diesel engine, according to the carmaker — and it has sold 11 million of them around the world. The company says it's setting aside 6.5 billion euros (around $7.25 billion) to fix the cars.

EPA officials said the software, dubbed a "defeat device," made about 482,000 Volkswagen diesel-powered cars appear cleaner running than they were.

Volkswagen has revealed that 11 million diesel cars worldwide are equipped with devices that can cheat pollution tests, a dramatic expansion of a scandal that immediately sent its shares plummeting by another 20 per cent.

Michael Horn, chief executive of the Volkswagen Group of America, used the launch of the 2016 Passat to issue an abject apology saying "Our company was dishonest, with the EPA and the California Air Resources board, and with all of you and in my German words, we have totally screwed up."

The lawsuit contends that Volkswagen's decision to prey on environmentally-conscious consumers who paid thousands of dollars for a cleaner-running vehicle is despicable and in violation of multiple state and federal consumer and environmental laws.

Attorney General Eric Schneiderman said Tuesday that his office will join investigations of Volkswagen following reports about how the automaker installed software in diesel-powered cars to cheat emissions tests.

No company should be allowed to evade our environmental laws or promise consumers a fake bill of goods. My office is investigating troubling reports that millions of Volkswagen cars carried software designed to cheat emissions tests

Volkswagen has been cheating on its US government emissions tests for years. And it was a small, independent research institution that caught it.

"Above all, I am stunned that misconduct on such a scale was possible in the Volkswagen Group. As CEO I accept responsibility for the irregularities that have been found in diesel engines and have therefore requested the Supervisory Board to agree on terminating my function as CEO of the Volkswagen Group."

The Executive Committee discussed the manipulation of emissions data and recognizes economic damages as well as loss of trust among customers. Recommendation for new personnel will be presented at Friday's meeting.

Volkswagen CEO Martin Winterkorn stepped down Wednesday over a scandal in which the German carmaker admitted to rigging its diesel cars' emissions to pass U.S. emissions tests

The German Green Party said ministers knew in summer about Volkswagen rigging emissions tests but that 'tricks and deceits' were 'accepted with a wink'.

If these vehicles were driven at the average annual US mileage, the vehicles would have spewed between 10,392 and 41,571 tons of toxic gas into the air each year.

Volkswagen's "clean diesel" vehicles have been responsible for emitting aggravating nitrogen oxide for the last six years.

The authors explore the possible ramifications for UK owners of Volkswagen vehicles.

In April of 2015, Volkswagen of America, Inc. sent letters to California owner of diesel-powered Audis and Volkswagen informing them of an emissions service action" affecting the vehicles.

The company's use of a "defeat device" to skirt emissions testing has rocked both the business world and countless unwitting drivers.

A class-action lawsuit has been filed on behalf of anyone who bought diesel-engine Volkswagens in Iowa.

Attorney General Mark R. Herring announced that Virginia has joined the executive committee of a multistate investigation into Volkswagen for altering emissions software to produce favorable test results.

German government ministers reportedly turned a blind eye to Volkswagen installing cheat devices to fool U.S. diesel emissions tests, raising the possibility that the mushrooming scandal could cause embarrassment for Chancellor Angela Merkel.

All diesel car models in Britain are to be retested amid fears the Volkswagen scandal is an industrywide problem.

The research and development chiefs of Audi and Porsche, Ulrich Hackenberg and Wolfgang Hatz, will be removed by the supervisory board, as will VW's top executive in the United States, Michael
Horn, the senior source said.

After more than a year of stonewalling investigators, Volkswagen stunned two senior officials with the U.S. Environmental Protective Agency and California's environmental watchdog by admitting the automaker hacked its own cars to deceive U.S. regulators about how much their diesel engines pollute.

A $1-billion consumer fraud class action lawsuit has been filed in
Edmonton, Canada against Volkswagen stemming from the admission by the automaker that it sold vehicles that were designed to skirt emissions laws.

The extra pollution from Volkswagen's US cars can be expected to lead to an additional 5 to 27 premature deaths per year. If
extrapolated worldwide to all 11 million vehicles, VW's vehicle would be responsible for causing somewhere between 74 and 404 premature deaths each year.

Volkswagen board is meeting to appoint a new CEO following Martin Winterkorn resignation over the emissions scandal. Mattias Muller is the front runner.

Volkswagen fitted about 11 million cars worldwide (482,000 in the US) with a defeat device that would put the vehicle in a "safe mode" during testing and the engine ran below normal power and performance. Once on the road, the engine switched from this test mode and the engines emitted nitrogen oxide pollutants up to 40 times above what is allowable in the U.S.

Matthias Müller has been appointed CEO of Volkswagen AG with immediate effect. This was decided by the Supervisory Board at its meeting in Wolfsburg today (Friday).

The Supervisory Board of Volkswagen AG approved a new management structure for the Group and the brands as well as for the North America region on 9/25/2015 in Wolfsburg.

The Volkswagen Supervisory Board consulted intensively on the current situation at its meeting today. There is absolutely no excuse for the manipulations which have deeply shocked Volkswagen. The company will leave no stone unturned in getting to the bottom of this, will call those responsible to account, and take the necessary actions.

The internal evaluation revealed that approximately five million Volkswagen Passenger Cars brand vehicles are affected worldwide

The Environmental Protection Agency announced that it will begin road tests of all new vehicle models and vehicles already on the road to examine emissions claims following the exposure of Volkswagen's regulation-cheating scandal.

Volkswagen AG is facing a new round of legal challenges after admitting it cheated on emissions tests for years, with French, German and Swiss lawyers taking action against Europe's largest automaker.

A team of British scientists repeatedly warned the Government that emissions of a deadly pollutant from diesel cars far exceeded official safety levels. The scientists measured emissions from tens of thousands of diesel engine cars as they drove past sensors on roads in tests carried out since 2011.

Switzerland has banned sales of Volkswagen Group cars with outdated emissions systems in the
wake of the test-rigging scandal that started in the United States.

Since 2008, ,VW programed vehicles sold in the U.S. to falsify government emissions tests, which enabled diesel VWs to spew forty times more pollutants than the law allowed.

The cheat software (defeat device) was present in 11 million cars worldwide.

In addition to regulatory enforcement proceedings, the company faces possible criminal action as well as a host of consumer lawsuits. In addition, on September 25, 2015, plaintiff's lawyers filed a securities class lawsuit in the Eastern District of Virginia against VW.

Volkswagen's admission it cheated on emissions testing of its "clean diesel" engines has sullied the automaker's reputation, disrupted the entire industry and put diesel engines on trial in a country that was finally starting to embrace them.

The estimated VW pollution, about 46,000 tons since late 2008, is equivalent of about 4% of the power plant pollution reduction measured, meaning it could be expected to cause an estimated 106 deaths if it had similar effects.

The investigation aims to establish who was responsible and will look at Mr. Winterkorn's role in the worst crisis to hit VW in its 78-year history, according to a statement from prosecutors in Braunschweig, Germany.

Audi has admitted that 2.1 million of its cars sold contain the software designed to cheat emissions tests – 1.42 million are in Western Europe, 577,000 are in Germany, and 13,000 were sold by Audi in the US.

According to the report, Bosch claims to have supplied diesel engine-management software to Volkswagen under the impression that it would be used only in vehicle testing. That software, which was able to activate emissions control devices when a testing environment was detected and deactivate them during normal driving, somehow ended up in production vehicles.

Harris County seized on the outrage of the Volkswagen emissions scandal, saying in a multimillion dollar lawsuit that the German automaker contributed to the region's poor air quality.
Harris County Attorney is suing VW for $100 million dollars under Texas' Health and Safety Codes.

Op-Ed Contributor - The EPA should establish a network of roadside devices that would monitor vehicles more methodically for abnormal emissions.

Ryan is claiming that 6,000 rigged-up diesel cars would have made a difference in the pollution levels of a county with a population of more than 4 million people, most of them drivers.

The county estimated that beginning with the 2009 model year through the end of August 2015, Volkswagen sold more than 6,000 of the manipulated emissions vehicles within the county's borders.

A Volkswagen board member has admitted that
some staff acted criminally over the emissions
cheat tests.

The article indicates that whatever the fix is, there will be a loss of value, there will be degraded performance, the cars will have less efficient gas mileage, and they will still be polluting the environment.

The Executive Committee of the Supervisory Board of Volkswagen AG yesterday (September 30) discussed the current status with respect to the manipulation of diesel engine exhaust emissions.

Harris County filed the lawsuit against the car manufacturer claiming that emissions from 6,000 diesel cars circulating on roadways in the region have caused harm to the population and environment. This may be the first lawsuit filed by a government entity against the
car company since management admitted to falsifying emissions numbers of certain cars released since 2009.

Swiss officials say that new VW cars and newly imported vehicles may not receive registration for road use. According to AMAG, 129,000 vehicles in Switzerland have the software.

Attorneys general from at least 30 states and the District of Columbia are organizing a bipartisan coalition to investigate possibilities of consumer fraud and environmental violations.

The scandal swirling around Germany's largest listed company had its beginnings in an attempt to crack the U.S. market, the missing link in VW's global footprint. But what began as expansion ended in deception.

Volkswagen AG's designated Chairman Hans Dieter Poetsch warned managers that the diesel-emissions scandal could pose "an existence-threatening crisis for the company," as it pleaded for public trust with full-page ads in national newspapers.

Finance officials at embattled car maker Volkswagen AG are evaluating the impact of the company's emissions-cheating scandal on its finances, and assessing options should the crisis take a greater-than-anticipated toll on its €25 billion ($28 billion) cash cushion.

German Chancellor Angela Merkel has called Volkswagen's emissions-rigging scandal a "far-reaching event" and demanded the world's largest automaker quickly investigate it.

Volkswagen's pollution-control chicanery has not just been victimless tinkering, killing between five and 20 people in the United States annually in recent years, according to an Associated Press statistical and computer analysis.

A reduction in car values on Volkswagen AG models after its emissions scandal is the biggest risk to its bonds tied to auto loans, leases and dealerships worldwide.

Volkswagen began installing software devised to cheat on emissions tests in 2008 after realizing that a new diesel engine, developed at great expense, could not meet pollution standards in the United States and other countries.

The crisis has wiped out $34 billion in the company's value as shares have fallen. VW is yet to pinpoint who was responsible for cheating but several engineers admitted to creating the software aimed at cheating the tests.

The article question whether anyone at Volkswagen's Pollution Testing Center was complicit in this scheme.

The cost of its cheating on emissions tests in the U.S. is likely to run into the tens of billions of dollars and prematurely end its long-sought status as the world's biggest carmaker

After the news of the Volkswagen scandal, the mayor of Wolfsburg, Germany said that it was too soon to cite numbers, but announced a municipal hiring freeze and a halt on any new projects, despite the city's current balanced budget.

Volkswagen has admitted that 8 million vehicles were fitted with software capable of cheating diesel emissions tests in the European Union, a German newspaper said on Monday, citing a letter the carmaker sent to members of parliament.

Volkswagen told lawmakers, in a letter signed by VW lobbyists Thomas Steg and Michael Jansen obtained by the Associated Press, that 8 million type EA 189 diesel engines with a 1.2 liter, 1.6 liter, and 2.0 liter engine capacity are affected.

Volkswagen's sneaky violation of clean air standards were carried out by installing in-vehicle software that would make certain Volkswagen models emit lower levels of pollutants while being tested.

Two men (Ulrich Hackenberg and Wolfgang Hatz) who were top aides Martin Winterkorn during his time at Audi and were put in charge of R&D when Winterkorn became CEO are among individuals that the company is centering its efforts around and have been suspended during the investigation.

The news that Volkswagen was deliberately rigging the emissions test of some of its diesel models around the world was curiously caught by the EPA instead of Europe.

Volkswagen installed software designed to cheat on emissions tests in 2008 after realizing that a new diesel engine, developed at great expense, could not meet pollution standards in the United States and other countries.

This is obviously a heroic problem, but ongoing they make terrific products," Schwarzman said. "This will work its way through the legal system in some time. It just will be a very unfortunate time for their securities."

The emission scandal was a deliberate action to violate the law and fraudulently sell cars to customers who thought that they were buying vehicles that met mandated pollution standards.

Tennessee lawmakers will review the state's investment of hundreds of millions in incentives for VW AG's Chattanooga plant and provisions for recouping money if the company's emissions-cheating scandal threatens jobs.

Volkswagen AG was accused in a lawsuit of scheming to defraud investors who paid artificially inflated prices for the company's foreign shares while it cheated on vehicle emissions tests.

Michael Horn, president and chief executive officer of Volkswagen Group of America, will appear before a House Energy and Commerce subcommittee to address Volkswagen's use of defeat devices to cheat on federal emissions tests. The Subcommittee on Oversight and Investigations will hold the first hearing on Oct. 8.

The minority shareholder also signaled it might be open to investing separately in Scania --a Swedish truck maker that was the target of a hostile takeover by VW last year -- should the scandal result in a divestment of the unit.

VW's investigation focuses on two men elevated after Winterkorn was made CEO who found that they couldn't deliver as promised a clean diesel engine for the U.S. market.

There are about 2,684 Volkswagen vehicles registered in the state that have diesel engines with the software to cheat emission tests, according to the complaint filed Friday in Kanawha County Circuit Court.

Volkswagen began installing software designed to cheat on emissions tests in 2008 after realizing that a new diesel engine, developed at great expense, could not meet pollution standards in the United States and other countries, people with knowledge of the automaker's internal inquiry said on Sunday.

VW didn't have time to retrofit the engine with the AdBlue system or to make the changes that would've been necessary to retrofit the system to existing vehicles. It looks as though VW had to choose
between missing the 2009 model year in the United States or cheating on its tests — and chose to cheat.

The complaint, filed Oct. 2, asked the Kanawha County Circuit Court to require Volkswagen to pay at least $43 million in civil penalties and restitution over the sale of its "clean diesel" vehicles, which the company has admitted
Muller announces swift and relentless clarification of emission scandal.

Volkswagen AG CEO Matthias Mueller said the company will delay or cancel non-essential projects as pressure mounts to slash spending in the wake of the diesel-emissions scandal.

While this was an egregious attempt by Volkswagen, history is full of similar scandalous behavior by automakers and in two cases large suppliers to the auto-making industry.

Volkswagen's new CEO has told more than 20,000 workers that overcoming its emissions-rigging scandal will "not happen without pain" and that the company will have to review its investment plans.

The cost of its cheating on emissions tests in the U.S. is likely to run into the tens of billions of dollars and prematurely end its long-sought status as the world's biggest carmaker

Unless VW can come up with a miraculous fix that lets the affected vehicles meet pollution standards without diminishing mileage and performance — fat chance of that happening! — the vehicles' owners will take a financial hit.

Volkswagen and German industry have been rocked by charges that the VW used software to hoodwink regulators about the true emissions of its diesel cars for years. The crisis has wiped out almost 30 billion euros ($34 billion) of the company's value.

Volkswagen's decision to nominate a long-serving executive as chairman has once more highlighted the carmaker's corporate governance and culture, which some experts argue were a root cause of the diesel-emissions scandal.

Instead of rising to the difficult task of developing new technology to meet emission standards, Volkswagen cheated. It built a device that could detect when the car was being tested for emissions standards, and would temporarily change performance to pass the test.

Several engineers stated that they installed deception software in 2008 according to Bild newspaper. Bild did not reveal their identifies, but indicated that their statements had so far failed to unmask those who masterminded the scam.

Mueller told a German newspaper that it would take a year to fix all 11 million diesel vehicles world wide which contain emissions-cheating software.

Manipulations of emissions readings in diesel cars came from Volkswagen's headquarters in Wolfsburg, Germany, not the United States, Volkswagen CEO Matthias Mueller said Tuesday.

"On behalf of our company, and my colleagues in Germany, I would like to offer a sincere apology for Volkswagen's use of a software program that served to defeat the regular emissions testing regime."

Volkswagen of America CEO Michael Horn is scheduled to testify Thursday before a U.S. House subcommittee investigating last month's admission the company had installed on-board computer software designed to cheat on government emissions tests in nearly 500,000 of its four-cylinder "clean diesel" cars starting with the 2009 model year.

Texas Attorney General Ken Paxton today filed a lawsuit against Volkswagen Group of America, Inc. and Audi of America, LLC over violations of state consumer protection laws, along with a separate suit charging that the companies violated clean air standards in Texas.

The state's claims, in two lawsuits by Texas Attorney General Ken Paxton in state court in Austin, follow similar actions brought by West Virginia on Friday and a separate case by the county that encompasses Houston.

CEO of VW of America testified before the House Energy and Commerce subcommittee that he first learned about the potential problems with VW's diesel emissions in early 2014 and blames the installation of a defeat device on a couple of software engineers.

State prosecutors and police searched Volkswagen's offices in the Wolfsburg in a bid to secure documents and databases that could shed light on which employees were responsible for cheating pollution tests.

Lawmakers slammed an Environmental Protection Agency official who testified after Horn for not catching Volkswagen. Representative Michael Burgess, a Texas Republican, questioned the size of EPA's annual budget, noting that the cheating was uncovered by a West Virginia University study that had a budget of less than $70,000.

Police swooped on Volkswagen's headquarters carrying away files and hard disks as the investigation into the massive pollution cheating scandal expanded. Head of VW Group of America said that he believed a couple of software engineers were responsible for the software that allowed nearly a half million diesel powered cars to be sold in the US since 2008.

With nearly a half-million cars driving an average of 11,000 miles per year for nearly seven years, that could amount to anywhere from about 14,000 to 59,000 tons of additional nitrogen oxides.

Mercedes-Benz, Honda, Mazda and Mitsubishi have joined the growing list of manufacturers whose diesel cars are known to emit significantly more pollution on the road than in regulatory tests.

The city of Dallas said in a prepared statement Friday that it will not follow through on plans announced earlier this week to sue Volkswagen over possible emissions violations. The statement said the city was prepared to file the suit Thursday but shifted gears after learning that the state of Texas had already filed suit against the German automaker over alleged violations of air quality standards.

California has given carmaker Volkswagen until November 20 to come up with a plan to fix the diesel cars affected by its rigging of emissions tests. The CARB spokesman said the deadline represents 45 business days from an in-use compliance letter sent to Volkswagen dated Sept. 18.

Volkswagen's diesels don't appear to have been dented nearly as much on secondary markets, where owners sell used cars directly. Carlypso, a California based car-shopping startup, reported a price drop of .3 percent. That's right-all the hue and cry about a sinister plot to cheat emissions tests sent prices plunging by about $30.

Volkswagen could compensate owners of diesel-powered cars that emit high levels of pollutants, possibly by paying them for the lost value of their vehicles, the company's top U.S. executive said. Speaking to lawmakers investigating the emissions cheating, U.S. CEO Michael Horn said fixing most of the 500,000 affected cars in the United States could take one to two years, possibly more.

U.S. Sen. Charles Schumer says the federal government should seek the maximum possible fine from Volkswagen and demand that the automaker give rebates to buyers following the recent scandal over emissions testing

The EPA is investigating a second emissions-control software program in Volkswagen cars that were rigged to pass pollution tests, one that the automaker may have failed to properly disclose. The computer program is on the EA 189 diesel engines used since 2009 that are also fitted with software that the automaker has admitted was designed to fool emissions tests, according to a person familiar with the matter who asked not to be named because the information is private.

The diesel emissions scandal is going to be very expensive for Volkswagen. While the final figures will not be available for months, if not years, the estimated costs could be $25 billion if you make the calculations.

California owners of Volkswagen diesel vehicles affected by the emissions cheating scandal are demanding the company buy back their cars immediately, according to a new class action lawsuit filed against the German automaker Monday in federal district court in Santa Ana.

VW is recalling 1,950 diesel vehicles in China to change engine software it has admitted cheats on emissions tests and Singapore suspended sales of the company's diesel cars.

Following in the footsteps of Harris County and the city of Dallas, the state announced it is suing Volkswagen in connection with the German automaker's admitted use of software that allowed its vehicles to circumvent emissions limits.

The European Investment Bank is looking into loans made to Volkswagen AG to help fund the development of cleaner engines in light of the emissions scandal, EIB chief Werner Hoyer said. Volkswagen's cheating on diesel emissions is a "great shock" and must be analyzed since it threatens to hurt the climate credentials of the development bank.

S&P lowered the Wolfsburg-based company's rating on long- term debt to A-, the fourth-lowest investment grade, from A, and said another cut of as much as two notches is possible.

Volkswagen owners based in Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma, and Texas who are affected by this recall can seek legal counsel from seasoned product liability attorneys practicing at Sloan, Bagley, Hatcher & Perry Law Firm. The firm's website is: http://www.volkswagenemissionsscandal.com

A staffing company for Volkswagen's Chattanooga assembly plant said Monday the automaker has indicated it's "business as usual" for now in the wake of the emissions-rigging scandal. Lucas Hiler of VW contractor Aerotek said it's "maintaining the headcount" of about 200 workers who were hired this summer in connection with the $900 million expansion underway at the factory.

Janet McCabe said the agency is “upping our game” following VW’s admission last month that it cheated on emissions tests for more than 11 million diesel cars worldwide. The EPA will conduct more spot checks of light-duty cars and trucks, testing vehicles owned by individuals and rental companies in real-world driving conditions.

Last year VW ranked third in the semi-regular report card. Reports concerning VW's diesel vehicles is not only a black eye on the company, but it also calls into question how queen the VW fleet truly is.

Paramount Pictures and Leonardo DiCaprio’s production company Appian Way have optioned the rights to a book proposal from New York Times journalist Jack Ewing about the ongoing debacle.

Volkswagen-backed Bundesliga club Wolfsburg postponed the construction of a youth training center Tuesday because of the German car manufacturer’s emissions-rigging scandal.

Volkswagen's flagship brand plans to change its diesel technology in Europe and North America as well as develop new hybrid and electric vehicles in response to its emissions scandal.

VW's cooperation with investigators will be the true measure of how it will be treated by the Justice Department in its criminal investigation. And on that front, there is reason to question just how cooperative Volkswagen will be as it faces scrutiny that now includes a second computer program that affected how emission controls operated in its cars.

The 2016 models have not been certified for sale by the U.S. Environmental Protection Agency.

Volkswagen announced that it would revamp the technology it uses for controlling diesel exhaust in future models as it struggles to overcome an emissions cheating scandal that has battered its reputation and threatened its financial stability.

Volkswagen AG will reduce annual investment by about 1 billion euros ($1.1 billion) at its namesake car brand as the automaker steps up a cost-cutting push to weather the impact of the diesel-emissions scandal.

Volkswagen announced that it will cut investment at its biggest division by 1 billion euros and will overhaul the model strategy at its
core VW division, giving a greater focus to electric and hybrid vehicles.

The Volkswagen scandal is putting new pressure on European policy makers to roll out tougher vehicle-testing standards that measure emissions based on how cars are actually driven, not how they perform in a lab. It is also reinforcing plans by some European cities to restrict diesel vehicles from their streets, a blow to the European auto industry's huge investments in diesel technology.

VW announced that they will switch to a different technology for treating diesel emissions in Europe and North America "as soon as possible" and that VW cars "will only be equipped with exhaust emissions systems that use the best environmental technology."

The newly-formed Volkswagen Brand Board of Management took further strategic decisions at a special meeting. CEO Dr. Herbert Diess announced major product decisions: a reorientation of the diesel strategy with the most advanced technologies, the development of a standardized electric architecture for passenger cars and light commercial vehicles, and a new approach for the next generation of the Phaeton.

The author contends that the diesel industry as a whole is a potential victim of VW's scandal and questions whether the scandal will taint the proven benefits of clean diesel technology.

Following revelations that Volkswagen cheated on emissions tests, the automaker is anticipating a decline in sales. VW is also cutting production and freezing hiring.

Sens said that Volkswagen AG should repay more than $200 million in ill-gotten tax credits over its alleged use of software to cheat emissions testing and urged the U.S. Environmental Protection Agency to set the maximum possible fine.

Toyota Motor Corp announced that it is targeting a 90% reduction in emissions from its new vehicles by 2050. The chairman also said that Volkswagen's rigging of diesel engines with software has damaged trust in the industry.

Volkswagen announced that it will cut investment plans at its biggest division by $1.1 billion a year and step up development of electric vehicles as it battles to cope with the fallout from its cheating of diesel emissions tests.

Volkswagen AG said that Vahland decided to leave because of conflicting ideas about the structuring of the division and explicitly said that his resignation isn't connected to the emissions testing scandal embroiling the company. Vahland had been appointed at the same time Matthias Muller took the German automaker's reins after its previous CEO stepped down last month.

Volkswagen division head Herbert Diess announced that the company would adopt selective catalytic converter technology, which is a system that injects the chemical substance urea into the exhaust stream to neutralize harmful nitrogen oxides.

US regulators contend that they have a lot more questions for Volkswagen, which was triggered by the company's recent disclosure of additional suspect engineering of 2016 diesel models that potentially would help exhaust systems run cleaner during government tests.

In six separate petitions all filed in state court in Dallas, plaintiffs including Mark Azam, Placido Ballariano and nearly 100 others made nearly identical claims arising from the U.S. Environmental Protection Agency's announcement last month that certain Volkswagen AG diesel models were fitted with a so-called "defeat device" software.

At least 30 managers were involved in Volkswagen's emissions test cheating, German magazine Spiegel reported. Spiegel, citing preliminary results of probes by law firm Jones Day and Volkswagen itself, said the dozens of managers would be suspended.

Volkswagen has exposed the deep conflicts in the world of European emissions testing, where car manufacturers hire outside firms to certify their pollution controls in laboratories. Not only is TÜV Nord at the forefront of finding a new testing regimen for automakers, but it is also the company that signed off on VW's emissions tests in Europe.

At the present time, New Yorkers who own affected Volkswagens will not be prevented from driving their cars," Department of Motor Vehicles spokesman Joe Morrissey told the Democrat and Chronicle

Volkswagen has used two basic types of technology to reduce emissions of nitrogen oxides from diesel engines, by either trapping the pollutants or treating them with urea.

Paul Willis, managing direct of VW UK, claims that the company's cars have not emitted any more toxic nitrogen oxides than expected, despite the use of cheat devices which drastically reduced
pollution emissions in official tests.

Volkswagen deserves to suffer "substantial damage" because of the diesel emissions scandal that has rocked the carmaker and affected 11m vehicles worldwide, the British transport secretary has told MPs.

Italian authorities have searched the headquarters of Volkswagen Italia as part of a local investigation into the emissions testing scandal at the German automaker. Volkswagen bought a full-page advertisement in Turin daily La Stampa on Tuesday apologizing for the "grave error" and promising to do everything to win back the trust of Italians.

Regulators say they have more questions for Volkswagen, triggered by the company's recent disclosure of additional suspect software in 2016 diesel models that potentially would help exhaust systems run cleaner during government tests. The delay means that thousands of 2016 Beetles, Golfs and Jettas will remain quarantined in U.S. ports until a fix can be developed, approved and implemented.

A lot of this could have been avoided with a carbon tax. A carbon tax would not help reduce local air pollutants such as NOx so it would not replace all auto pollution regulations. But it could supplant those that aim to reduce carbon emissions from vehicles.

Volkswagen AG to conduct a mandatory recall of diesel models installed with software that cheats emission tests. Winfried Vahland, the chief executive of the auto maker's Skoda Auto business and CEO-designate of a new organization that would group its U.S., Canadian and Mexican operations, resigned abruptly.

German authorities on Thursday ordered a recall of all Volkswagen cars fitted with emissions test-cheating software, a decision that will affect 8.5 million VW diesel vehicles across the 28-nation European Union.

The move reflects the difficulty that Volkswagen faces in fixing the 11 million vehicles worldwide that contain a so-called defeat device, which effectively lowered emissions for testing purposes. The company is indicating that the repairs may stretch beyond the end of 2016.

The U.S. attorney's office in Detroit and the Justice Department's Fraud Section joined a sweeping federal probe of Volkswagen AG over emissions-test cheating signaling the government's intent to cast a broad net and explore numerous paths to a possible criminal case. The involvement of the U.S. attorney in Detroit, Barbara McQuade, signals her office may take a key role in what is expected to be a major case.

Research suggests there may have been hints of the still unfolding diesel emissions scandal at Volkswagen AG hidden in corporate sustainability reports.

Volkswagen has announced that they've hired Christine Hohmann-Dennhardt as an executive on its top management body tasked with integrity and legal affairs. Hohmann-Dennhardt begins on January 1 and has served as a judge on Germany's Federal Constitutional Court and as justice minister.

The VW Group brands grew deliveries by 3.5 percent on the overall European market in the first three quarters, handing over a total of 3.07 million vehicles to customers. Between January 2015 to September 2015, 453,500 delivers were made to customers in the United States, which is a 3.2% increase over last year.

The scandal around Volkswagen AG won't have a direct impact on trade talks between the European Union and the U.S., though it's bad for the company's trustworthiness, EU Trade Commissioner Cecilia Malmstrom said

Prosecutors investigating Volkswagen's use of emissions test-cheating software in some of its diesel engines say they're putting together a group of about 20 investigators to evaluate the massive amount of data seized from the car manufacturer.

Volkswagen saw its market share in Europe drop fractionally in September, when its emissions scandal broke mid-month, as its sales growth lagged the wider market. However, VW Group sales, comprising all VW brands including its luxury marquees, rose by 8.4 percent in the European Union.

The European carmaker's association ACEA said Friday that sales of VW brand cars in the EU rose by 6.6 percent, while the group's overall sales, also including other brands, were up 8.4 percent.

Even after quitting as chief executive of the carmaker on Sept. 23, Winterkorn continued to hold the title of chief executive of Porsche Automobile Holding SE, which owns more than half of Volkswagen's voting shares. Winterkorn will resign as chief executive of the company that holds a majority of Volkswagen shares, which will end his formal influence over the carmaker.

French authorities have searched the headquarters of Volkswagen France as part of a local investigation into the emissions testing scandal and seized computer equipment.

Even as Volkswagen embarks on the task of fixing the emissions systems it disabled on almost 500,000 of its diesel vehicles in the United States, the automaker faces another hurdle: persuading owners to make the repair at all. So for owners, the prospect of having a car's emissions cleaned up, only to have the car perform worse — whatever the pollution — is not sitting well

Gary Bishop and Donald Stedman of the University of Denver, cited test data from California and Colorado showing that, beginning in 2008 and through 2014, emissions from passenger cars with 2.0-liter class diesel engines were significantly higher than allowed by USEPA Tier 2 emissions standards.

Pricing starts at $22,440 for the 1.8T S model with automatic transmission. At the top, the 1.8T range, the SEL Premium starts at $34,270.

VW issued a voluntary safety recall affecting the Passenger Occupant Detection System (PODS) control module on certain 2015 model year Volkswagen e-Golf, Golf and Jetta vehicles.

Volkswagen's betrayal ripples on: Lane relied on Green Car Journal, which, in making its now-rescinded award, relied on data from the Environmental Protection Agency, which, in turn, relied on the honesty of Volkswagen. That trust has been broken.

Volkswagen AG may have to consider an overhaul of a 12-brand empire built in the last two decades that makes everything from cheap cars to motorbikes to heavy trucks.

Frank Tuch, Volkswagen's head of quality control, is the fifth high-ranking executive to be suspended in connection with revelations that 11 million Volkswagen vehicles were equipped with software designed to trick emissions tests

Volkswagen said 2.6 billion euros ($3 billion) of loans or leases for vehicles built with engines using emissions=cheating software were packaged into asset-backed securities. The loans were found in 15 securitizations.

Volkswagen's employee council and Germany's biggest industrial union are demanding "transparency at all levels" of the company following the emissions-rigging scandal.

With billions of dollars at stake in restitution and penalties,
U.S. states are moving quickly to try to hold Volkswagen accountable for its emissions cheating scandal. But, "[u]ntil the criminal case clears, nobody is going to talk civil. Volkswagen will not settlement until the criminal investigations are resolved," said James Tierney.

Over two thirds of German consumers (65 percent) believe that the embattled German carmaker still builds "outstanding" cars and that the emissions scandal was overdone. 63 percent either agreed or strongly agreed that the emissions scandal would be forgotten and, within a year, no one would be discussing the affair surrounding the rigged diesel engines

Police raided two Volkswagen offices near Paris. Volkswagen officials have confirmed the raids and said that they are cooperating with French officials to uncover the truth behind the worsening scandal surrounding emissions-test-cheating software installed on a range of Volkswagen's diesel vehicles.

The German state of Lower Saxony has filed a criminal complaint after discovering that a file on scandal-hit Volkswagen had disappeared. A spokeswoman for the state government says the file, which included internal government memos on the emissions

Volkswagen AG's "dieselgate" isn't the only scandal involving the German automaker, as the company's major shareholder, Porsche SE, and its two former executives face a trial on market manipulation charges. When VW managers called for clean diesel without the urea system, "they must have known that it's impossible, or else it's not possible they have degrees as engineers," Dudenhöffer says.

It's not credible that top managers were unaware corners had been cut, says Dudenhöffer, who worked at Porsche and other carmakers before entering academia. VW is a company where the engineers are in charge.

VW ordered a halt to sales in Europe of all models that feature diesel engines equipped with defeat devices meant to falsify emissions compliance, the latest in a global scandal expected to cost the German automaker billions of dollars. Volkswagen told Reuters that this stop-sale only affects a small number of vehicles, and those cars would be sold once fixed.

Volkswagen may have to set aside more than the 6.5 billion euros ($7.4 billion) it has so far allocated to cover the costs of an emissions scandal if car sales suffer.

Norwegian shipowner I.M. Skaugen has disclosed it is seeking $50 million in compensation from a marine unit of Volkswagen for rigging performance tests of ship engines produced over a decade ago. I.M. Skaugen sees similarities between MAN's handling of the ship engine tests under VW ownership and the German company's response to the biggest scandal in its 78-year history

Volkswagen said it was investigating whether some versions of another diesel motor line, known as the EA 288, also had software intended to detect when a vehicle was undergoing emissions testing and turn on pollution controls. The EA 288 was installed in cars sold in the United States.

The news follows a slow drip of circumstantial evidence suggesting that its doctoring of emissions data involved more people and more cars than previously admitted. If substantiated, that could lead to VW facing far larger fines and criminal penalties than reckoned with so far.

The automaker asked a panel of federal judges to combine the more than 350 lawsuits against it in federal court in Alexandria, Va., a venue known for moving cases quickly and also the one closest to its U.S. headquarters in Herndon. Volkswagen listed Detroit as an alternate choice, while opposing requests by some car owners' lawyers to send the case to California.

Volkswagen AG said its current-generation diesel engine doesn't have software designed to cheat on emissions tests, meaning its global recall of as many as 11 million cars won't need to be even bigger. "After a thorough review it is now clear" that the offending software isn't installed in vehicles with EA 288 motors built under previous Euro-5 standards, Volkswagen said.

VW plans to recall 17,057 Amarok pickup trucks sold in Brazil to correct software allowing the vehicles to cheat on emissions tests. The recall affects Amaroks with 2.0-liter diesel engines built in Argentina during model year 2011 and part of 2012.

The German carmaker will need to install parts for vehicles already on the road that weren't designed to accommodate the equipment. The work may need to be done in special shops set up for the purpose. And it will have to pass muster with dozens of countries with their own regulations.

The strategy focuses on positioning the Volkswagen Group as a global economic and environmental leader among automobile manufacturers.

Source	Link to Article
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-emissions-targets-page-2
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-how-diesels-differ-page-3
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-from-pt-cruisers-to-audis-page-4
Car and Driver	http://www.caranddriver.com/features/diesels-last-stand-will-diesels-succeed-in-america-page-5
Blomberg Business	http://www.bloomberg.com/bw/stories/2009-06-30/clean-diesel-is-coming-clean-diesel-is-coming-businessweek-business-news-stock-market-and-financial-advice
Edmunds	http://www.edmunds.com/car-news/new-diesel-engine-set-for-2015-volkswagen-golf-beetle-passat-and-jetta.html
Fortitude New	http://fourtitude.com/news/Audi_News_1/the-station-tdi-commercial-from-audi-may-prove-familiar-for-current-diesel-owners/
VW US Media Newsroom	https://media.vw.com/release/1064/
The New York Times	http://www.nytimes.com/2015/09/19/business/volkswagen-is-ordered-to-recall-nearly-500000-vehicles-over-emissions-software.html?_r=0

The Guardian	http://www.theguardian.com/business/2015/sep/18/epa-california-investigate-volkswagen-clean-air-violations
CNET	http://www.cnet.com/news/volkswagen-audi-accused-of-using-software-to-cheat-us-diesel-emissions-tests/
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-09-18/epa-says-volkswagon-software-circumvented-car-emissions-testing
NPR	http://www.npr.org/sections/thetwo-way/2015/09/18/441467960/volkswagen-used-defeat-device-to-skirt-emissions-rules-epa-says
The Los Angeles Times	http://www.latimes.com/business/autos/la-fi-hy-volkswagen-probe-20150918-story.html
VW US Media Newsroom	http://media.vw.com/release/1066/
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3242211/VW-chief-sorry-EPA-says-firm-skirted-clean-air-law.html
The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NUXWZM6JTSE901-44SIDIDMH3F
Newsweek	http://www.newsweek.com/volkswagen-epa-cheat-recall-374698
ClimateWire	http://www.scientificamerican.com/article/volkswagen-uses-software-to-fool-epa-pollution-tests/

GizMag	http://www.gizmag.com/volkswagen-emissions-defeat-device/39507/
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-09-22/volkswagen-owners-want-payback-over-pollution-control-cheating
The New York Times	http://www.nytimes.com/2015/09/23/business/international/volkswagen-diesel-car-scandal.html
The Wall Street Journal	http://www.wsj.com/articles/volkswagen-emissions-scandal-relates-to-11-million-cars-1442916906
Reuters	http://www.reuters.com/article/2015/09/22/us-usa-volkswagen-lawyers-idUSKCN0RM2QZ20150922
NPR	http://www.npr.org/sections/thetwo-way/2015/09/22/442457697/11-million-cars-worldwide-have-emissions-problem-volkswagen-says
The Wall Street Journal	http://www.wsj.com/articles/epa-accuses-volkswagen-of-dodging-emissions-rules-1442595129
ABC News	http://www.abc.net.au/news/2015-09-22/vw-admits-11-million-cars-have-pollution-test-cheating-device/6796740
CNBC	http://www.cnbc.com/2015/09/21/
Lawyers and Settlement	http://www.lawyersandsettlements.com/articles/defective_products/Volkswagen-emissions-deception-20931.html#.Vifa8P_luUk

CBS New York	http://newyork.cbslocal.com/2015/09/22/n-y-attorney-generals-office-volkswagen/
NY Attorney General Office	http://www.ag.ny.gov/press-release/statement-ag-schneiderman-volkswagen-investigation
Live Mint	http://www.livemint.com/Opinion/hZnXw6ZOlF10og07i69FRO/Volkswagens-diesel-fraud-goes-beyond-regulatory-failure.html
VW US Media Newsroom	http://media.vw.com/release/1070/
VW US Media Newsroom	http://media.vw.com/release/1071/
BC Local News	http://www.bclocalnews.com/business/328857951.html
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3246844/Did-Merkel-cover-Volkswagen-scandal-car-maker-s-boss-quits-German-leader-accused-accepting-trickery-wink.html
The Guardian	http://www.theguardian.com/business/2015/sep/22/vw-scandal-caused-nearly-1m-tonnes-of-extra-pollution-analysis-shows
NY Magazine	http://nymag.com/daily/intelligencer/2015/09/vws-clean-diesel-ads-now-make-us-feel-dirty.html
The Guardian	http://www.theguardian.com/money/2015/sep/24/volkswagen-emission-scandal-how-it-affects-you
Reuters	http://in.reuters.com/article/2015/09/24/usa-volkswagen-letters-idINKCN0RO0NG20150924
The Globe and Mail	http://www.theglobeandmail.com/report-on-business/rob-commentary/volkswagen-committed-the-cardinal-sin-of-greenwashing-lying/article26500698/
KCCI Des Moines	http://www.kcci.com/news/class-action-lawsuit-filed-against-iowa-volkswagen-dealers/35468190

NBC29	http://www.nbc29.com/story/30110806/va-attorney-general-multistate-investigation-into-volkswagen
Fox News	http://www.foxnews.com/world/2015/09/24/german-ministers-reportedly-were-warned-vw-test-beating-software/
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3248287/Test-diesel-UK-Volkswagen-storm-grows-minister-orders-urgent-checks-models.html
Aljazeera America	http://america.aljazeera.com/articles/2015/9/24/volkswagen-set-to-fire-executives-appoint-new-ceo.html
Reuters	http://www.reuters.com/article/2015/09/24/us-usa-volkswagen-deception-insight-idUSKCN0RO2IP20150924
Big Class Action	http://www.bigclassaction.com/lawsuit/volkswagen-faces-canadian-class-action-over.php
Vox	http://www.vox.com/2015/9/23/9383641/volkswagen-scandal-pollution
The Guardian	http://www.theguardian.com/business/2015/sep/25/volkswagen-appoint-porsche-matthias-muller-new-boss
BBC News	http://www.bbc.com/news/business-34324772
VW US Media Newsroom	http://media.vw.com/release/1073/
VW US Media Newsroom	http://media.vw.com/release/1074/

VW US Media Newsroom	http://media.vw.com/release/1075/
VW US Media Newsroom	http://media.vw.com/release/1076/
USA Today	http://www.usatoday.com/story/money/cars/2015/09/25/epa-volkswagen-emissions-testing/72793818/
BNA Daily Environment Report	https://convergenceapi.bna.com/ui/public/content/articlePrint/243532800000000418/43871
The Telegraph	http://www.telegraph.co.uk/news/uknews/road-and-rail-transport/11893851/VW-scandal-Cover-up-of-British-tests-that-showed-diesel-fume-cheating.html
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3249964/EU-environment-watchdogs-uncovered-evidence-use-defeat-devices-car-manufacturers-FOUR-years-ago.html
E-Discovery	https://ballinyourcourt.wordpress.com/2015/09/27/fahrvergnugen-ediscovery-in-the-volkswagen-vortex/
Ars Technica	http://arstechnica.com/cars/2015/09/report-vw-was-warned-about-cheating-emissions-in-2007/
The D&O Diary	http://www.dandodiary.com/2015/09/articles/securities-litigation/volkswagen-vehicle-emissions-scandal-triggers-u-s-securities-suit-dutch-collective-action-initiative/
Detroit Free Press	http://www.freep.com/story/money/cars/2015/09/26/vw-cheat-emissions-diesel-engine-fallout/72612616/
The New York Times	http://www.nytimes.com/2015/09/29/upshot/how-many-deaths-did-volkswagens-deception-cause-in-us.html

The Telegraph	http://www.telegraph.co.uk/finance/newsbysector/industry/11895848/BREAKING-2.1-million-Audi-cars-fitted-with-VW-emissions-cheat-devices.html
International Business Times	http://www.ibtimes.co.uk/audi-admits-2-1-million-cars-use-vw-emissions-cheat-software-1521512
Car and Driver	http://blog.caranddriver.com/report-bosch-warned-vw-about-diesel-emissions-cheating-in-2007/
Houston Chronicle	http://www.houstonchronicle.com/news/houston-texas/houston/article/Harris-County-seeks-millions-from Volkwagen-for-6538895.php
The City Lab	http://www.citylab.com/crime/2015/09/texas-sues-vw-for-100-million-over-its-emissions-scandal/408163/
The New York Times	http://www.nytimes.com/2015/10/01/opinion/test-emissions-where-cars-pollute-on-the-road.html
Houston Press	http://www.houstonpress.com/news/harris-county-attorney-vince-ryan-is-of-course-suing-volkswagen-7804745
Reuters	http://www.reuters.com/article/2015/09/30/volkswagen-emissions-texas-idUSL1N12028T20150930
The Daily Mail UK	http://www.dailymail.co.uk/news/article-3254533/We-crooks-Volkswagen-admits-Board-member-says-knew-emissions-test-cheating-acted-criminally.html
Lawyers and Settlement	http://www.lawyersandsettlements.com/articles/vw/interview-volkswagen-lawsuit-vw-volkswagon-3-20951.html#.VifvXv_luUk
VW US Media Newsroom	http://media.vw.com/release/1081/
Lawyers and Settlement	http://www.lawyersandsettlements.com/articles/vw/texas-sues-vw-20952.html#.Vif8kf_luUk

Video News	http://news.videonews.us/switzerland-bans-volkswagens-in-wake-of-scandal-0234256.html
The New York Times	http://www.nytimes.com/2015/10/03/business/us-states-jumping-into-investigation-of-vw-emissions-deception.html
Global Edition Handelsblatt	https://global.handelsblatt.com/edition/276/ressort/companies-markets/article/investigating-the-scene-of-the-crime
The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NVP5HP6S972I01-2LC9JT1NONIAV
The Wall Street Journal	http://www.wsj.com/articles/volkswagen-evaluating-emissions-scandals-impact-on-companys-finances-1443980626
Associated Press	http://bigstory.ap.org/article/3233bd7a816148299ec681542d33c4c5/merkel-calls-vw-clear-emissions-rigging-scandal
Associated Press	http://bigstory.ap.org/article/a6925f0af82e44aaa1a1ed4b55d030f6/ap-analysis-dozens-deaths-likely-vw-pollution-dodge
Business World	http://www.independent.ie/business/world/secondhand-volkswagen-cars-may-lose-value-following-emissions-scandal-31579692.html
The New York Times	http://www.nytimes.com/2015/10/05/business/engine-shortfall-pushed-volkswagen-to-evade-emissions-testing.html
USA Today	http://www.usatoday.com/story/money/cars/2015/10/04/volkswagen-emissions-crisis/73356630/
TIME	http://time.com/4062216/volkswagen-testing-center-scandal/
Associated Press	http://bigstory.ap.org/article/e38d40286de345ec84d2f11da64c2646/volkswagen-costs-scandal-will-be-piling
The New York Times	https://convergenceapi.bna.com/ui/content/articleStandalone/243538320000000394/43871

Reuters	http://in.reuters.com/article/2015/10/05/volkswagen-emissions-eu-idINKCN0RZ24R20151005
Fox News	http://www.foxnews.com/world/2015/10/05/vw-tells-german-lawmakers-8m-cars-in-eu-affected-by-probe-into-rigged-emissions/
The Columbia Dispatch	http://www.dispatch.com/content/stories/local/columbus-answers/why-didnt-state-e-checks-catch-vw-scam.html
TIME	http://time.com/4061462/volkswagen-engineers-scandal/
Newsweek	http://europe.newsweek.com/volkswagen-scandal-why-it-falling-u-s-regulate-europe-334021
The San Diego Union-Tribune	http://www.sandiegouniontribune.com/news/2015/oct/05/tp-engine-shortfall-said-to-push-vw-to-cheat/
The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NVQXO66KLVR801-7PPEJQ0SORP54MLHUEI8K0M8BB
Philadelphia Business Journal	http://www.bizjournals.com/philadelphia/morning_roundup/2015/10/volkswagen-dieselgate-legal-ethics-silverman.html
Bloomberg Politics	http://www.bloomberg.com/politics/articles/2015-10-05/tennessee-reviews-clawbacks-for-vw-tax-incentives-after-cheating
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-09-25/volkswagen-sued-by-pension-fund-over-diesel-emissions-scandal
BNA - Daily Environment Report	https://convergenceapi.bna.com/ui/public/content/articlePrint/243532800000000433/43871

The Washington Post	http://washpost.bloomberg.com/Story?docId=1376-NVLDR96S972K01-7NTHLKP2OSII4IONAL5VB2AQAM
The Wall Street Journal	http://www.wsj.com/articles/vw-emissions-probe-zeroes-in-on-two-engineers-1444011602
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-06/volkswagen-sued-by-west-virginia-over-clean-diesel-claims-ifer2tox
ASQ	http://asq.org/qualitynews/qnt/execute/displaySetup?newsID=20888
Extreme Tech	http://www.extremetech.com/extreme/215615-early-report-sheds-first-light-on-why-vw-cheated-chairman-warns-scandal-could-kill-the-company
BNA State Environment Daily	http://www.bna.com/west-virginia-sues-n57982059134/
VW US Media Newsroom	http://media.vw.com/release/1085/
Blomberg Business	http://www.bloomberg.com/news/articles/2015-10-06/vw-ceo-faces-employees-on-diesel-scandal-as-cost-cuts-loom
GasBuddy	https://blog.gasbuddy.com/posts/Volkswagen-wasn-t-the-first-Auto-Scandal/1715-626560-3325.aspx
Associated Press	http://bigstory.ap.org/article/e77d5ab90cea49a4a69a175b21c5aa2d/new-vw-chief-brief-workers-fallout-scandal
Fox News	http://www.foxnews.com/world/2015/10/06/costs-from-scandal-piling-up-for-volkswagen-with-spot-as-no-1-carmaker-likely/
The Washington Post	http://www.washingtonpost.com/business/get-there/the-real-question-what-will-vws-cheating-scandal-cost-car-owners/2015/10/05/11ca840a-6b8e-11e5-b31c-d80d62b53e28_story.html

Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-04/volkswagen-chief-warns-of-existential-threat-of-cheating-scandal
CNBC	http://www.cnbc.com/2015/10/04/volkswagens-uniquely-awful-governance-at-fault-in-emissions-scandal.html
UCSD Guardian	http://ucsdguardian.org/2015/10/04/blissful-ignorance/
TimesLive	http://www.timeslive.co.za/motoring/2015/10/04/Several-VW-engineers-admit-to-installing-cheat-device-report
The Telegraph	http://www.telegraph.co.uk/finance/newsbysector/industry/11916115/VW-scandal-Volkswagen-to-start-fixing-emissions-rigged-diesel-cars-in-January.html
Rodexo	http://en.rodexo.com/2015/10/06/vw-ceo-deception-stemmed-from-german-hq/
VW US Media Newsroom	http://media.vw.com/release/1087/
France 24	http://www.france24.com/en/20151008-volkswagen-us-horn-knew-possible-emissions-problem-2014
Texas Attorney General	https://www.texasattorneygeneral.gov/news/releases/texas-sues-volkswagen-and-audi-over-deceptive-trade-practices-environmental
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-08/texas-sues-volkswagen-claiming-deception-emissions-violations-ifiqscqq
Extreme Tech	https://www.extremetech.com/extreme/215921-das-blunder-vw-blames-engineers-not-execs-for-diesel-woes-then-bails-on-us-diesels

CBS 6 TV	http://wtvr.com/2015/10/08/volkswagen-hq-raided-by-german-police/
Reuters	http://www.reuters.com/article/2015/10/09/us-volkswagen-emissions-idUSKCN0S217M20151009
Baltimore News	http://www.baltimorenews.net/index.php/sid/237492687
Los Angeles Times	http://www.latimes.com/business/la-fi-vw-pollution-footprint-20151007-htmlstory.html
The Guardian	http://www.theguardian.com/environment/2015/oct/09/mercedes-honda-mazda-mitsubishi-diesel-emissions-row
City Hall Blog	http://cityhallblog.dallasnews.com/2015/10/dallas-decides-not-to-go-after-volkswagen-over-air-quality-after-state-files-lawsuit-thursday.html/
Reuters	http://www.reuters.com/article/2015/10/09/volkswagen-emissions-california-idUSL8N1293RN20151009
The Chicago Tribune	http://www.bloomberg.com/news/articles/2015-10-07/used-car-shoppers-haven-t-stopped-buying-volkswagen-s-dirty-diesels
Trib Live	http://triblive.com/business/headlines/9240139-74/cars-horn-owners#axzz3pJXVs0N1

SFGate	http://www.sfgate.com/news/article/Schumer-Volkswagen-fine-should-include-rebates-6564538.php
JM&A Group	http://www.autonews.com/article/20151011/OEM11/151019998?template=printart
The Christian Science Monitor	http://www.csmonitor.com/Business/In-Gear/2015/1011/The-Volkswagen-debacle-could-cost-25-billion
The Orange County Register	http://www.ocregister.com/articles/diesel-687253-berman-emissions.html
The Kansas City Star	http://www.kansascity.com/news/business/national-international/article38798238.html
El Paso Herald-Post	http://elpasoheraldpost.com/texas-sues-volkswagen-over-emissions-cheating/
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-12/vw-loans-for-clean-engine-development-under-scrutiny-eib-says
The Salt Lake Tribune	http://www.sltrib.com/home/3055487-155/sp-cuts-volkswagens-credit-rating-to
CNBC	http://www.cnbc.com/2015/10/12/business-wire-sloan-bagley-hatcher-perry-law-firm-well-equipped-to-support-consumers-affected-by-volkswagen-emissions-scandal-with-depth.html

Chattanooga Times Free Press	http://www.bloomberg.com/research/markets/news/article.asp?docKey=600-201510130403KRTRIB__BUSNEWS_2013_63316-1
The Detroit News	http://www.detroitnews.com/story/business/autos/2015/10/13/ann-arbor-epa-lab-diesel-tests-vw-scandal/73888296/
The Equation	http://blog.ucsusa.org/automaker-rankings-revisited-does-volkswagen-now-have-the-dirtiest-tailpipe-922
ABQ Journal	http://www.abqjournal.com/659148/biz/biz-most-recent/dicaprio-paramount-option-volkswagen-scandal-book-proposal.html
The Salt Lake Tribune	http://www.sltrib.com/home/3057944-155/vw-fallout-training-center-plan-postponed
Los Angeles Times	http://www.latimes.com/business/la-fi-1014-volkswagen-diesel-change-20151013-story.html
New York Times	http://www.nytimes.com/2015/10/14/business/dealbook/takingmeasure-of-volkswagens-cooperat
Reuters	http://www.reuters.com/article/2015/10/13/volkswagen-emissions-epa-idUSL1N12D2A220151013
The New York Times	http://www.nytimes.com/2015/10/14/business/international/volkswagen-diesel-emissions.html?
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-13/volkswagen-to-cut-spending-by-1-1-billion-amid-diesel-scandal
CNBC	http://www.cnbc.com/2015/10/13/vw-to-cut-investment-in-core-brand-to-cope-with-scandal.html

The Wall Street Journal	http://www.wsj.com/articles/vw-scandal-raises-scrutiny-of-emissions-tests-and-diesel-pollution-in-europe-1444728624
USA Today	http://www.usatoday.com/story/money/business/2015/10/13/vw-unveils-new-strategy-after-emissions-fiasco/73855160/
VW US Media Newsroom	http://media.vw.com/release/1088/
Providence Journal	http://www.providencejournal.com/article/20151014/OPINION/151019713
NPR	http://www.npr.org/2015/10/14/448544863/germans-worry-volkswagen-s-problems-could-drag-down-country-s-economy
Law360	http://www.law360.com/articles/714146/sens-demand-vw-return-200m-in-tax-credits
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-14/toyota-targets-90-emissions-drop-by-2050-as-fuel-cells-ramp-up
Trib Live	http://triblive.com/business/headlines/9259097-74/vehicles-volkswagen-division?printerf#axzz3pEurr0ll
Law360	http://www.law360.com/articles/714165/volkswagen-north-america-ceo-quits-after-three-weeks
Denver Post	http://www.denverpost.com/business/ci_28965367/volkswagen-change-its-diesel-emissions-technology

The Guardian	http://www.theguardian.com/business/2015/oct/15/volkswagen-secret-emissions-tool-in-2016-cars-is-separate-from-defeat
Law360	http://www.law360.com/articles/714464/vw-hit-with-texas-consumer-suits-over-emissions-software
St. Louis Post-Dispatch	http://www.stltoday.com/business/local/at-least-managers-were-involved-in-vw-emissions-cheating/article_8c4ddf95-3775-5f72-a837-4421605742e2.html
The New York Times	http://www.nytimes.com/2015/10/15/business/international/cozy-relations-complicate-europes-bid-for-new-car-tests.html?partner=rss&emc=rss
Democrat and Chronicle	http://www.democratandchronicle.com/story/news/2015/10/14/dmv-volkswagen-inspections/73915598/
The New York Times	http://www.nytimes.com/interactive/2015/business/international/vw-diesel-emissions-scandal-explained.html?_r=0
The Guardian	http://www.theguardian.com/environment/2015/oct/15/uk-volkswagen-boss-denies-cars-emitted-higher-pollution-than-expected
The Guardian	http://www.theguardian.com/business/2015/oct/12/vw-volkswagen-diesel-emissions-deserves-to-suffer-substantial-damage-uk-minister-says
Fox News	http://www.foxnews.com/world/2015/10/15/italy-police-search-vw-offices-in-verona-as-part-local-investigation-into/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+foxnews%2Fworld+%28Internal+-+World+Latest+-+Text%29

Trib Live	http://triblive.com/business/headlines/9264332-74/software-company-emissions#ixzz3odaYWsPq
The Christian Science Monitor	http://www.csmonitor.com/Business/Tax-VOX/2015/1015/Could-a-carbon-tax-have-prevented-the-Volkswagen-scandal
MorningStar	http://news.morningstar.com/all/dow-jones/durables/201510155553/volkswagen-suspends-4th-engineer-berlin-orders-mandatory-recall-update.aspx
The Spokeman-Review	http://www.spokesman.com/stories/2015/oct/15/german-order-triggers-recall-of-85-million-vw-cars/
The New York Times	http://www.nytimes.com/2015/10/16/business/international/volkswagen-germany-recall.html?sm
The Wall Street Journal	http://www.wsj.com/articles/u-s-pursues-several-paths-in-volkswagen-probe-1444938924?mod=rss_law&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+wsj%2Fxml%2Frss%2F3_7091+%28WSJ.com%3A+Law%29
BBNA Convergence	http://www.bna.com/vw-sustainability-reports-n57982059519/
The Charlotte Observer	http://www.charlotteobserver.com/news/nation-world/world/article39384090.html

VW US Media Newsroom	http://media.vw.com/release/1090/
Bloomberg	http://www.bloomberg.com/news/articles/2015-10-16/vw-scandal-won-t-harm-u-s-eu-trade-accord-talks-malmstrom-says
Fox News	http://www.foxnews.com/world/2015/10/16/german-investigators-putting-together-special-team-for-vw-case-to-deal-with/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+foxnews%2Fworld+%28Internal+-+World+Latest+-+Text%29
The Charlotte Observer	http://www.charlotteobserver.com/news/business/national-business/article39382224.html
Fox News	http://www.foxnews.com/world/2015/10/16/volkswagen-sales-in-europe-rise-in-september-despite-emissions-scandal/
Bloomberg BNA	https://convergenceapi.bna.com/ui/content/articleStandalone/243607440000000340/438719?redirect=1&ReportGuid=944CA8B3-72AB-48B3-9F5A-C44AE2127890
Fox News	http://www.foxnews.com/world/2015/10/18/french-police-search-vw-offices-as-part-local-investigation-into-emissions/
New York Times	http://www.nytimes.com/2015/10/19/business/the-owner-has-a-crucial-part-in-volkswagen-diesel-repair.html?partner=rss&emc=rss
Jalopnik	http://jalopnik.com/did-one-company-spot-volkswagens-diesel-deception-six-y-1737309474

VW US Media Newsroom	http://media.vw.com/release/1091/
VW US Media Newsroom	http://media.vw.com/release/1091/
Congresswoman Diana Degette News	http://degette.house.gov/media-center/in-the-news/volkswagen-s-long-and-winding-road-ahead
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-19/vw-s-12-brand-behemoth-under-scrutiny-as-costs-of-scandal-mount
The New York Times	http://www.nytimes.com/2015/10/21/business/volkswagen-suspends-5th-executive-in-emissions-scandal.html?_r=0
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-20/volkswagen-scandal-impacts-3-billion-of-securitized-car-loans
The Salt Lake Tribune	http://www.sltrib.com/home/3082117-155/vw-employee-reps-union-demand-transparency
St. Louis Post-Dispatch	http://www.stltoday.com/news/national/govt-and-politics/eyeing-major-settlement-us-states-move-quickly-in-vw-case/article_793c7bf1-9693-5e09-bcd9-f56e1e3fa616.html
CNBC	http://www.cnbc.com/2015/10/20/volkswagens-brand-value-still-high-with-german-consumers-survey.html
The Christian Science Monitor	http://www.csmonitor.com/Business/In-Gear/2015/1020/Volkswagen-offices-raided-this-time-in-France
US News & World Report	http://www.usnews.com/news/business/articles/2015/10/21/german-state-files-criminal-complaint-over-missing-vw-file

Bloomberg News	http://www.bloomberg.com/news/articles/2015-10-21/porsche-manipulation-trial-kicks-off-amid-vw-emissions-scandal
Bloomberg Business+E178	http://www.bloomberg.com/news/articles/2015-10-21/how-could-volkswagen-s-top-engineers-not-have-known-
CNET	http://www.cnet.com/news/volkswagen-european-diesel-stop-sale/
First Post	http://www.firstpost.com/fwire/volkswagen-ceo-says-emissions-scandal-bill-could-rise-reuters-2477880.html
Reuters	http://www.businessinsider.com/r-dispute-over-rigged-ship-engine-tests-adds-to-volkswagens-woes-2015-10
The New York Times	http://www.nytimes.com/2015/10/23/business/international/volkswagen-diesel-investigation.html
Fortune	http://fortune.com/2015/10/22/now-volkswagens-newest-diesel-engines-are-under-suspicion/
Automotive News	http://www.autonews.com/article/20151022/OEM11/151029943/volkswagen-asks-to-combine-fraud-claims-in-virginia-or-detroit
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-22/volkswagen-says-recall-will-be-limited-to-older-diesel-engines

Reuters	http://www.reuters.com/article/2015/10/22/us-volkswagen-emissions-brazil-idUSKCN0SG1N720151022
Bloomberg Business	http://www.bloomberg.com/news/articles/2015-10-22/vw-s-emissions-retrofit-may-be-among-costliest-recalls-ever
VW	http://www.volkswagenag.com/content/vwcorp/content/en/investor_relations/Warum_Volkswagen/Strategy.html

To: Grundler, Christopher[grundler.christopher@epa.gov]; Alberto Ayala[Alberto.Ayala@arb.ca.gov]; Bunker, Byron[bunker.byron@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Mike McCarthy[michael.mccarthy@arb.ca.gov]
From: Drew Kodjak
Sent: Thur 10/22/2015 10:24:38 PM
Subject: Confidential - EU NGOs to announce another diesel car with excessive real world emissions

Chris, Alberto, Byron, Jim and Mike
This is a heads up that a group of European NGOs are expected to announce later today that they have found another European diesel passenger car with excessive NOx emissions during non-type approval testing.

The vehicle is an Opel Zafira 1.6 liter diesel engine. The emissions were 17 times higher on a 4 wheel dyno than on a 2 wheel test. Also, when they turned off the urea injector for the NOx control system the engine still started (which it's not supposed to do in Europe) and the on-board diagnostics light did NOT turn on (which is supposed to happen).

The NGOs aren't calling it a defeat device - wisely. Instead, they're saying it has "very strange emissions" and that the government should look into it.

The press conference is at 10am Berlin time, Friday, October 23. This info is embargoed until then.

You may get press calls. I know that we have already been getting press calls.

Drew

To: Drew Kodjak[drew@theicct.org]
From: Bunker, Byron
Sent: Thur 10/22/2015 11:32:24 PM
Subject: RE: Confidential - EU NGOs to announce another diesel car with excessive real world emissions

Thanks Drew.

Saw some of Axel's quotes today and wondered what was coming. To confirm, this is a front wheel drive vehicle that when tested with the rear wheels stationary has 17x emissions compared to testing when the rear wheels turns synchronous with the front? Or, is this an AWD vehicle that has lower emissions when one set of wheels is disabled in order to run an emissions test?

Based on what I am finding quickly online I am assuming this is exclusively a fwd product and the vehicle only has compliant emissions when the rear wheels are stationary. Is that correct? If so, very strange emissions sounds like the understatement of the year.

Thanks very much for the heads up and what looks like more great work. When you are back stateside, I would like to catch up on your takeaways from the workshop.

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Drew Kodjak [mailto:drew@theicct.org]
Sent: Thursday, October 22, 2015 6:25 PM
To: Grundler, Christopher; Alberto Ayala; Bunker, Byron; Blubaugh, Jim; Mike McCarthy
Subject: Confidential - EU NGOs to announce another diesel car with excessive real world emissions
Importance: High

Chris, Alberto, Byron, Jim and Mike

This is a heads up that a group of European NGOs are expected to announce later today that they have found another European diesel passenger car with excessive NOx emissions during non-type approval testing.

The vehicle is an Opel Zafira 1.6 liter diesel engine. The emissions were 17 times higher on a 4 wheel dyno than on a 2 wheel test. Also, when they turned off the urea injector for the NOx control system the engine still started (which it's not supposed to do in Europe) and the on-board diagnostics light did NOT turn on (which is supposed to happen).

The NGOs aren't calling it a defeat device - wisely. Instead, they're saying it has "very strange emissions" and that the government should look into it.

The press conference is at 10am Berlin time, Friday, October 23. This info is embargoed until then.

You may get press calls. I know that we have already been getting press calls.

Drew

To: Drew Kodjak[drew@theicct.org]
Cc: Alberto Ayala[Alberto.Ayala@arb.ca.gov]; Bunker, Byron[bunker.byron@epa.gov]; Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Mike McCarthy[michael.mccarthy@arb.ca.gov]
From: Grundler, Christopher
Sent: Fri 10/23/2015 12:24:11 AM
Subject: Re: Confidential - EU NGOs to announce another diesel car with excessive real world emissions

This Drew

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington)
734.214.4207 (Ann Arbor)
www.epa.gov/otaq

On Oct 22, 2015, at 6:25 PM, Drew Kodjak <drew@theicct.org> wrote:

> Chris, Alberto, Byron, Jim and Mike
> This is a heads up that a group of European NGOs are expected to announce later today that they have found another European diesel passenger car with excessive NOx emissions during non-type approval testing.

The vehicle is an Opel Zafira 1.6 liter diesel engine. The emissions were 17 times higher on a 4 wheel dyno than on a 2 wheel test. Also, when they turned off the urea injector for the NOx control system the engine still started (which it's not supposed to do in Europe) and the on-board diagnostics light did NOT turn on (which is supposed to happen).

The NGOs aren't calling it a defeat device - wisely. Instead, they're saying it has "very strange emissions" and that the government should look into it.

The press conference is at 10am Berlin time, Friday, October 23. This info is embargoed until then.

You may get press calls. I know that we have already been getting press calls.

Drew

To: Wehrly, Linc[wehrly.linc@epa.gov]; Ball, Joel[ball.joel@epa.gov]; Snyder, Jim[Snyder.Jim@epa.gov]; Wright, DavidA[Wright.DavidA@epa.gov]
From: Cohen, Janet
Sent: Fri 10/23/2015 11:54:27 AM
Subject: FW: Car emissions testing: 'The whole system is corrupt' (EU Observer)

fyi

From: Phillips, Anna
Sent: Thursday, October 22, 2015 5:39 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Blubaugh, Jim <Blubaugh.Jim@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>
Cc: Kasman, Mark <Kasman.Mark@epa.gov>
Subject: Car emissions testing: 'The whole system is corrupt' (EU Observer)

Car emissions testing: 'The whole system is corrupt'

EUObserver (BRUSSELS, 21. OCT) - Volkswagen is not the only car company that used illegal devices to cheat emissions tests, said Axel Friedrich, a German emissions testing expert who is a co-founder of the NGO that notified US authorities something was wrong with VW's test results. "You will see tomorrow night on German television the next case", Friedrich said on Wednesday (21 October) in the European Parliament.

"It's not only diesel, it's also gasoline. The whole system is corrupt", he added.

Although he refused to single out companies, he noted that he "heard a number of statements [from other car companies] which I know are lies. We'll realise this in the next couple of weeks."

According to Friedrich, it was already well-known to those involved that car companies must have been cheating during the laboratory tests.

But Volkswagen "tried to keep it secret. This is when journalists get more interested. If it's open, nobody cares. If it's secret, you jump on it", he told a group of around twenty journalists during a round-table discussion organised by the parliament's left-wing Green group.

But the signs were there. While the cars did well on the laboratory tests, air quality in Europe's cities did not improve in tandem.

More than half of the EU's member states are currently facing infringement procedures from the European Commission for failing to comply with EU targets on air quality.

"If the car [industry] would not [have been] cheating, we would have met all these goals of the air quality directive", said Friedrich.

The German retiree is former director of the Environment, Transport and Noise Division of the German federal environmental agency, but recently became a regular voice in German media after the Volkswagen scandal involving illegal software which allowed VW's cars to appear much cleaner than they actually were.

The scandal was exposed after US authorities investigated claims from the International Council on Clean Transportation, an NGO of which Friedrich was one of the founders.

Friedrich praised the US Environmental Protection Agency (EPA) which carries out random checks even after cars are certified.

Industry lobby

"We have 28 European agencies for certification. They compete. We have more than 50 certification test labs. They compete. And nobody controls them. … We make laws, but no enforcement. We have big industries which lobby heavily to avoid these controls."

Under EU rules that came into force in 2007, member states should have had by 2009 "effective, proportionate and dissuasive" penalties in place for the use of defeat devices.

"It's 2015, can somebody name me one member state that has done this? I don't know one", said Friedrich.

A Commission spokesperson told this website that all 28 EU countries have told the Commission that they transposed the relevant directive.

"This information suggests that they have implemented a system of penalties, although many Member States have not communicated their national rules to the Commission separately", the spokesperson said.

She did not want to comment on whether the Commission has started infringement procedures against those countries, but did stress the Commission is "following national authorities' policing and enforcement of EU rules in the automobile sector very closely".

Real driving

Friedrich proposes scrapping laboratory tests altogether, and only having random surprise checks under real driving conditions.

"We spend billions per year on tests in a lab. Useless. … We want to clean up the environment, not the labs", he noted.

The Commission has introduced a new test called the Real Driving Emission (RDE) test, the final elements of which are currently being negotiated.

In a written response to questions from MEPs during a heated plenary debate earlier in October, industry commissioner Elzbieta Bienkowska wrote that the RDE test procedures "will be an appropriate answer to the shortcomings of laboratory testing and will considerably reduce the risk of defeat devices being used".

However, Friedrich does not share this assessment, saying that industry is doing its utmost to ensure that this 'real drive' test does not replicate real driving conditions.

He noted that the conditions during which RDE tests will be taken, are not average driving conditions and exclude, for example, a car motor standing idle for a while (as would be the case in a traffic jam).

Coming up in plenary

The European Parliament, meanwhile, is working on a text to adopt next week during its plenary session in Strasbourg. The MEPs will vote to decide whether they want the Commission to launch an investigation, or failing that, a parliamentary investigation. A call for an independent EU agency that oversees emissions compliance is also proposed.

The Commission has repeatedly stated that it does not have the power to investigate the scandal.

Dutch Green MEP Bas Eickhout says that while strictly legally speaking that may be true, there are "plenty angles" which the Commission could use, such as a state aid probe.

"The EU also does not have power over taxation, yet it still investigated tax rulings via a state aid case."

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Fri 10/23/2015 2:31:36 PM
Subject: Air & Radiation Law News for October 23, 2015

Air & Radiation Law News for October 23, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

EPA: New Rule to 'Effectively Replace' Emissions Caps

An updated regulation intended to revise state requirements for controlling power plant emissions that cross state lines and affect downwind areas is expected to replace existing state air pollution emissions limits that a federal appeals...

Air Pollution

OMB Reviewing Proposed Cost Analysis of Mercury Rule

A proposal intended to address the U.S. Supreme Court's finding that the Environmental Protection Agency was required to consider cost when it decided it was "appropriate and necessary" to regulate

mercury emissions from power...

Air Pollution

Road-Tripping Sleuths Revealed VW's Emission Impossible

For the gearheads at West Virginia University, it was a minor commission. An environmental group, the International Council on Clean Transportation, had asked the school's Center for Alternative Fuels, Engines and Emissions to test...

Climate Change

Defense Leaders: Climate Change Risks National Security

Forty-eight Republican and Democratic national security and foreign policy leaders released a statement Oct. 22 stating that climate change is creating a "more unstable, resource-constrained, violent, and disaster-prone"...

Climate Change

Poor Countries Seek 'Clear' Finance Goals at Climate Talks

Poor and developing countries at United Nations talks in Bonn Oct. 22 demanded that the upcoming Paris climate change deal include clear financial targets for how much the developed world will commit to spending after 2020, something industrialized...

Climate Change

Report: Fossil Fuel Levy Could Pay for Loss, Damage Plans

A special fossil fuel levy on big energy companies could pay for initiatives that would help compensate poor countries for damage from climate change, the Climate Justice Program said in a new report....

Climate Change

WHO Issues Policy Suggestions for Climate, Health

Higher vehicle emissions standards and a focus on public transit are among recommendations the World Health Organization put forward in a report aimed at helping policy makers take steps to reduce emissions of short-lived climate pollutants...

Climate Regulation

EPA Tackling Oil, Gas Pollution Step-by-Step

The Environmental Protection Agency is taking a step-by-step approach to controlling air pollution from the oil and gas sector, its leader said Oct. 22....

Climate Regulation

Judges Question Lawsuit Over California Truck Rules

California may have been a better venue for a trucking group seeking to overturn the Environmental Protection Agency's approval of that state's greenhouse gas standards for heavy-duty trucks, federal appellate judges said Oct....

Climate Regulation

Lawsuits Expected With Clean Power Plan Publication

Advocates of carbon dioxide limits on power plants rallied support for the regulations as the Environmental Protection Agency publishes the rules in the Federal Register Oct. 23, opening the window for legal challenges to the standards....

Cybersecurity

Utilities Oppose Cybersecurity Amendments Set for Senate Vote

A coalition representing utilities such as Exelon Corp. and Duke Energy Corp. is opposing amendments to Senate cybersecurity legislation (S. 754) that are scheduled to receive votes the week of Oct. 26....

Energy

NRC Issues to TVA First Nuclear License In Nearly 20 Years

The Nuclear Regulatory Commission issued an operating license to the Tennessee Valley Authority for its Watts Bar Unit 2 nuclear reactor, the first such license issued by the agency in nearly 20 years. ...

International Climate

Developed-vs.-Developing Rift Rises in Climate Talks

The more than 20-year debate over the degree to which developed and developing nations should commit to actions under a global climate deal has reared its head once again at a pivotal week of negotiations in Bonn, but the debate is unlikely to...

International Climate

First Attempt Made to Undermine Paris Climate Deal

Sen. Rand Paul (R-Ky.) has lodged the first concrete effort in Congress to thwart U.S. involvement in any international climate change agreement reached later this year in Paris....

Renewable Energy

California's Use of More Renewable Energy Tests Power Grid

When the sun starts to set in California, there's one thing you can count on: thousands of megawatts of natural gas-fired power plants quickly firing up to keep the state lit....

Renewable Energy

Canadian Hydropower Sets Its Sights on Mexico

Innergex Renewable Energy Inc., a hydropower developer in Canada, is setting its sights on Mexico as the logical place for the company's next growth spurt, Chief Executive Officer Michel Letellier in an Oct. 20 interview....

Renewable Energy

U.S. Wind Projects Triple for 2015, Driven by New Players

The U.S. added about 3,600 megawatts of wind power capacity in the first nine months of 2015, almost triple the amount from a year earlier, as businesses and local governments moved to line up their own supplies of electricity....

Transportation

House Transportation Panel Approves Six-Year Highway Bill

The House Transportation and Infrastructure Committee unanimously approved by voice vote a $325 billion, six-year surface transportation reauthorization bill (H.R. 3763) just one week ahead of the Oct. 29 expiration of a short-term highway...

Inside EPA's **Weekly Report**, 10/23/2015

http://insideepa.com/newsletters/inside-epa

Latest News

Critics Seek Quick Action To Block Utility GHG Rules But Face High Bars

Beginning almost as soon as they are published in the *Federal Register* Oct. 23, critics of EPA's greenhouse gas rules for the power sector are planning a series of efforts to quickly block them, including lawsuits to stay the rules and congressional disapproval resolutions.

Judges Doubt Power To Hear Suit On EPA Waiver For State Truck GHG Rule

Appellate court judges at Oct. 22 oral argument raised doubts over their power to hear a lawsuit filed by the trucking sector over EPA granting a Clean Air Act waiver that allowed California to implement greenhouse gas (GHG) standards for trucks and trailers, hinting that they might scrap the case over jurisdiction and not reach the merits.

Administration, States See ESPS As 'Lens' For Multi-Pollutant Planning Work

Obama administration officials, states and some power sector representatives are touting EPA's greenhouse gas rule for existing power plants as a "lens" for multi-pollutant planning in which states and the utility sector can jointly schedule compliance with multiple air pollution rules in a more coordinated fashion.

EPA Sends Proposed Utility MACT Cost Assessment For OMB Review

EPA has sent for White House pre-publication review its proposed rule assessing the costs of regulating power plants with maximum achievable control technology (MACT) air toxics standards, responding quickly to the Supreme Court ruling that faulted the agency for not weighing costs when it first decided to craft the utility MACT.

Greenwire

CLEAN POWER PLAN:

It's showtime for legal and Hill battles

Jean Chemnick and Robin Bravender, E&E reporters

Published: Thursday, October 22, 2015

This story was updated at 2 p.m. EDT.

An epic legal battle surrounding the Obama administration's signature climate change rule formally kicks off tomorrow.

U.S. EPA is set to publish its Clean Power Plan -- a rule to crack down on power plants' greenhouse gas emissions -- in the *Federal Register*. The bureaucratic move will trigger a flurry of lawsuits and launch what promises to be a lengthy war in the courts over the Obama administration's regulation.

"Well, it's finally here," environmental attorney David Doniger said today. "You've seen the trailer -- and maybe this is not as highly awaited as the new 'Star Wars' movie -- but the Clean Power Plan will be published tomorrow."

A raft of legal challenges are expected from states and industry groups that have publicly denounced the regulation. And Republicans on Capitol Hill will roll out Congressional Review Act resolutions targeting the Clean Power Plan and a rule for new units that will be published alongside it tomorrow. But although it may take years for the rule to work its way through the courts -- ending with a likely decision by the Supreme Court -- congressional efforts are expected to end with a presidential veto if they clear both chambers.

Lawyers on both sides of the issue have been eagerly awaiting the rule's formal publication, which will precede a 60-day window for opponents to sue in federal appeals court.

States and industry litigants are expected to challenge the final existing power plant rule on many of the same grounds they previewed in lawsuits to stop last year's draft version (*E&E Daily*, Oct. 19). Critics are expected to ask the U.S. Court of Appeals for the District of Columbia Circuit to block the rule, arguing they'll be harmed by its implementation. EPA and its allies, meanwhile, say they're confident the rule will stand up to legal scrutiny.

Among the lawsuits expected to pile in tomorrow will be one from West Virginia, one of the states leading the charge against EPA's regulations.

"The President's illegal rule will have devastating impacts on West Virginia families, and families across the country," state Attorney General Patrick Morrisey (R) said today in a statement. "West Virginia, working with a large bipartisan coalition of other States, will be filing suit and seeking a stay of the rule promptly tomorrow."

EPA's foes are "promising to line up at the U.S. Court of Appeals in Washington tomorrow to file their

lawsuits," Doniger said. "They will try to impress you with the number of lawsuits and with hot rhetoric about supposedly dire impacts." On EPA's side, he said, "the Clean Power Plan will have a powerful army of defenders as well, in this court battle."

Earlier this year, the D.C. Circuit dismissed an attempt by more than a dozen states, energy companies and industry groups to block EPA from finalizing its greenhouse gas standards for power plants. In an unusual move, EPA's challengers asked the judges to halt the rule before it was finished, arguing it will have a significant economic impact and questioning whether EPA has the authority under the Clean Air Act to issue it. The court said the challengers had to wait until the rule was final (*Greenwire*, June 9).

Speaking on a call this morning with reporters, EPA acting air chief Janet McCabe said the agency was focused on helping the states implement the rule, not on efforts to undo it.

"We know these processes are out there and people will engage in them," she said on the call.

But she reiterated that she was confident the rule was on firm legal footing -- a foundation that is painstakingly articulated in the 1,560-page final rule.

"So I am confident that we will continue to make progress and to show leadership on this issue, here at home and internationally," McCabe said.

McCabe and her staff have kept up a busy travel schedule since the rule was finalized to help states begin laying the groundwork for implementation. EPA staffers find themselves fielding ever more specific questions from states ahead of next year's deadline for an initial submittal toward a state implementation plan, she said. And few states are not planning.

"States generally prefer to be in the driver's seat themselves and develop their own Clean Air Act plans, and that's what I'm hearing," she said.

McCabe told a conference hosted by the Environmental Council of the States in Washington, D.C., yesterday that EPA would be as involved or not involved as states preferred as they prepare their implementation plans -- which are ultimately due by 2018.

"We are off and running about the business of implementing the Clean Power Plan," she told the ballroom full of environmental regulators. "And we will be there with you every step of the way unless you don't want us there with you on some of those steps."

Tomorrow's publication begins the 90-day public comment period for EPA's proposed model plans for states and its draft federal implementation plan. The former is intended to guide states as they craft their own plans or to act as a ready-made option, but the latter shows how EPA would enforce curbs on power plants in states that opt not to comply. EPA will also take comment on the voluntary Clean Energy Incentive Program it included in its final version of the rule for early action, and EPA announced yesterday that it planned to hold meetings with stakeholder groups to discuss the program.

Capitol Hill challenges

Republicans on Capitol Hill have their own plans to challenge the rule. Senate Majority Leader Mitch McConnell (R-Ky.) is taking the lead in the Senate in offering two CRA resolutions to scuttle the new and existing power plant rules. His office said today that those would be unveiled next week in a joint rollout with Sen. Shelley Moore Capito (R-W.Va.).

Capito said today that she still expects action on her bill to allow states to opt out of the existing rule and to scrap the rule for new sources. But the CRA motions will probably come to the floor sooner, she said.

"So two tracks, I think. And try to fight it that way," she said.

Rep. Ed Whitfield (R-Ky.) has said he, too, plans to offer CRA resolutions in the House.

While these efforts will not overcome President Obama's veto, Republicans hope they will embarrass the administration as it sends negotiators to Paris next month in hopes of hammering out an international emissions deal. The U.S. submission to the United Nations process depends heavily on the power plant rules to deliver reductions over the coming years, and GOP members say the world should know that the rule is unlikely to survive.

But a senior administration official told reporters yesterday that the rule tracks with trends already happening in the U.S. power sector and therefore is likely to stand the test of time.

"So I think that we feel quite confident that we can make the case that without new law, without new authorities, and based on pretty well-established regulatory approaches, the United States is well on the trajectory to get to those goals," the official said.

Reporters Geof Koss and Kevin Bogardus contributed.

AIR POLLUTION:

State regulators stressed by EPA initiatives, budget woes

Amanda Reilly, E&E reporter

Published: Thursday, October 22, 2015

A growing list of complicated federal air regulations combined with funding shortfalls is complicating the work of state regulators.

Of most concern are U.S. EPA's Clean Power Plan for greenhouse gases and a toughened national ozone standard, which both force states to write plans for slashing emissions.

But state agencies and EPA are exploring new multipollutant strategies, a departure from the historical way of addressing Clean Air Act issues one pollutant at a time. Meanwhile, states are forming partnerships to make up for cash shortfalls.

"You can take this as gloom and doom or as some really good opportunities," Craig Butler, director of the Ohio Environmental Protection Agency, told a gathering of air regulators yesterday at the Environmental Council of the States in Washington, D.C.

In Ohio in the mid-1990s, the state EPA had more than 1,400 staffers, Butler said, but it's now down to just over 1,100. Of total staff, 200 full-time employees are dedicated to regulating air pollution from 14,000 sources across the state.

"We got really skinny, to the point where it was somewhat of a joke to the Cabinet: Yes, we've cut through the fat, we've gone through the muscle and we're scraping on the bone," he said.

Butler described regulations from the federal EPA as putting both deadline and financial pressures on the shrinking staff dedicated to air pollution. Ohio has not decided yet whether it will write a plan to comply

with the Clean Power Plan, according to Butler, but is working on comments on EPA's draft federal implementation plan.

Todd Parfitt, director of the Wyoming Department of Environmental Quality, also said his state is enduring financial strain. Wyoming has had a budget crunch due to a decrease in the cost of commodities, he said. And with the economy on the uptick, it's been difficult to attract high-quality staff to the agency.

"We see a lot of natural resource development, and we compete with industry for the same staff, high-quality staff," he said.

The result is a backlog in state implementation plans, which leads to litigation and more pressures on the staff, he said.

Along with the Clean Power Plan and ozone standard, Arkansas is waiting on a number of approvals from EPA on state-submitted plans to comply with more conventional air pollutant regulations, according to Becky Keogh, director of the Arkansas Department of Environmental Quality. Those plans will likely need updates.

"Some of those have gone somewhat stale as they sit on the plate," she said. "In some cases, we're looking for ways to refresh or supersede those actions where they are no longer relevant to our current work."

Keogh suggested Arkansas was being forced to take on the work despite having relatively clean air.

"We also look forward to a day in Arkansas -- perhaps a bit through rose-colored glasses -- to where a state with as good of air quality as we do in Arkansas doesn't need to dedicate over 30 percent of our agency resources to meet air statutory obligations," she said.

Regulators pointed to a bright spot: new partnerships among state agencies, particularly with energy departments.

Air regulators also said they were increasingly looking for ways to address multiple pollutants at the same time.

The Clean Air Act has historically worked through the promulgation of standards for individual pollutants and source categories.

"With the Clean Power Plan, ozone, the others -- it does provide an opportunity to think about the strategies that serve all of the goals at the same time," said Jared Snyder, assistant commissioner for air resources, climate change and energy at the New York Department of Environmental Conservation.

"It may not be a single multipollutant plan. We're not at that point yet. Maybe we'll get to that point over the years to come. But we can think about strategies that will help us attain all of those various goals that are out there right now."

U.S. EPA, he added, is becoming more amenable to this approach as air standards reach lower and lower levels.

Dick Pedersen, director of the Oregon Department of Environmental Quality, said his state was holding conversations with the EPA Region 10 office on shaping multipollutant plans by focusing on overall air quality goals.

"Let's focus on those outcomes and work together and less on the process to get there," he said. "There's

a lot of conversation had around that."

NUCLEAR:

NRC grants 1st operating license in 20 years

Ben Panko, E&E reporter

Published: Thursday, October 22, 2015

The Nuclear Regulatory Commission today granted Tennessee's Watts Bar Nuclear Generating Station a 40-year operating license for its Unit 2 reactor, the first one issued by the agency since 1996.

"This is a big day for the people of the Tennessee Valley and for the people of the entire United States," said Bill Johnson, head of the Tennessee Valley Authority, which owns Watts Bar. "This unit will provide low-cost energy now and for decades to come."

Construction on a second nuclear reactor at Watts Bar in eastern Tennessee began in 1973 but was halted in 1988 due to declining power demands in the area. Construction was restarted on Unit 2 in 2007 (*EnergyWire*, May 4).

"After devoting more than 200,000 hours over eight years conducting extensive safety reviews and inspections, we're satisfied Unit 2 is safe to operate," said Bill Dean, director of NRC's Office of Nuclear Reactor Regulation, in a statement.

TVA will conduct several more weeks of testing before it loads Unit 2 with fuel and will then do extensive testing on it over several months before the reactor starts regular operations, said Mike Skaggs, senior vice president of Watts Bar Operations and Construction. The reactor is in full compliance with new NRC regulations implemented after the 2011 Fukushima Daiichi disaster in Japan, he said.

"This reactor will be just as safe as every reactor that went online before," said Joe Grimes, TVA's chief nuclear officer.

Watts Bar's two units will produce a total of 2,300 megawatts, Johnson said, enough to power 1.3 million homes. The addition of Unit 2 will allow TVA to avoid emitting 6 million to 8 million tons of coal carbon emissions annually, according to Bechtel Corp., the construction company that built the reactor.

"Watts Bar will really help Tennessee manage its emissions under the rules of the Clean Power Plan and will contribute to cleaner air for everyone who lives and works in the area," said Ericka Reyes, a spokeswoman for the CASEnergy Coalition.

The licensing was met with approval by other nuclear advocates, as well.

Marvin Fertel, president of the Nuclear Energy Institute, called it "a hallmark day for the U.S. nuclear energy industry."

And Republican lawmakers were quick to praise NRC's move.

Sen. Lamar Alexander of Tennessee said he was "very pleased to see it is ready to go online."

"Watts Bar Unit 2 will make a positive contribution to our nation's energy needs, and is in keeping with the

industry's record of safe, clean, affordable and reliable electricity production," said Sen. Jim Inhofe of Oklahoma, chairman of the Senate Environment and Public Works Committee, in a statement.

House Energy and Commerce Committee leaders Fred Upton of Michigan, Ed Whitfield of Kentucky and John Shimkus of Illinois said in a joint statement that, "Safe, clean nuclear power is, and must continue to be, a vital component of a diverse all-of-the-above energy portfolio. We hope this license marks an important step forward for new nuclear units by the NRC and cultivates an environment for future licenses to be approved in a more timely manner."

AIR POLLUTION:

EPA sends cost analysis for mercury rule to White House

Amanda Reilly, E&E reporter

Published: Thursday, October 22, 2015

U.S. EPA has sent a proposal concerning the costs of its mercury rule for power plants to the White House for review.

The White House Office of Management and Budget received the rule yesterday, according to OMB's website. EPA intends to wrap up its consideration of the costs of the mercury rule by April 15, according to recent court filings.

The proposed rule responds to a 5-4 ruling earlier this year in which the Supreme Court found that EPA should have considered costs when it determined it was "appropriate and necessary" to issue air toxics standards for power plants.

EPA issued the final Mercury and Air Toxics Standards, or MATS, in 2011. Although EPA did not consider costs in the onset of the rulemaking, it did release a cost-benefit analysis later in the regulatory process that found the rule would cost $9.6 billion annually.

EPA said that overall benefits would tally as much as $90 billion a year, though the analysis relied heavily on co-benefits for reductions in pollutants other than mercury.

The agency's move to add costs to its initial "appropriate and necessary" finding comes as MATS remains embroiled in the courts. Several states and industry groups have asked the U.S. Court of Appeals for the District of Columbia Circuit to completely scrap the rule in the wake of the Supreme Court ruling (*Greenwire*, Sept. 25).

EPA, on the other hand, has urged the court to keep the standards in place while it addresses the cost issue.

CLIMATE:

Head of U.N. green fund shrugs off Republicans' criticism

Lisa Friedman, E&E reporter

Published: Thursday, October 22, 2015

BONN, Germany -- The Green Climate Fund chief today shrugged off U.S. Republicans who called the global financing source for poor nations grappling with climate change a "slush fund" and said she was confident American dollars would materialize.

Héla Cheikhrouhou, executive director of the U.N.-launched but independent fund, said helping poor countries access low-carbon energy and build resilience to weather disasters have long been "bipartisan priorities" and should continue to be. That despite GOP promises to block the Obama administration's pledge of $3 billion over four years to the fund.

"I am still reasonably optimistic that there is going to be a decision to support," Cheikhrouhou said.

Asked about recent comments by Sen. John Barrasso (R-Wyo.) that "the American public does not support paying their hard-earned taxpayer dollars into a slush fund that spends billions on international climate change programs in developing nations," she said the Green Climate Fund has a transparent governing body and "can meet with the satisfaction of stakeholders."

Meanwhile, finance is emerging as the linchpin issue of a new global climate agreement.

Diplomats meeting in this Rhine river town to whittle down options for a deal that heads of state and ministers will finalize in Paris in December say it could all come down to whether efforts to help developing countries cut emissions and adapt to climate change are strong enough.

South African Ambassador Nozipho Mxakato-Diseko, who is leading the Group of 77 developing nations and China, accused rich countries of trying to back out of old promises and shift the burden on providing money to poor countries to wealthier developing nations.

"Just this year, many of our members have been ravaged by hurricanes that wipe away years of development. In contrast to Hurricane Sandy, what happens in the Philippines sets them back decades. What happens in Dominica sets them back decades," she said.

The United States has been pushing for language that allows all countries capable of doing so to provide money to the Green Climate Fund. Mxakato-Diseko argued that the 15 countries and the European Union defined by a 1992 U.N. convention as developed are the only ones with an obligation to provide finance. Those rules, she said, can't change now.

"The narrative that we are being given is that the world has changed and it's time to expand the so-called pool of donors of so-called climate aid," she said. But the U.N. convention, she added, "is specific, and it is legal."

The reality, though, is that countries of all sizes and levels of wealth already are delivering finance. Mexico, South Korea, Indonesia and even Mongolia have pledged money to the Green Climate Fund, and China has pledged $3.1 billion in bilateral "south-south" climate assistance.

PEOPLE:

Resources for the Future President Sharp to retire

Ariel Wittenberg, E&E reporter

Published: Thursday, October 22, 2015

Resources for the Future President Phil Sharp announced today that he will retire this coming summer.

"It has been an honor to be associated with RFF and its highly talented staff, board and network of scholars in pursuit of a worthy mission," Sharp said of the economic think tank in a statement. "RFF continues to advance our understanding of ways to more effectively manage our natural and environmental resources. RFF's objective, nonpartisan approach to critical issues is even more important today than when it was founded."

PEOPLE

Prior to joining RFF in 2005, Sharp served 10 terms in the U.S. House of Representatives as a Democrat representing Indiana's 2nd District and was a faculty member at Harvard University's John F. Kennedy School of Government, where he also directed its Institute of Politics.

Sharp said he will continue to work on climate and energy issues in his retirement, possibly teaching a course on climate policy.

Richard Schmalensee, who chairs RFF's board, said Sharp will be sorely missed at the organization.

"Phil has been a transformative leader of RFF, helping the organization to increase its impact while continuing to do rigorous, objective analysis of important issues in energy, environmental, and resource policy," Schmalensee said in a statement. "He leaves RFF as vital and important as it has ever been, and it will be difficult to fill his shoes."

AIR POLLUTION:

Judges question proper home for truckers' fight against Calif. rule

Robin Bravender, E&E reporter

Published: Thursday, October 22, 2015

A panel of judges today questioned whether truckers can sue U.S. EPA in a federal appeals court over California greenhouse gas rules for heavy trucks.

The Owner-Operator Independent Drivers Association is challenging EPA's approval of California rules that require long-haul truckers to install fuel-efficient tires and aerodynamic devices on their trailers aimed at boosting fuel efficiency and lowering greenhouse gas emissions. Under the Clean Air Act, EPA can grant waivers to allow California to adopt its own emission standards for new motor vehicles.

The trucking group argued to the U.S. Court of Appeals for the District of Columbia Circuit today that California's rules -- which took effect after EPA granted a waiver last year -- are unconstitutional. The rules, the association argues, violate the Constitution's Commerce Clause by reaching outside the state's boundaries to regulate interstate motor carriers. The rules also discriminate against out-of-state carriers and burden interstate commerce, the association told the court.

But judges today questioned whether their court was the appropriate venue for the case.

"You haven't brought a challenge to the waiver here," Judge Thomas Griffith, a Republican appointee, told the attorney representing the trucking group. Griffith questioned why EPA would be a party to the

lawsuit. "We only look at challenges to waivers," he said, adding that a state court in California may be a more appropriate venue.

Judge Brett Kavanaugh, another Republican appointee, also questioned the truckers' challenge to the waiver. Even if the state law were unconstitutional, he said, that wouldn't make the waiver adopted by EPA unconstitutional.

Paul Cullen, the attorney representing the drivers association, said the waiver granted by EPA has an unconstitutional effect. He said 90 percent of the costs imposed by California's rule are expected to occur outside the state.

The state's rules, the group said in a brief to the court, "carved out numerous exemptions which insulated California 'in-state' truckers from compliance, but required interstate long-haul truckers to shoulder the full burden and expense of regulatory compliance -- even though they drive significantly fewer miles on California roads than in-state truckers. This is a quintessential form of discrimination which the Supreme Court has consistently held to be unconstitutional under the Commerce Clause."

Justice Department attorney Michele Walter pressed the judges to dismiss the lawsuit due to a "lack of substantive challenge" over EPA's waiver.

An opinion in *Owner-Operator Independent Drivers Association v. EPA* is expected within the next year.

COAL:

Blankenship aims to put politics, regs on trial

Published: Thursday, October 22, 2015

Massey Energy Co. CEO Don Blankenship and his lawyers have been ordered to not speak to jurors in his trial about Blankenship's belief that he's a victim of the Obama administration and to not argue over the validity of safety rules.

Blankenship, a vocal critic of President Obama, is standing trial for a 2010 West Virginia coal mine explosion that killed 29 people (*E&ENews PM*, Sept. 30). But Blankenship's attorneys have been trying to prove that the Obama administration targeted the mine for inspections before the explosion to undermine the prominent West Virginia Republican and that demands by regulators were "almost impossible to implement" before the explosion.

Prosecutors have objected to these statements as violating the order to not put federal regulations on trial.

Blankenship tried to get the charges dismissed on the grounds that U.S. Attorney Booth Goodwin, an Obama appointee and son of West Virginia's former Democratic Party chairman, pursued the charges against him at the behest of longtime rival Sen. Joe Manchin (D) (AP/London *Guardian*, Oct. 21). **-- BTP**

DEFENSE:

DOD is praised for helping 'de-politicize' climate change

Ariel Wittenberg, E&E reporter

Published: Thursday, October 22, 2015

Climate security experts credited the Defense Department for helping to make believing in climate change more mainstream during an event at the Woodrow Wilson International Center for Scholars in Washington, D.C., yesterday.

"I know the high respect with which the military is regarded in this country, and I can only say that I think it is hugely important that the military contributes to this discussion on the basis of facts and science," said David O'Sullivan, the E.U. ambassador to the United States. "The work they are doing to de-politicize these issues, not even scientists can do that."

O'Sullivan introduced a panel to discuss what experts have learned about how to make climate change issues more accessible to everyday Americans.

Looking toward December's U.N. climate talks in Paris, O'Sullivan said that the military's work on and support of renewable energy, among other things, has helped such measures gain traction outside the Beltway.

"I know very well that Washington is considered un-American," he said. "I think it is probably held with as much respect outside the Beltway as Brussels is held throughout Europe. But making a connection to the states is hugely important, and the military has helped do that."

Phyllis Cuttino, director of clean energy initiatives at the Pew Charitable Trusts, agreed.

"The most important development in this debate is DOD's leadership," she said. "They have certainly done a lot of work, and their leadership is important now and in the future."

Cuttino was part of a team of climate security experts who toured the home districts of lawmakers on the House and Senate Armed Services committees a few years ago giving talks to voters in the hopes of putting political pressure on lawmakers to create climate security policy.

"What we learned is that both the public and the elites really do respond to the national security message, but it takes time to explain," she said. "It's not an instinctive connection that people make. Today, if you asked someone how climate change impacts their life, they might say, 'Wacky weather,' but it will take longer to make the connection to national security impacts."

Andrew Holland, a senior fellow at the American Security Project, noted the impact of natural disasters at home is one entry point for teaching the public about climate security.

"People care about their own backyard," he said.

That issue can help open doors to discussions about climate changes' impact on military readiness, said retired Air Force Gen. Ron Keys, who sits on Center for Naval Analyses' Military Advisory Board.

"People at home who are hit by a hurricane don't want to call up my guys and ask for a rescue and have the answer be, 'Well, I'd love to come down there, but I'm up to my ass in water myself,'" he said.

Retired Marine Corps Lt. Gen. Richard Zilmer, who also is on CNA's advisory panel, said he has seen success in describing his war experience as fighting over energy and oil.

"When you talk about national security and climate change, we bring a lot of scar tissue with us to the table," he said. "And I don't want my grandson sitting in Kuwait 15 years from now doing the same thing I was doing there 20 years ago."

ENERGY EFFICIENCY:

Mass., Calif. lead states on ACEEE's annual scorecard

Published: Thursday, October 22, 2015

Massachusetts, California and Vermont topped the rankings of a scorecard of states on energy efficiency released yesterday.

Oregon and Rhode Island rounded out the top five states in the rankings published by the American Council for an Energy-Efficient Economy. Mississippi, Louisiana, South Dakota, Wyoming and North Dakota made up the bottom of the list.

Texas achieved the largest increase in ranking over last year's scorecard, jumping eight spots to 26th nationally after moving more aggressively to police building energy code compliance in partnership with the U.S. Energy Department.

Texas is currently resisting the federal Clean Power Plan, but the ACEEE anticipates the policy to push more states to increase energy efficiency (*EnergyWire*, Oct. 2).

"As states move to frame their plans under the federal Clean Power Plan, this year marks a tipping point for energy efficiency," ACEEE Executive Director Steve Nadel said in a statement. "State policies are increasingly encouraging utilities to invest in cost-effective efficiency, prompting them to adopt new business models that align their interests with those of customers and policymakers. We can see this taking hold in the 20 states that improved their Scorecard rank in 2015" (Jordan Blum, *Fuel Fix*, Oct. 21). -- **BTP**

AIR POLLUTION:

EPA, greens reach deal on Utah permit challenge

Amanda Reilly, E&E reporter

Published: Thursday, October 22, 2015

U.S. EPA and environmental groups have agreed to settle a lawsuit over the operating permit for a Utah coal-fired power plant.

The proposed agreement would require Deseret Power Electric Cooperative to submit an application for a new permit mandating the installation of nitrogen oxide pollution controls. If EPA issues a final permit with those controls, the groups would withdraw their challenge.

The 500-megawatt Bonanza Power Plant in the Uintah and Ouray Indian Reservation burns coal from Colorado's Deserado mine. Because of its location on tribal land, the 30-year-old plant falls under the jurisdiction of EPA instead of the state of Utah.

The Sierra Club and WildEarth Guardians earlier this year challenged the December 2014 operating permit issued to Deseret by EPA Region 8.

The groups say EPA issued the permit before completing an analysis of the best available pollution

controls for the plant. The permit is intended to ensure that the plant won't contribute to a violation of a national ambient air quality standard.

The proposed settlement agreement, published today in the *Federal Register*, would also require Deseret to withdraw an outstanding permit application. Both Deseret and the Sierra Club would withdraw related requests under the Freedom of Information Act.

The proposed settlement is subject to a 30-day public comment period.

AIRLINES:

Upside to crowded flights: better fuel efficiency -- report

Sean Reilly, E&E reporter

Published: Thursday, October 22, 2015

Airlines' ability to pack more people onto their planes may leave passengers grumbling, but it's helping to improve the industry's fuel economy, a new analysis concludes.

Between 2013 and 2014, U.S. carriers' fuel efficiency increased by 1.7 percent after showing no gain the preceding year, according to the International Council on Clean Transportation, a Washington, D.C.-based nonprofit. The main factors behind the increase: more seats on individual planes and more passengers filling those seats, the report says. The effect is to allow airlines to move the same number of flyers on fewer flights, albeit at the cost of "reduced passenger comfort" and longer wait times between flights.

"It's a surprising finding for us," Dan Rutherford, the council's director for marine and aviation programs, said in an interview. Researchers had previously thought efficiency gains related to "load factors" were "petering out," he said. The efficiency ratings are based on a yardstick that plots passenger miles against fuel consumption. Between 2000 and 2010, the airline industry's yearly fuel efficiency gains had averaged 2.8 percent, falling to 1.3 percent through 2012, the group previously reported (*Greenwire*, Nov. 19, 2014).

The issue has consequences for the United States' ability to curb overall greenhouse gas emissions; as of 2013, commercial aircraft, including passenger and cargo flights, accounted for 11 percent of emissions from the transportation sector. This summer, U.S. EPA proposed for the first time to regulate aviation-related greenhouse gas discharges under the Clean Air Act; under the status quo, emissions from the industry will otherwise more than double by 2050 in comparison with 2005 levels, according to a Federal Aviation Administration forecast cited in the report.

In an emailed statement, an airline industry representative downplayed the impact of "yield management" on improved efficiency and instead attributed the bulk of the savings to better technology, more economical engines and other factors. Thanks to "relentless efforts," U.S. airlines carried 20 percent more passengers and cargo in 2014 than in 2000 while emitting 8 percent less carbon dioxide, said Melanie Hinton, a spokeswoman for Airlines for America. The industry is now part of a global coalition committed to 1.5 percent annual average fuel efficiency improvements through 2020 and carbon-neutral growth from 2020, Hinton added, "subject to critical aviation infrastructure, operational and technology advances achieved by government and industry."

But the clean transportation council's report, released today, again shows wide gaps in the performance of the 13 carriers whose domestic operations are ranked. Alaska Airlines retained its status as the most fuel-efficient carrier, followed by Spirit Airlines and Frontier Airlines. While Hawaiian Airlines was squarely

in the middle, Delta Air Lines ranked 11th and American Airlines was again at the bottom.

The overall fuel efficiency gap between the most and least fuel-efficient airlines shrank slightly from 27 percent in 2013 to 25 percent last year.

BIOFUELS:

DuPont's Koninckx says RFS uncertainty driving investments abroad

Published: Thursday, October 22, 2015

As the renewable fuel standard faces continued regulatory and legislative uncertainty, DuPont Biofuels is set to open the world's largest cellulosic ethanol biorefinery in Iowa at the end of the month. How will the uncertainty impact production and international partnerships? During today's OnPoint, Jan Koninckx, global business director of biofuels at DuPont, discusses his company's plans to continue expanding its business internationally in response to an uncertain landscape in the United States.

Click here to watch today's OnPoint.

POWER PLAN HUB:

Final Clean Power Plan in *Federal Register* on Friday

Rod Kuckro, E&E reporter

Published: October 22, 2015

The epic battle over the Obama administration's signature climate change initiative kicks off tomorrow when it will be published in the *Federal Register*.

Also to be published tomorrow are the final rule for new and modified power plants and the proposed federal plan for existing power plants that would trigger if a state chooses not to submit its own plan to comply with the Clean Power Plan.

POWER PLAYS

Each Monday, **Power Plays** previews upcoming moves on the way to Clean Power Plan compliance and recaps the week's developments.

Legal challenges could be filed with the U.S. Court of Appeals for the District of Columbia Circuit as early as tomorrow afternoon.

And Senate Majority Leader Mitch McConnell (R-Ky.) will be introducing resolutions next week to scuttle the rules (*E&ENews PM*, Oct. 22).

Here is the latest coverage by E&E reporters:

- It's showtime for legal and Hill battles (*Greenwire*, Oct. 22).

- State regulators stressed by U.S. EPA initiatives, budget woes (*Greenwire*, Oct. 22).

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Fri., October 23, 2015

READ FULL EDITION

1.NEGOTIATIONS:

Can a phrase change the world? Some diplomats here hope so

BONN, Germany -- As countries skirmish here over money and carbon emission cuts, a seemingly abstract debate is shaping up with real-world implications for investors and governments alike. Dubbed the "long-term goal," it is wording in a burgeoning international climate change accord that defines how 194 countries want the world to look by the century's end.

2.TRANSPORTATION:

Europe's automakers and cities rush to accommodate more electric cars

BERLIN -- Still breathing the fumes from its diesel-emissions scandal, Volkswagen AG has made a strategic decision to make the next version of its flagship sedan, the Phaeton, an electric car. The decision, viewed by some as a diversionary tactic, is more likely an indication of where the industry is heading -- toward pure electrics and plug-in hybrids.

TODAY'S STORIES

3.FINANCE:
U.S. encourages retirement investments guided by environment or social causes

4.REGULATION:
Opening day for EPA's Clean Power Plan rule and for litigation

5.PEOPLE:
A 'stand-up economist' finds an audience for an act about climate change

6.RENEWABLE ENERGY:
U.S., Asia lead world in solar PV manufacturing -- report

7.BUSINESS:
Wind power industry catches another breeze

8.RESEARCH:
Climate change could worsen economic split between countries -- study

9.ADVOCACY:
Large utility joins former foe Greenpeace to push for clean energy

10.CALIFORNIA:
Industry doubtful about plan to fund high-speed train with cap-and-trade revenue

11.EXTREME WEATHER:
El Niño expected to bring dry spell to Hawaii after excessive summer rains

E&ETV'S THE CUTTING EDGE

12.CLEAN POWER PLAN:
***EnergyWire*'s Kuckro talks legal, legislative challenges facing plan, previews McCabe sit-down**

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Fri., October 23, 2015

READ FULL EDITION

1.ELECTRICITY:

Apple's solar commitment in China could roil tech industry

For a few years now, the world's largest technology companies have faced a steady drumbeat of criticism that they need to do something to reduce carbon emissions of the supply chain that manufactures smartphones, tablets and computers by the billions, mostly in China with coal-fired power. On Wednesday, Apple Inc. did something.

TOP STORIES

2.CALIFORNIA:
Battle grows over utilities' role in EV charging station market

3.CLEAN POWER PLAN:
Milestone day for EPA rule -- and lawsuits

4.ALASKA:
Special session over natural gas megaproject starts tomorrow

ELECTRICITY

5.NUCLEAR:
Watts Bar 2 license gives ammo to both sides

6.POLITICS:
Constitutional amendment on solar moves toward ballot in Fla.

7.SOLAR:
Mont. takes tiny microgrid on a test run

OIL AND GAS

8.OIL:
Production cuts not discussed in OPEC, Russia meeting

9.OIL:
Refineries feeling pains from low prices

10.LAW:
Minn., N.D. battle over energy rules

11.BUSINESS:
BP makes multibillion-dollar deals with Chinese companies

E&ETV'S THE CUTTING EDGE

12.CLEAN POWER PLAN:
EnergyWire's Kuckro talks legal, legislative challenges facing plan, previews McCabe sit-down

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: French, Roberts[french.roberts@epa.gov]
Cc: Good, David[good.david@epa.gov]; Ex. 7
From: Ex. 7
Sent: Fri 10/23/2015 7:55:39 PM
Subject: RE: 2016 Audi A3 e-tron ultra Label

Hi Rob;

Thanks very much for your comments. I first sent a sample series PHEV fuel economy label to Dave Good and he said that because the combustion engine could start that this is a blended PHEV. The combustion engine does not start during testing on any of the cycles. I then started to obtain sample blended PHEV fuel economy label from our logistic people and found that we had some problems with the gasoline/electric gallons per 100 mile value in that it didn't accept a value equal to zero and no tenths were allowed. It is now being corrected on our blended PHEV label to accept our value of 0.0 gallons per 100 miles.

In addition we are having to go back to the vendor that provided our Monroney label program so that the "All electric range = 0-17 miles" and not a single number as it currently exists. I guess it was changed back in 2014. Once we have the label problems worked out I will send them to Dave and copy you if you like.

I will have to discuss your EOT with my colleagues on Monday. Yes, each of the two model types has only one configuration and sales weighed averaging was not needed.

Have a nice weekend.

Best regards,

Ex. 7

From: French, Roberts [mailto:french.roberts@epa.gov]
Sent: Friday, October 23, 2015 3:15 PM
To: Ex. 7
Subject: RE: 2016 Audi A3 e-tron ultra Label

Ex. 7

I do not see anything amiss in the data, and based on it I would be comfortable using the values in the spreadsheets. Your interpretation of the values is correct, but if it helps to jot the numbers on an actual label, I'd be happy to review it and double-check it.

Are these vehicles blended or series PHEVs? I suspect they are series (i.e., like the Volt) and that they do not mix gas and electricity during charge-depleting operation. They behaved like series (aka "non-blended") on the test cycles, that much is clear, but the cycles are not very challenging and blended PHEVs don't always call upon the combustion engine during testing. We consider them blended if, for example, hard accelerations or high speeds (such as those in the US06) bring the combustion engine to life before the battery is depleted. The Ford PHEVs operated this way: all-electric on the test cycle but not necessarily so in the real world. The solution in this case is to express the all-electric range as a range, e.g., 0-17 miles, meaning that under light loads an all-electric range is possible, but not under all conditions. You don't want to claim an all-electric range if it's not really accessible in the real world, regardless of how the car performed on the mild city and highway tests.

Are the charge-depleting test cycles all the cycles that were run, up to and including the cycle where the End of Test (EOT) criterion was met? You entered cycles beyond the transition cycle (which is good!), I just want to make sure you didn't enter more than required. I am trying to educate manufacturers on this; since the recharge energy is based on all cycles up to the EOT, then the recharge energy needs to account for any charging gains or losses that took place up to the EOT.

Finally, I assume, like most PHEVs to date, that each of these model types has only one base level/configuration/subconfiguration, and that sales-weighting of test results isn't needed. I am only beginning to address how to do this with another manufacturer, but it's not so easy or obvious how to do it with PHEVs.

That's all,

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Friday, October 23, 2015 1:58 PM
To: French, Roberts <french.roberts@epa.gov>
Subject: RE: 2016 Audi A3 e-tron ultra Label

Okay thanks

From: French, Roberts [mailto:french.roberts@epa.gov]
Sent: Friday, October 23, 2015 1:57 PM
To: Ex. 7
Subject: RE: 2016 Audi A3 e-tron ultra Label

I did, and I have a few easy questions, but I have to run off to a meeting and don't have time to jot something down. I hope to be back at 2:30.

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Friday, October 23, 2015 1:11 PM
To: French, Roberts <french.roberts@epa.gov>
Subject: RE: 2016 Audi A3 e-tron ultra Label

Hi Rob;

Were you able to look at these two label calculator files I sent yesterday? If you have any questions please feel free to call me.

Thanks,

Ex. 7

From: French, Roberts [mailto:french.roberts@epa.gov]
Sent: Thursday, October 22, 2015 3:35 PM
To: Ex. 7; Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Good, David <good.david@epa.gov>; Peavyhouse, Robert <Peavyhouse.Robert@epa.gov>

Subject: RE: 2016 Audi A3 e-tron ultra Label

Ex. 7

I'll take a look at this tomorrow morning.

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Thursday, October 22, 2015 1:54 PM
To: French, Roberts <french.roberts@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Good, David <good.david@epa.gov>; Peavyhouse, Robert <Peavyhouse.Robert@epa.gov>
Subject: 2016 Audi A3 e-tron ultra Label

Hi Rob;

Sorry to bother you with this issue, but Audi wants to have label values for a number of press ride and drive events starting next week for the new PHEV Audi A3 e-tron and A3 e-tron ultra beginning next week. In the absence of Dave Good this week, I thought you might be able to take a look at the completed PHEV calculators for each of these models and determine if they are

in order. I have entered VGA index #102 for the A3 e-tron ultra into Verify and it has been accepted. My colleagues here are entering the EPA confirmatory tests for the A3 e-tron model into Verify, he is running into some snags so I am unable to enter that index into Verify at this time.

This is my first PHEV label and I want to be sure I have all the information correct and that it would pass through any audits that Dave has planned for PHEV models. The label section of your calculator indicates the gas/electric combined value in the row labeled charge-depleting fuel economy (MPGe), while the row labeled charge-sustaining fuel economy (MPG) would complete the gasoline only section of the label, correct? I believe the composite values are used to assess the fuel economy rating and GHG rating but do not appear on fuel economy labels.

If you have any questions or suggestions please contact me directly.

Best regards,

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: Ex. 7

Fax:

mailto:

Ex. 7

To: Ex. 7
Cc: Good, David[good.david@epa.gov]; Ex. 7
From: French, Roberts
Sent: Fri 10/23/2015 8:05:42 PM
Subject: RE: 2016 Audi A3 e-tron ultra Label

No problem; enjoy your weekend as well.

I suspect that the correct number of charge-depleting tests was entered, as there isn't a reason to keep testing after the EOT has been met. But just in case, it's worth checking that this is the case, as having additional cycles in the calculations beyond the EOT cycle might cause some minor variation in the values.

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Friday, October 23, 2015 3:56 PM
To: French, Roberts <french.roberts@epa.gov>
Cc: Good, David <good.david@epa.gov>; Ex. 7
Subject: RE: 2016 Audi A3 e-tron ultra Label

Hi Rob;

Thanks very much for your comments. I first sent a sample series PHEV fuel economy label to

Dave Good and he said that because the combustion engine could start that this is a blended PHEV. The combustion engine does not start during testing on any of the cycles. I then started to obtain sample blended PHEV fuel economy label from our logistic people and found that we had some problems with the gasoline/electric gallons per 100 mile value in that it didn't accept a value equal to zero and no tenths were allowed. It is now being corrected on our blended PHEV label to accept our value of 0.0 gallons per 100 miles.

In addition we are having to go back to the vendor that provided our Monroney label program so that the "All electric range = 0-17 miles" and not a single number as it currently exists. I guess it was changed back in 2014. Once we have the label problems worked out I will send them to Dave and copy you if you like.

I will have to discuss your EOT with my colleagues on Monday. Yes, each of the two model types has only one configuration and sales weighed averaging was not needed.

Have a nice weekend.

Best regards,

Ex. 7

From: French, Roberts [mailto:french.roberts@epa.gov]
Sent: Friday, October 23, 2015 3:15 PM
To: **Ex. 7**
Subject: RE: 2016 Audi A3 e-tron ultra Label

Ex. 7

I do not see anything amiss in the data, and based on it I would be comfortable using the values in the spreadsheets. Your interpretation of the values is correct, but if it helps to jot the numbers on an actual label, I'd be happy to review it and double-check it.

Are these vehicles blended or series PHEVs? I suspect they are series (i.e., like the Volt) and that they do not mix gas and electricity during charge-depleting operation. They behaved like series (aka "non-blended") on the test cycles, that much is clear, but the cycles are not very challenging and blended PHEVs don't always call upon the combustion engine during testing. We consider them blended if, for example, hard accelerations or high speeds (such as those in the US06) bring the combustion engine to life before the battery is depleted. The Ford PHEVs operated this way: all-electric on the test cycle but not necessarily so in the real world. The solution in this case is to express the all-electric range as a range, e.g., 0-17 miles, meaning that under light loads an all-electric range is possible, but not under all conditions. You don't want to claim an all-electric range if it's not really accessible in the real world, regardless of how the car performed on the mild city and highway tests.

Are the charge-depleting test cycles all the cycles that were run, up to and including the cycle where the End of Test (EOT) criterion was met? You entered cycles beyond the transition cycle (which is good!), I just want to make sure you didn't enter more than required. I am trying to educate manufacturers on this; since the recharge energy is based on all cycles up to the EOT, then the recharge energy needs to account for any charging gains or losses that took place up to the EOT.

Finally, I assume, like most PHEVs to date, that each of these model types has only one base level/configuration/subconfiguration, and that sales-weighting of test results isn't needed. I am only beginning to address how to do this with another manufacturer, but it's not so easy or obvious how to do it with PHEVs.

That's all,

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Friday, October 23, 2015 1:58 PM
To: French, Roberts <french.roberts@epa.gov>
Subject: RE: 2016 Audi A3 e-tron ultra Label

Okay thanks

From: French, Roberts [mailto:french.roberts@epa.gov]
Sent: Friday, October 23, 2015 1:57 PM
To: Ex. 7
Subject: RE: 2016 Audi A3 e-tron ultra Label

I did, and I have a few easy questions, but I have to run off to a meeting and don't have time to jot something down. I hope to be back at 2:30.

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Friday, October 23, 2015 1:11 PM
To: French, Roberts <french.roberts@epa.gov>
Subject: RE: 2016 Audi A3 e-tron ultra Label

Hi Rob;

Were you able to look at these two label calculator files I sent yesterday? If you have any questions please feel free to call me.

Thanks,

Ex. 7

From: French, Roberts [mailto:french.roberts@epa.gov]
Sent: Thursday, October 22, 2015 3:35 PM
To: Ex. 7 Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Good, David <good.david@epa.gov>; Peavyhouse, Robert <Peavyhouse.Robert@epa.gov>
Subject: RE: 2016 Audi A3 e-tron ultra Label

Ex. 7

I'll take a look at this tomorrow morning.

Rob

Roberts W. French, Jr.

U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory

2000 Traverwood Drive

Ann Arbor, Michigan 48105

(734) 214-4380

From: Ex. 7
Sent: Thursday, October 22, 2015 1:54 PM
To: French, Roberts <french.roberts@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Good, David <good.david@epa.gov>; Peavyhouse, Robert <Peavyhouse.Robert@epa.gov>
Subject: 2016 Audi A3 e-tron ultra Label

Hi Rob;

Sorry to bother you with this issue, but Audi wants to have label values for a number of press ride and drive events starting next week for the new PHEV Audi A3 e-tron and A3 e-tron ultra beginning next week. In the absence of Dave Good this week, I thought you might be able to take a look at the completed PHEV calculators for each of these models and determine if they are in order. I have entered VGA index #102 for the A3 e-tron ultra into Verify and it has been accepted. My colleagues here are entering the EPA confirmatory tests for the A3 e-tron model into Verify, he is running into some snags so I am unable to enter that index into Verify at this time.

This is my first PHEV label and I want to be sure I have all the information correct and that it would pass through any audits that Dave has planned for PHEV models. The label section of your calculator indicates the gas/electric combined value in the row labeled charge-depleting fuel economy (MPGe), while the row labeled charge-sustaining fuel economy (MPG) would

complete the gasoline only section of the label, correct? I believe the composite values are used to assess the fuel economy rating and GHG rating but do not appear on fuel economy labels.

If you have any questions or suggestions please contact me directly.

Best regards,

Ex. 7

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: Ex. 7

Fax:

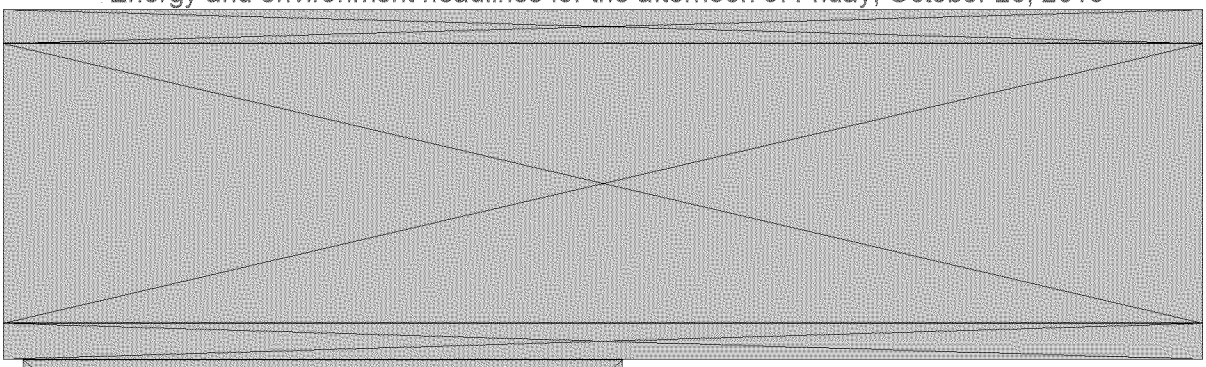
mailto:

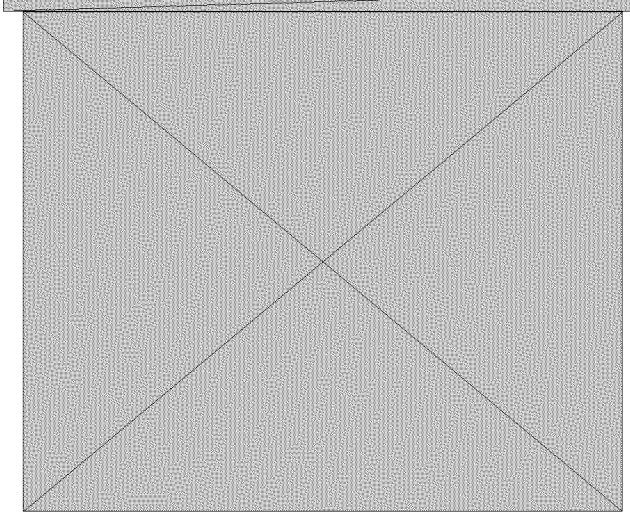
Ex. 7

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Fri 10/23/2015 9:44:30 PM
Subject: Battle lines drawn as carbon rule fight moves to courts and Congress

Advertise | Contact

Energy and environment headlines for the afternoon of Friday, October 23, 2015





Battle lines drawn as carbon rule fight moves to courts and Congress

By Kevin Rogers

With the Environmental Protection Agency's final Clean Power Plan published in the Federal Register, more than two dozen states and and more than a dozen industry groups went to court Friday to overturn the plan, 15 states and two cities vowed to defend it, and lawmakers in both chambers of Congress readied votes to kill it.

The campaign to attack the regulations was met with a forceful response from the agency

which said the power plant carbon rules pass legal muster.

The rule for existing power plants, which require states to submit compliance plans to hit specific carbon reduction targets by 2030, is coupled with a rule setting hard emissions limits for new fossil fuel-fired plants. Combined, their goal is to cut sector carbon emissions by 32 percent from 2005 levels.

While the states, led by West Virginia, and industry groups, including the National Mining Association and the Chamber of Commerce, concentrated their legal fire on the standards for existing plants, Congress will seek to overturn both regulations, using the Congressional Review Act.

Senate Majority Leader Mitch McConnell, R-Ky., said he, with Sen. Joe Manchin, D-W.Va., would introduce a resolution to void the rule for new plants. Sens. Shelley Moore Capito, R-W.Va., and Sen. Heidi Heitkamp, D-N.D., meanwhile, will put forth a resolution to block the existing plant rules.

"Here's what is lost in this Administration's crusade for ideological purity: the livelihoods of our coal miners and their families. Folks who haven't done anything to deserve a 'war' being declared upon them," McConnell said in a statement. "I have vowed to do all I can to fight back against this administration on behalf of the thousands of Kentucky coal miners and their families."

Rep. Ed Whitfield, R-Ky., announced that he would introduce resolutions to nullify both rules on Monday.

Under the Congressional Review Act, both chambers have 60 days to vote to disapprove of executive rulemaking. The resolutions would then be sent to the president, and both chambers would have to win a two-thirds majority to overturn the threatened presidential veto.

That gives Republicans a steep hill to climb: They would have to win over four more Democrats to advance a resolution in the Senate, and 11 more to override a veto.

Democrats in both chambers have vowed to block any efforts to kill the regulations.

"September 2015 was the hottest month ever recorded," Sen. Ed Markey, D-Mass., said in a statement. "Now it's time to turn up the political heat on climate deniers and their allies that will try to block this critical action to address climate change."

The legal challenge was launched by a group of 25 states, led by West Virginia, who asked the U.S. Court of Appeals for the District of Columbia Circuit to stay implementation of the existing plants rule until its legality could be established.

"The EPA's rule is flatly illegal, and one of the most aggressive executive branch power grabs that we've seen in a long time," Attorney General Patrick Morrisey told reporters on a

call. "The EPA is trying to transform itself from an environmental regulatory authority to a central energy-planning authority. That's not permitted under the Clean Air Act, the case law or the Constitution."

The states allege that the rules would illegally double-regulate power plants by limiting carbon under one section of the Clean Air Act while limiting other pollutants under a different section. The suit also alleges the new rule unlawfully presses states to cycle out coal fired electricity in favor of natural gas and renewable energy.

Administrator Gina McCarthy, however, defended the rules as "grounded firmly in science and the law," and said they wouldn't wreak the economic harm opponents said it would.

"The Plan is fully consistent with the Clean Air Act, and relies on the same time-tested state-federal partnership that, since 1970, has reduced harmful air pollution by 70 percent, while the U.S. economy has tripled," she wrote in a blog post.

McCarthy will be supported in the agency's legal defense by attorneys general from 15 states, joined by New York City and the District of Columbia, who plan to file motions in support of the rule next week.

On a call with reporters, New York Assistant Attorney General Michael Myers, of the Environmental Protection Bureau, said that the states and industries opposing the rules wouldn't meet the high bar to achieve a stay.

To stay the regulations, the plaintiffs would have to prove that, if the rule is implemented, it would would cause them irreversible harm; that the harm of not implementing the rules would be outweighed by the harm; and that their legal arguments against the rules would likely prevail.

"That is not a showing I believe the petitioners will be able to make here," Myers said.

He said that he expects that the coalition of states and cities offering legal support to the agency will grow before the support motions are officially filed.

The Chamber of Commerce, joining 18 additional industry groups in a suit of their own, also sought a stay, saying that the final rules were a "bad deal for America" and would cause economic damage to businesses and consumers alike, through higher electricity prices and job losses.

"EPA completely bypassed the legislative branch, basing its 2,000-page rule on roughly 300 words in the Clean Air Act and including a host of policies that have already been considered and rejected by Congress," Chamber President and CEO Thomas Donahue said in a statement.

The National Mining Association, in a separate lawsuit, said the rules had potential for "substantial harm" if they weren't blocked.

Also filing suit against the EPA on Friday was Murray Energy Corp., the nation's largest privately owned coal company.

But environmentalists vowed to stand with EPA against "big polluters and their allies."

"They can throw everything and the kitchen sink at this standard, but the Clean Power Plan's push to cut dangerous carbon pollution from power plants for the first time ever is based on a law passed by Congress and upheld by the Supreme Court, and it has the overwhelming support of the American people," Mary Anne Hitt, director of the Sierra Club's Beyond Coal program, said in a statement.

The Associated Press contributed to this story.

Quick Links

Mexico braces for strongest hurricane in Western hemisphere

Why did Hurricane Patricia become a monster so quickly?

Talks on climate deal heat up over bill for global warming

American Airlines 3Q profit soars on cheaper jet fuel

Amid protests, bear hunting season opens in Florida

GOP candidates dominate guest lineups for Sunday news shows

Energy money has helped prospective Speaker Ryan

Mexican Pacific ports prepare for Patricia

Commodity price slides are hurting Middle America

Oil back below $45 on strong dollar

Oil rig drop makes for 8 weeks of declines

Exxon stepping up its fight against climate allegations

Clear, concrete language could help climate summit achieve its goals

First NOAA chief White dead at age 92

Seeds of VW scandal date back ten years

LyondellBasell beats 3Q estimates despite drop in income, revenue

Evanston proves suburbs can work without cars

Upcoming Events

Mexico braces for strongest hurricane in Western hemisphere

By Christopher Sherman

PUERTO VALLARTA, Mexico (AP) — Hurricane Patricia barreled toward southwestern Mexico Friday as a monster Category 5 storm, the strongest ever in the Western Hemisphere.

Residents and tourists were hunkering down or trying to make last-minute escapes ahead of what forecasters called a "potentially catastrophic landfall" later in the day.

The storm was homing in on a Pacific coastline dotted with sleepy fishing villages and gleaming resorts, including the popular beach city of Puerto Vallarta and the port of Manzanillo.

After hitting land, Patricia's projected path would quickly take it over mountainous terrain that is prone to dangerous flash floods and landslides.

More

Why did Hurricane Patricia become a monster so quickly?

By Seth Borenstein

WASHINGTON (AP) — Hurricane Patricia zoomed from tropical storm to record-beater in 30 hours flat like a jet-fueled sports car.

Why? The Pacific storm had just the right ingredients.

Plenty of warm water provided the energy what meteorologists call explosive intensification. The air was much moister than usual, adding yet more fuel. And at the same time, upper-

level crosswinds — called shear — that restrain a hurricane from strengthening were missing for much of Thursday, meteorologists said.

"I was really astounded," said MIT meteorology professor Kerry Emanuel. "It was over the juiciest part of the eastern Pacific."

More

Talks on climate deal heat up over bill for global warming

By Karl Ritter

BONN, Germany (AP) — The trillion-dollar question of who should pay for global warming is coming to a head in talks on an international climate pact, as developing countries worry they won't get enough money to tackle the problem.

With just five weeks left before a U.N. climate summit in Paris, developing countries closed ranks at weeklong talks ending Friday in Bonn and called on wealthy nations to make firm financial commitments to help them fight and adapt to climate change.

The Paris summit "will be judged by what is contained in the core agreement on finance. For us, that will be the yardstick for success," said Nozipho Mxakato-Diseko of South Africa, who chairs a developing country bloc of 134 countries.

In testy exchanges with the Algerian and U.S. diplomats leading the climate talks, Mxakato-Diseko complained that a draft deal they produced was "lopsided" in favor of developed countries. She even drew an analogy to apartheid.

More

American Airlines 3Q profit soars on cheaper jet fuel

By David Koenig

FORT WORTH, Texas (AP) — A big merger and cheaper jet fuel are doing wonders for American Airlines.

The world's biggest airline reported Friday that net income jumped 80 percent to $1.69 billion in the third quarter thanks to a huge drop in fuel spending.

The shares fell, however, after American leaders said that next year they will introduce new fares designed to compete with discount carriers including Spirit and Frontier. Spirit's stock took an even bigger hit — it was down more than 6 percent at midday.

U.S. airfares rose faster than inflation for several years, but they have dropped this year as airlines took advantage of cheaper fuel to increase flights or use bigger planes. They have cut prices to fill the growing number of seats.

More

Amid protests, bear hunting season opens in Florida

By Jason Dearen

GAINESVILLE, Fla. (AP) — Hunters for the first time in more than 20 years will trudge through Florida woods on Saturday to legally kill black bears, a contentious wildlife management action that has activists taking to the streets in protest.

Florida wildlife officials have sold more than 3,200 permits to hunters from all over, including 1970s rocker Ted Nugent and Liesa Priddy, a rancher and Florida Fish and Wildlife Conservation Commission member who voted to approve the new hunts.

The hunt was approved by the commission earlier this year after much debate. In the end, the members said the black bear population had grown to 3,500 — up from a few hundred in the 1970s — and presented a safety problem. With the state's ballooning human population pushing development into ever more rural areas, human-bear encounters have shot up recently. The decision overturned a 20-year ban on bear hunting in Florida.

For this first hunt, the state will allow hunters to slay 320 bears in four regions where populations are densest. Thirty-two other states also allow black bear hunts.

More

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

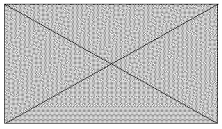
Learn more at EnergyTomorrow.org

GOP candidates dominate guest lineups for Sunday news shows

WASHINGTON (AP) — Guest lineups for the Sunday TV news shows

- ABC's "This Week" — Republican presidential candidate Donald Trump.
- NBC's "Meet the Press" — Republican presidential candidate Ben Carson
- CBS' "Face the Nation" — Republican presidential candidate Chris Christie; Reps. Devin Nunes, R-Calif., and Adam Schiff, D-Calif.
- CNN's "State of the Union" — Trump; Republican presidential candidate Marco Rubio; Democratic presidential candidate Bernie Sanders.
- "Fox News Sunday" — Carson; Rep. Jim Jordan, R-Ohio.

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

Energy money has helped prospective Speaker Ryan

Rep. Paul Ryan, R-Wis., who's expected to become the next House Speaker, has received recent contributions from a wide variety of energy companies, as well as the American Gas Association and Koch Industries Inc., E&E reports.

More

Mexican Pacific ports prepare for Patricia

Manzanillo—which has a sizeable LNG import terminal and a 2,700 megawatt power plant—and Lazaro Cardenas—with a dock for coal imports to a nearby power plant—are among the Mexican cities hunkering down for the anticipated impact of Hurricane Patricia on the country's Pacific coast, Platts reports.

More

Commodity price slides are hurting Middle America

In Texas, Missouri and Illinois on up into North Dakota's Bakken Shale, workers for companies with links to commodities are fearing for their future, The New York Times reports.

More

Oil back below $45 on strong dollar

A surge in the dollar that followed news of China introducing stimulus measures in its economy helped pressure oil prices Friday. U.S. benchmark crude lost 78 cents, or 1.7 percent, to settle at $44.60 a barrel on the Nymex, while in London, Brent fell 9 cents to $47.99, The Wall Street Journal reports.

More

Oil rig drop makes for 8 weeks of declines

According to the weekly rig count from oil field services firm Baker Hughes, the number of rigs drilling for oil in the U.S. dropped by one, to 594, The Wall Street Journal reports.

More

Exxon stepping up its fight against climate allegations

Exxon Mobil has been blogging and tweeting in response to allegations, contained in reports from the Los Angeles Times and InsideClimate News, that the company deliberately ignored warnings about the dangers of climate change dating back decades, and tried instead to foster doubts about climate science, FuelFix reports.

More

Clear, concrete language could help climate summit achieve its goals

Business leaders say if climate negotiators at the upcoming Paris summit can phrase their goals in clear, concrete terms, such as "decarbonization of the global economy", it could help the fight against climate change, E&E reports.

More

First NOAA chief White dead at age 92

The first head of the National Oceanic and Atmospheric Administration, Robert M. White, who sounded early warnings about climate change, has died at his Maryland home, The New York Times reports.

More

Seeds of VW scandal date back ten years

A boardroom battle at Volkswagen in 2006 appeared to start the carmaker on the road to deception when it came to diesel car emissions, Bloomberg reports.

More

LyondellBasell beats 3Q estimates despite drop in income, revenue

LyondellBasell Industries beat analysts' estimates for the third quarter despite net income declining 5 percent and revenue dropping by 30 percent compared to the period a year ago on the back of declining crude prices, FuelFix reports.

More

Evanston proves suburbs can work without cars

Evanston, Illinois' successful effort to develop a suburban community that doesn't revolve around automobiles is the fruit of the work of a new generation of planners, Politico reports.

More

Upcoming Events

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

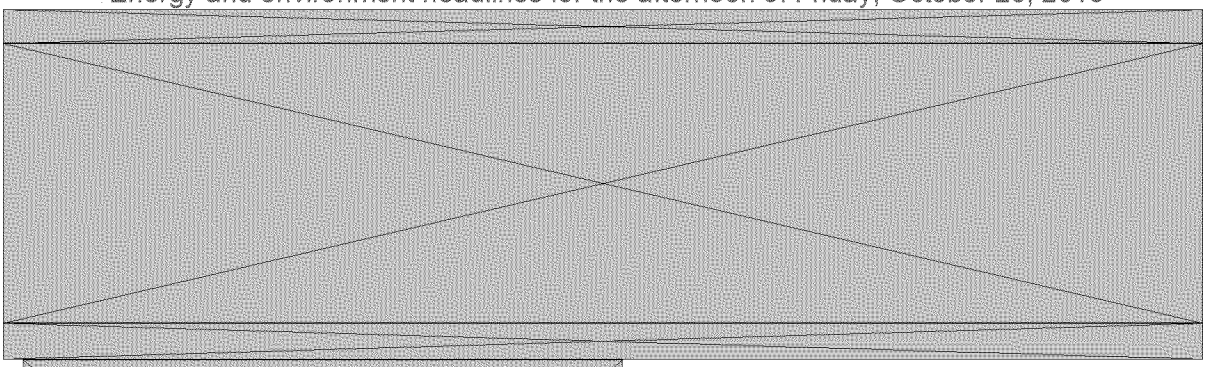
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

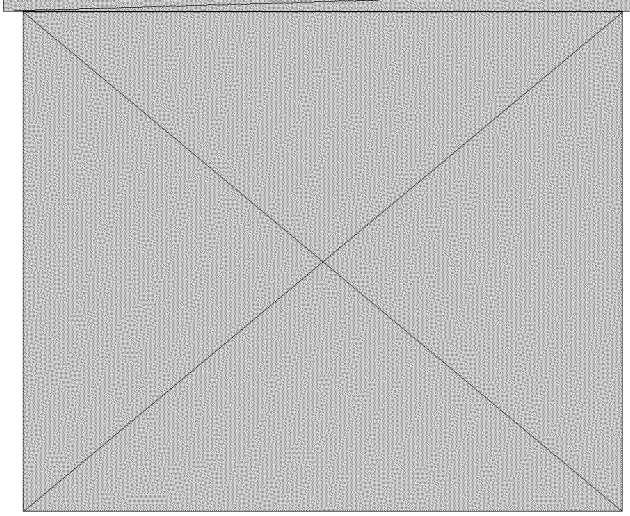
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Fri 10/23/2015 9:44:37 PM
Subject: Battle lines drawn as carbon rule fight moves to courts and Congress

Advertise | Contact

Energy and environment headlines for the afternoon of Friday, October 23, 2015





Battle lines drawn as carbon rule fight moves to courts and Congress

By Kevin Rogers

With the Environmental Protection Agency's final Clean Power Plan published in the Federal Register, more than two dozen states and and more than a dozen industry groups went to court Friday to overturn the plan, 15 states and two cities vowed to defend it, and lawmakers in both chambers of Congress readied votes to kill it.

The campaign to attack the regulations was met with a forceful response from the agency

which said the power plant carbon rules pass legal muster.

The rule for existing power plants, which require states to submit compliance plans to hit specific carbon reduction targets by 2030, is coupled with a rule setting hard emissions limits for new fossil fuel-fired plants. Combined, their goal is to cut sector carbon emissions by 32 percent from 2005 levels.

While the states, led by West Virginia, and industry groups, including the National Mining Association and the Chamber of Commerce, concentrated their legal fire on the standards for existing plants, Congress will seek to overturn both regulations, using the Congressional Review Act.

Senate Majority Leader Mitch McConnell, R-Ky., said he, with Sen. Joe Manchin, D-W.Va., would introduce a resolution to void the rule for new plants. Sens. Shelley Moore Capito, R-W.Va., and Sen. Heidi Heitkamp, D-N.D., meanwhile, will put forth a resolution to block the existing plant rules.

"Here's what is lost in this Administration's crusade for ideological purity: the livelihoods of our coal miners and their families. Folks who haven't done anything to deserve a 'war' being declared upon them," McConnell said in a statement. "I have vowed to do all I can to fight back against this administration on behalf of the thousands of Kentucky coal miners and their families."

Rep. Ed Whitfield, R-Ky., announced that he would introduce resolutions to nullify both rules on Monday.

Under the Congressional Review Act, both chambers have 60 days to vote to disapprove of executive rulemaking. The resolutions would then be sent to the president, and both chambers would have to win a two-thirds majority to overturn the threatened presidential veto.

That gives Republicans a steep hill to climb: They would have to win over four more Democrats to advance a resolution in the Senate, and 11 more to override a veto.

Democrats in both chambers have vowed to block any efforts to kill the regulations.

"September 2015 was the hottest month ever recorded," Sen. Ed Markey, D-Mass., said in a statement. "Now it's time to turn up the political heat on climate deniers and their allies that will try to block this critical action to address climate change."

The legal challenge was launched by a group of 25 states, led by West Virginia, who asked the U.S. Court of Appeals for the District of Columbia Circuit to stay implementation of the existing plants rule until its legality could be established.

"The EPA's rule is flatly illegal, and one of the most aggressive executive branch power grabs that we've seen in a long time," Attorney General Patrick Morrisey told reporters on a

call. "The EPA is trying to transform itself from an environmental regulatory authority to a central energy-planning authority. That's not permitted under the Clean Air Act, the case law or the Constitution."

The states allege that the rules would illegally double-regulate power plants by limiting carbon under one section of the Clean Air Act while limiting other pollutants under a different section. The suit also alleges the new rule unlawfully presses states to cycle out coal fired electricity in favor of natural gas and renewable energy.

Administrator Gina McCarthy, however, defended the rules as "grounded firmly in science and the law," and said they wouldn't wreak the economic harm opponents said it would.

"The Plan is fully consistent with the Clean Air Act, and relies on the same time-tested state-federal partnership that, since 1970, has reduced harmful air pollution by 70 percent, while the U.S. economy has tripled," she wrote in a blog post.

McCarthy will be supported in the agency's legal defense by attorneys general from 15 states, joined by New York City and the District of Columbia, who plan to file motions in support of the rule next week.

On a call with reporters, New York Assistant Attorney General Michael Myers, of the Environmental Protection Bureau, said that the states and industries opposing the rules wouldn't meet the high bar to achieve a stay.

To stay the regulations, the plaintiffs would have to prove that, if the rule is implemented, it would would cause them irreversible harm; that the harm of not implementing the rules would be outweighed by the harm; and that their legal arguments against the rules would likely prevail.

"That is not a showing I believe the petitioners will be able to make here," Myers said.

He said that he expects that the coalition of states and cities offering legal support to the agency will grow before the support motions are officially filed.

The Chamber of Commerce, joining 18 additional industry groups in a suit of their own, also sought a stay, saying that the final rules were a "bad deal for America" and would cause economic damage to businesses and consumers alike, through higher electricity prices and job losses.

"EPA completely bypassed the legislative branch, basing its 2,000-page rule on roughly 300 words in the Clean Air Act and including a host of policies that have already been considered and rejected by Congress," Chamber President and CEO Thomas Donahue said in a statement.

The National Mining Association, in a separate lawsuit, said the rules had potential for "substantial harm" if they weren't blocked.

Also filing suit against the EPA on Friday was Murray Energy Corp., the nation's largest privately owned coal company.

But environmentalists vowed to stand with EPA against "big polluters and their allies."

"They can throw everything and the kitchen sink at this standard, but the Clean Power Plan's push to cut dangerous carbon pollution from power plants for the first time ever is based on a law passed by Congress and upheld by the Supreme Court, and it has the overwhelming support of the American people," Mary Anne Hitt, director of the Sierra Club's Beyond Coal program, said in a statement.

The Associated Press contributed to this story.

Quick Links

Mexico braces for strongest hurricane in Western hemisphere

Why did Hurricane Patricia become a monster so quickly?

Talks on climate deal heat up over bill for global warming

American Airlines 3Q profit soars on cheaper jet fuel

Amid protests, bear hunting season opens in Florida

GOP candidates dominate guest lineups for Sunday news shows

Energy money has helped prospective Speaker Ryan

Mexican Pacific ports prepare for Patricia

Commodity price slides are hurting Middle America

Oil back below $45 on strong dollar

Oil rig drop makes for 8 weeks of declines

Exxon stepping up its fight against climate allegations

Clear, concrete language could help climate summit achieve its goals

First NOAA chief White dead at age 92

Seeds of VW scandal date back ten years

LyondellBasell beats 3Q estimates despite drop in income, revenue

Evanston proves suburbs can work without cars

Upcoming Events

Mexico braces for strongest hurricane in Western hemisphere

By Christopher Sherman

PUERTO VALLARTA, Mexico (AP) — Hurricane Patricia barreled toward southwestern Mexico Friday as a monster Category 5 storm, the strongest ever in the Western Hemisphere.

Residents and tourists were hunkering down or trying to make last-minute escapes ahead of what forecasters called a "potentially catastrophic landfall" later in the day.

The storm was homing in on a Pacific coastline dotted with sleepy fishing villages and gleaming resorts, including the popular beach city of Puerto Vallarta and the port of Manzanillo.

After hitting land, Patricia's projected path would quickly take it over mountainous terrain that is prone to dangerous flash floods and landslides.

More

Why did Hurricane Patricia become a monster so quickly?

By Seth Borenstein

WASHINGTON (AP) — Hurricane Patricia zoomed from tropical storm to record-beater in 30 hours flat like a jet-fueled sports car.

Why? The Pacific storm had just the right ingredients.

Plenty of warm water provided the energy what meteorologists call explosive intensification. The air was much moister than usual, adding yet more fuel. And at the same time, upper-

level crosswinds — called shear — that restrain a hurricane from strengthening were missing for much of Thursday, meteorologists said.

"I was really astounded," said MIT meteorology professor Kerry Emanuel. "It was over the juiciest part of the eastern Pacific."

More

Talks on climate deal heat up over bill for global warming

By Karl Ritter

BONN, Germany (AP) — The trillion-dollar question of who should pay for global warming is coming to a head in talks on an international climate pact, as developing countries worry they won't get enough money to tackle the problem.

With just five weeks left before a U.N. climate summit in Paris, developing countries closed ranks at weeklong talks ending Friday in Bonn and called on wealthy nations to make firm financial commitments to help them fight and adapt to climate change.

The Paris summit "will be judged by what is contained in the core agreement on finance. For us, that will be the yardstick for success," said Nozipho Mxakato-Diseko of South Africa, who chairs a developing country bloc of 134 countries.

In testy exchanges with the Algerian and U.S. diplomats leading the climate talks, Mxakato-Diseko complained that a draft deal they produced was "lopsided" in favor of developed countries. She even drew an analogy to apartheid.

More

American Airlines 3Q profit soars on cheaper jet fuel

By David Koenig

FORT WORTH, Texas (AP) — A big merger and cheaper jet fuel are doing wonders for American Airlines.

The world's biggest airline reported Friday that net income jumped 80 percent to $1.69 billion in the third quarter thanks to a huge drop in fuel spending.

The shares fell, however, after American leaders said that next year they will introduce new fares designed to compete with discount carriers including Spirit and Frontier. Spirit's stock took an even bigger hit — it was down more than 6 percent at midday.

U.S. airfares rose faster than inflation for several years, but they have dropped this year as airlines took advantage of cheaper fuel to increase flights or use bigger planes. They have cut prices to fill the growing number of seats.

More

Amid protests, bear hunting season opens in Florida

By Jason Dearen

GAINESVILLE, Fla. (AP) — Hunters for the first time in more than 20 years will trudge through Florida woods on Saturday to legally kill black bears, a contentious wildlife management action that has activists taking to the streets in protest.

Florida wildlife officials have sold more than 3,200 permits to hunters from all over, including 1970s rocker Ted Nugent and Liesa Priddy, a rancher and Florida Fish and Wildlife Conservation Commission member who voted to approve the new hunts.

The hunt was approved by the commission earlier this year after much debate. In the end, the members said the black bear population had grown to 3,500 — up from a few hundred in the 1970s — and presented a safety problem. With the state's ballooning human population pushing development into ever more rural areas, human-bear encounters have shot up recently. The decision overturned a 20-year ban on bear hunting in Florida.

For this first hunt, the state will allow hunters to slay 320 bears in four regions where populations are densest. Thirty-two other states also allow black bear hunts.

More

A message from the American Petroleum Institute

America is now the world's #1 natural gas producer and will soon be #1 in oil. Now more than ever, abundant energy means abundant prosperity, opportunity and security for all Americans.

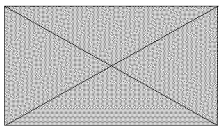
Learn more at EnergyTomorrow.org

GOP candidates dominate guest lineups for Sunday news shows

WASHINGTON (AP) — Guest lineups for the Sunday TV news shows

- ABC's "This Week" — Republican presidential candidate Donald Trump.
- NBC's "Meet the Press" — Republican presidential candidate Ben Carson
- CBS' "Face the Nation" — Republican presidential candidate Chris Christie; Reps. Devin Nunes, R-Calif., and Adam Schiff, D-Calif.
- CNN's "State of the Union" — Trump; Republican presidential candidate Marco Rubio; Democratic presidential candidate Bernie Sanders.
- "Fox News Sunday" — Carson; Rep. Jim Jordan, R-Ohio.

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

Energy money has helped prospective Speaker Ryan

Rep. Paul Ryan, R-Wis., who's expected to become the next House Speaker, has received recent contributions from a wide variety of energy companies, as well as the American Gas Association and Koch Industries Inc., E&E reports.

More

Mexican Pacific ports prepare for Patricia

Manzanillo—which has a sizeable LNG import terminal and a 2,700 megawatt power plant—and Lazaro Cardenas—with a dock for coal imports to a nearby power plant—are among the Mexican cities hunkering down for the anticipated impact of Hurricane Patricia on the country's Pacific coast, Platts reports.

More

Commodity price slides are hurting Middle America

In Texas, Missouri and Illinois on up into North Dakota's Bakken Shale, workers for companies with links to commodities are fearing for their future, The New York Times reports.

More

Oil back below $45 on strong dollar

A surge in the dollar that followed news of China introducing stimulus measures in its economy helped pressure oil prices Friday. U.S. benchmark crude lost 78 cents, or 1.7 percent, to settle at $44.60 a barrel on the Nymex, while in London, Brent fell 9 cents to $47.99, The Wall Street Journal reports.

More

Oil rig drop makes for 8 weeks of declines

According to the weekly rig count from oil field services firm Baker Hughes, the number of rigs drilling for oil in the U.S. dropped by one, to 594, The Wall Street Journal reports.

More

Exxon stepping up its fight against climate allegations

Exxon Mobil has been blogging and tweeting in response to allegations, contained in reports from the Los Angeles Times and InsideClimate News, that the company deliberately ignored warnings about the dangers of climate change dating back decades, and tried instead to foster doubts about climate science, FuelFix reports.

More

Clear, concrete language could help climate summit achieve its goals

Business leaders say if climate negotiators at the upcoming Paris summit can phrase their goals in clear, concrete terms, such as "decarbonization of the global economy", it could help the fight against climate change, E&E reports.

More

First NOAA chief White dead at age 92

The first head of the National Oceanic and Atmospheric Administration, Robert M. White, who sounded early warnings about climate change, has died at his Maryland home, The New York Times reports.

More

Seeds of VW scandal date back ten years

A boardroom battle at Volkswagen in 2006 appeared to start the carmaker on the road to deception when it came to diesel car emissions, Bloomberg reports.

More

LyondellBasell beats 3Q estimates despite drop in income, revenue

LyondellBasell Industries beat analysts' estimates for the third quarter despite net income declining 5 percent and revenue dropping by 30 percent compared to the period a year ago on the back of declining crude prices, FuelFix reports.

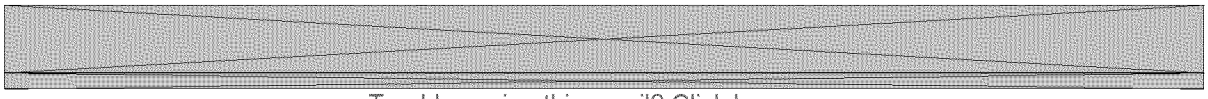
More

Evanston proves suburbs can work without cars

Evanston, Illinois' successful effort to develop a suburban community that doesn't revolve around automobiles is the fruit of the work of a new generation of planners, Politico reports.

More

Upcoming Events



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Kaul, Meetu[Kaul.Meetu@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]
Cc: Shinkman, Susan[Shinkman.Susan@epa.gov]
From: Werner, Jacqueline
Sent: Fri 10/23/2015 10:00:27 PM
Subject: Volkswagen Investigation Oct 23 2015.docx
Volkswagen Investigation Oct 23 2015.docx

Here is the latest status update on the VW investigation.

Thanks,

jj

Ex. 7

Ex. 7

Ex. 7

From: Nico Bouwkamp
Sent: Fri 10/23/2015 10:19:43 PM
Subject: New Hydrogen Infrastructure Assessments Webpage

CaFCP members,

The California Air Resources Board (ARB) has created a new webpage with information on ARB's assessments of hydrogen fueling infrastructure. In order to identify the areas of greatest need for fueling infrastructure development, ARB developed the California Hydrogen Infrastructure Tool (CHIT). CHIT is a Geographical Information System-based tool developed in the ArcGIS environment to assess the special distribution of the gap between the coverage provided by existing and funded hydrogen stations and the potential first adopter market for fuel cell electric vehicles. The new Hydrogen Infrastructure Assessments webpage provides resources for understanding and exploring the analysis completed by ARB through CHIT.

The new webpage may be found at

http://www.arb.ca.gov/msprog/zevprog/hydrogen/h2fueling.htm

For more information, contact Ex. 7 or Ex. 7

Best regards,

Nico Bouwkamp | CaFCP Technology Analyst | BKI Sr. Program Consultant

916-375-8050 (o) | 707-688-8728 (m) | nbouwkamp@cafcp.org

To: Bunker, Byron[bunker.byron@epa.gov]
From: Ex. 6
Sent: Mon 10/26/2015 1:20:52 AM
Subject: Volkswagen 2.0L TDI Diesel Emissions Issue, VW Action Code 23Q2

Director Bunker,

My wife and I own a 2012 Volkswagen (VW) Golf TDI 'Clean Diesel' passenger car equipped with a EA189 2.0-liter diesel engine. Our vehicle is fitted with the 'Gen 1' emissions aftertreatment system and uses a software defeat device to cheat on the results of NO_x emissions testing, and thus violates the US Clean Air Act (CAA). We purchased this vehicle, brand-new, from Stohlman Automotive of Tysons Corner, VA on July 25, 2011. Our two children have been regular passengers in the automobile since their births in June 2012 and June 2014 respectively. We are obviously extremely troubled about the long-term health implications this vehicle will have upon our family and our community due to exposure to excessive amounts of harmful NO_x pollutants. We are also very concerned about the financial repercussions this vehicle will have upon our family.

We purchased this vehicle due to its numerous publicized attributes:

- it is a 'Clean Diesel'; Tier 2 Bin 5/CA LEV II-compliant automobile (i.e., the automobile can be sold & driven in all 50 states)
- VW rated this vehicle @ 140 hp and 236 lbs./ft torque with 30 mpg city and 42 mpg highway; and claimed that real-world fuel economy tests beat EPA estimates
- numerous automotive publications indicated that the car was a highly rated 'green vehicle' blending 'clean' emissions with good fuel economy
    - ○ our test drive of a similarly equipped 2011 VW Golf TDI Clean Diesel confirmed reviews from the automotive publications;
- having been in production for the three previous years, the 2012 VW Golf TDI was not based-upon a new & untested design

It is now mid-October of 2015, and nearly 500 days have passed since this emissions system fraud was first uncovered by West Virginia University. VW is continuing with their 'song-and-dance' stalling tactics asking for customers to be patient and give VW time to engineer a solution. VW Group of America CEO Michael Horn said in congressional testimony October 8, 2015 that an engineering solution for 'Gen 1' vehicles, such as ours, would probably not be ready until late 2016. With 340,000+ 'Gen 1' vehicles affected and recall repairs requiring approximately 5-10 hours per vehicle our automobile would surely not be repaired until sometime in 2017. This time-frame is unreasonable. VW maliciously defrauded consumers and regulators; they should immediately remedy the situation and be severely punished.

Every component interconnected to the emissions system in our vehicle has been compromised. The 'post-resolution' attributes of the vehicle are completely nebulous - horsepower, torque, fuel economy, performance, maintenance requirements, reliability and warrantability are all unknown

quantities! Therefore the acceptability of any proposed remedy from VW should be at the discretion of the owner of the vehicle; not by the government, and certainly not by VW. Only the owner of the vehicle can determine the acceptable level of risk they are willing to bear. It is absolutely unreasonable for vehicle owners to be expected to wait another 500+ days for VW to implement a fix AND then bear the full burden of risk on a hastily designed, unproven, minimally tested 'Frankenstein' solution. Why should we trust VW? We demand that VW:

- offer owners the opportunity for an immediate 'buy back' of the affected cars for the entire purchase price of the vehicle
- repair all environmental damages; pay all government-issued penalties
- repair all vehicles ensuring full compliance with all US emissions standards
- fairly compensate owners for all inconveniences incurred due to the misdirected & deceitful December 2014 voluntary recall
- fairly compensate owners for all reasonable damages

For years we have been deceived by VW and their 'Clean Diesel'. Please help us ensure that those found to be responsible are held accountable and that victims' rights are fully protected.

Sincerely,

Mrs. Ex. 6 Mr. Ex. 6

Addendum

To add further insult to our problems with this car, this past weekend our VW reported a Check Engine Light (CEL) warning. Diagnosis from the Stohlman VW service department identified a CEL P046C code - a faulty Exhaust Gas Recirculation (EGR) valve - an approximate $900 repair. The EGR valve is a critical component in the 'Gen 1' diesel emissions aftertreatment system. We spoke to VW Customer Care (VW Customer Care Case # Ex. 6 suggesting that it is absurd that we pay one penny to repair a system is faulty due to defects in material design & workmanship. VW's response was that the emissions system is out-of-warranty and that there was nothing that they could do. We are being unfairly penalized for VW's criminal engineering and belated solutions.

Coincidentally, we have also recently been notified of NHTSA recall 15V483 (Steering Wheel Clock Spring) which may prevent the airbag on our 2012 VW Golf TDI from deploying in the event of a vehicle crash, for which there is no repair solution available. Can you see the long lines of dealers and people wanting to buy or trade for our vehicle?

--

Ex. 6

To: Thomas, Richard (EEO)[Richard.Thomas@vw.com]
From: Good, David
Sent: Mon 10/26/2015 2:22:31 PM
Subject: RE: A3 e-tron PHEVC Fuel Economy

Richard,

I'll run the query this morning. For PHEVs, it usually takes me an hour or two to review each index for errors. [A lot is done by hand.]

Did you already send me a copy of Rob's v17 or v18 calculators for both indexes and copies of both labels (window stickers)?

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Monday, October 26, 2015 9:59 AM
To: Good, David
Subject: A3 e-tron PHEVC Fuel Economy

Welcome back Dave;

You may have seen some mail to Rob French last week regarding the 2016 Audi A3 e-tron PHEV labels. After a lot of difficulty my colleagues have entered the EPA confirmatory test into Verify and test numbers were generated for the A3 e-tron label index #101 which I have now entered into the Verify label program. So now both the A3 e-tron ultra (index #102) and the A3 e-tron are ready to be audited. I would appreciate it if you can give me your query for these two labels so that I am sure I have the correct values to pass on to our press people for events to occur starting tomorrow. Rob reviewed the PHEV fuel economy calculators last Friday and only had a couple of minor questions.

If you can give me a timeline of when you can run your query that would be very helpful. Please

feel free to call me if you have any questions or comments.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Good, David[good.david@epa.gov]
From: Thomas, Richard (EEO)
Sent: Mon 10/26/2015 2:50:59 PM
Subject: RE: A3 e-tron PHEVC Fuel Economy
MyDocument_2015_10_26_10_43_44.pdf
PHEV Calculator v18_etron ret.xlsm
PHEV Calculator v18_etron_Ultra ret.xlsm

Hi Dave;

Please find the latest PHEV calculators for the A3 e-tron and A3 e-tron ultra labels # 101 and #102 respectively. These were review last week by Rob, I only added the CD test numbers after my colleagues entered the EPA tests into Verify.

I only have one sample label to show you for the A3 e-tron ultra, I have marked that blended label up because our IT people are still working with the Monroney label vendor to make corrections. The proper annual fuel cost and 5-year fuel saving have to be manually entered and the program will be corrected to show the gallons per 100 mile value to the correct value of "0.0". It will also be corrected to show the all-electric range of 0-17 miles.

If you have and questions, please let me know.

Thanks,

Richard

From: Good, David [mailto:good.david@epa.gov]
Sent: Monday, October 26, 2015 10:23 AM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Subject: RE: A3 e-tron PHEVC Fuel Economy

Richard,

I'll run the query this morning. For PHEVs, it usually takes me an hour or two to review each index for errors. [A lot is done by hand.]

Did you already send me a copy of Rob's v17 or v18 calculators for both indexes and copies of both labels (window stickers)?

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Monday, October 26, 2015 9:59 AM
To: Good, David
Subject: A3 e-tron PHEVC Fuel Economy

Welcome back Dave;

You may have seen some mail to Rob French last week regarding the 2016 Audi A3 e-tron PHEV labels. After a lot of difficulty my colleagues have entered the EPA confirmatory test into Verify and test numbers were generated for the A3 e-tron label index #101 which I have now entered into the Verify label program. So now both the A3 e-tron ultra (index #102) and the A3 e-tron are ready to be audited. I would appreciate it if you can give me your query for these two labels so that I am sure I have the correct values to pass on to our press people for events to occur starting tomorrow. Rob reviewed the PHEV fuel economy calculators last Friday and only had a couple of minor questions.

If you can give me a timeline of when you can run your query that would be very helpful. Please feel free to call me if you have any questions or comments.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

The calculated values for these methods are shown in the calculation worksheets in rows 25-30.

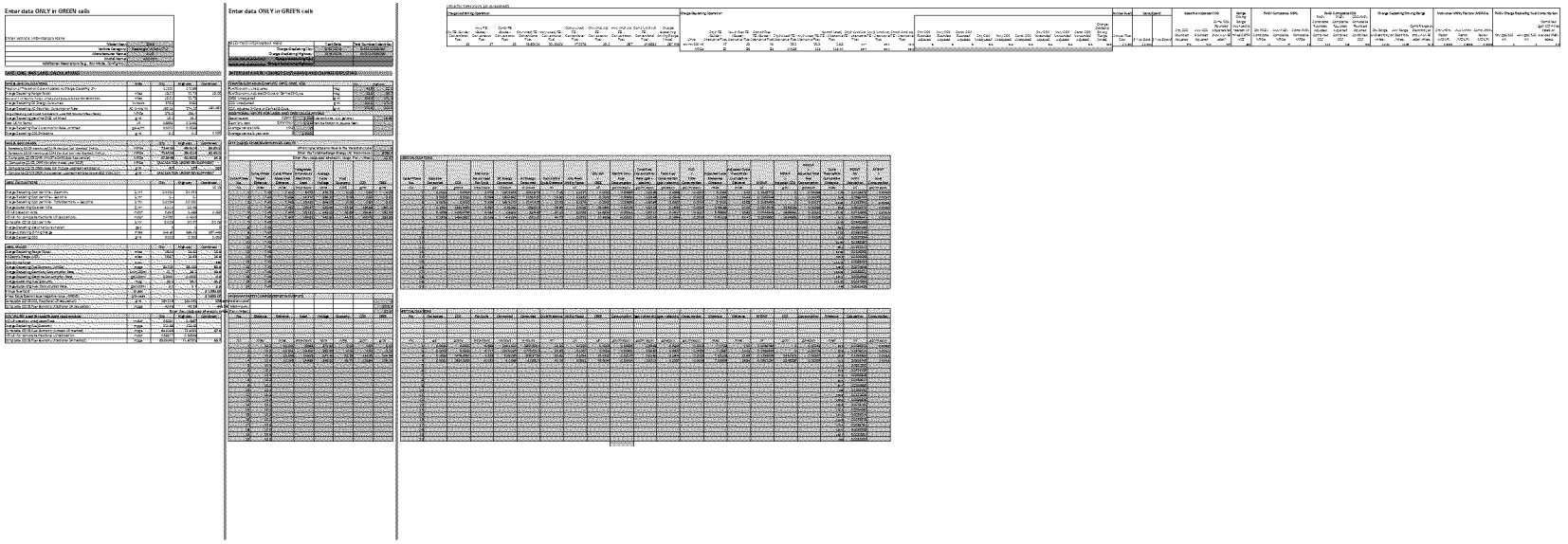
		For model years up to and including 2019	
		Is it a dual fuel vehicle under 49 U.S.C. 32905/32906 and 49 CFR 538.5, i.e., does it meet minimum driving range requirements specified by DOT?	
		YES	**NO**
Does it exhibit blended operation during charge-depleting UDDS or HFET test procedures?	**YES**	A	C
	NO	B	

Description of CAFE methodologies. The methodology for GHG calculations is always Method C.	
A	CAFE = 50/50 weighting of electricity and gasoline efficiencies. Electricity efficiency is calculated using equivalent all-electric range and recharge event electricity, using DOE Petroleum Equivalence Factor (includes 0.15 adjustment)
B	CAFE = 50/50 weighting of electricity and gasoline = 50/50 weighting of charge-depleting and charge-sustaining modes, using DOE Petroleum Equivalence Factor (includes 0.15 adjustment)
C	Utility Factor weighting of charge-depleting and charge-sustaining modes. Electricity is counted only on an energy equivalent basis (no use of DOE Petroleum Equivalence Factor or 0.15 adjustment)
D	Utility Factor weighting of charge-depleting and charge-sustaining modes. Electricity is counted only on an energy equivalent basis (with DOE Petroleum Equivalence Factor including 0.15 adjustment)

d use. The calculated values

For 2020 and later model years
D

y for GHG calculations is	Examples
ciencies. Electricity efficiency is arge event electricity, using DOE ent)	None
0/50 weighting of charge-depleting quivalence Factor (includes 0.15	Chevrolet Volt Ford Fusion/C-Max Honda Accord Porsche Spyder
e-sustaining modes. Electricity is f DOE Petroleum Equivalence Factor	Toyota Prius Porsche Panamera
e-sustaining modes. Electricity is E Petroleum Equivalence Factor	None (applies only after 2019 model year)



Version 15.

May 29, 2014.

Corrected table in READ ME! Worksheet for 2020 and later CAFE calculations. It indicated no use of 0.15 or DO

Columns AI and AJ, which use an adjustment factor based on the 5-cycle derived equation or 0.7 (whichever is

Cell D19 units changed to gal-e/mile (was gal/e).

Added capability to calculate the HOV lane values (used for specific state purposes).

E PEF, which was incorrect.

higher) are now used to calculate label values for Rcdc, Rcda, and AER. These values previously used 0.7 only.

The calculated values for these methods are shown in the calculation worksheets in rows 25-30.

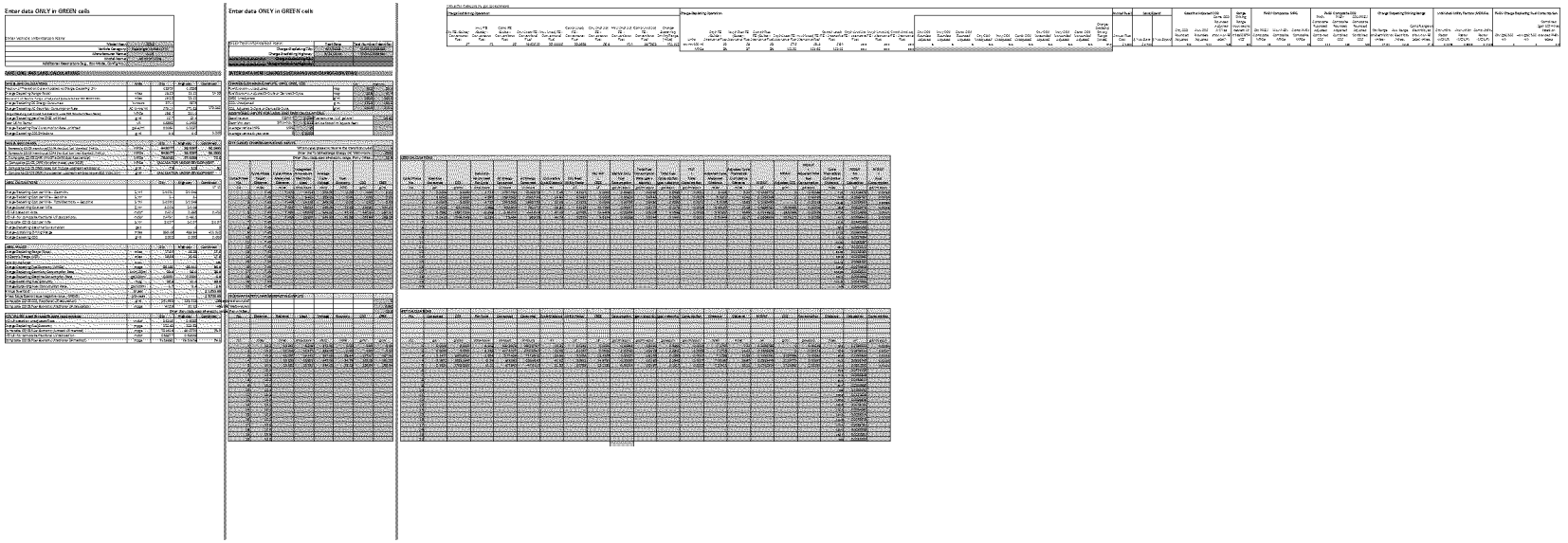
		For model years up to and including 2019	
		Is it a dual fuel vehicle under 49 U.S.C. 32905/32906 and 49 CFR 538.5, i.e., does it meet minimum driving range requirements specified by DOT?	
		YES	**NO**
Does it exhibit blended operation during charge-depleting UDDS or HFET test procedures?	**YES**	A	C
	NO	B	

Description of CAFE methodologies. The methodology for GHG calculations is always Method C.	
A	CAFE = 50/50 weighting of electricity and gasoline efficiencies. Electricity efficiency is calculated using equivalent all-electric range and recharge event electricity, using DOE Petroleum Equivalence Factor (includes 0.15 adjustment)
B	CAFE = 50/50 weighting of electricity and gasoline = 50/50 weighting of charge-depleting and charge-sustaining modes, using DOE Petroleum Equivalence Factor (includes 0.15 adjustment)
C	Utility Factor weighting of charge-depleting and charge-sustaining modes. Electricity is counted only on an energy equivalent basis (no use of DOE Petroleum Equivalence Factor or 0.15 adjustment)
D	Utility Factor weighting of charge-depleting and charge-sustaining modes. Electricity is counted only on an energy equivalent basis (with DOE Petroleum Equivalence Factor including 0.15 adjustment)

d use. The calculated values

For 2020 and later model years
D

y for GHG calculations is	Examples
ciencies. Electricity efficiency is arge event electricity, using DOE ent)	None
0/50 weighting of charge-depleting quivalence Factor (includes 0.15	Chevrolet Volt Ford Fusion/C-Max Honda Accord Porsche Spyder
e-sustaining modes. Electricity is f DOE Petroleum Equivalence Factor	Toyota Prius Porsche Panamera
e-sustaining modes. Electricity is E Petroleum Equivalence Factor	None (applies only after 2019 model year)



Version 15.

May 29, 2014.

Corrected table in READ ME! Worksheet for 2020 and later CAFE calculations. It indicated no use of 0.15 or DO Columns AI and AJ, which use an adjustment factor based on the 5-cycle derived equation or 0.7 (whichever is

Cell D19 units changed to gal-e/mile (was gal/e).

Added capability to calculate the HOV lane values (used for specific state purposes).

E PEF, which was incorrect.

higher) are now used to calculate label values for Rcdc, Rcda, and AER. These values previously used 0.7 only.

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Mon 10/26/2015 3:08:13 PM
Subject: Air & Radiation Law News for October 26, 2015

Air & Radiation Law News for October 26, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

Haze Deadline Change Would Allow Coordinated Planning

Planned revisions to the Environmental Protection Agency's regional haze regulations would allow states to coordinate their planning with compliance efforts under other air rules, an EPA attorney said....

Air Pollution

House Republicans Seek to Block Ozone Rule

House Republicans have introduced a joint resolution of disapproval over the Environmental Protection Agency's recently revised national ozone standards, the first step in a Congressional Review Act challenge to the rule....

Air Pollution

N.C. Proposes Small Air Pollution Permit Exemptions

North Carolina is proposing to exempt small sources of air pollution from state permitting requirements....

Climate Change

VW Downgrade Said to Show Impact of Climate Concerns

Environmental and climate risks are increasingly affecting corporate credit ratings as the example of Volkswagen AG's downgrade this month demonstrates, rating agency Standard & Poor's said in a report....

Climate Regulation

Majority of States Challenge EPA's Clean Power Plan

A majority of states and senior congressional leaders took immediate steps to block the Environmental Protection Agency's suite of carbon dioxide standards for power plants as soon as they were published in the Federal Register....

Energy

A Review of 2015 Energy Tax Developments

Technological advances and other changes in the energy industry have prompted a closer examination into energy taxation in recent years as the industry expands from a reliance on traditional fossil fuels to include renewable energy resources....

Enforcement

EPA Testing New Way to Measure Air Pollution Emissions

The Environmental Protection Agency is testing a computer program that works with infrared pollution detection cameras to measure pollution emissions rates, Phillip Brooks, director of the agency's Air Enforcement Division of the...

Forests

Maryland Attorney General Backs Local Forest Protections

Maryland localities may require developers to protect more forest than state law requires even if the state conservation agency objects, Maryland Attorney General Brian Frosh (D) said in an advisory opinion....

International Climate

'Balanced' Bonn Text Could Form Basis for Paris Climate Pact

The final round of United Nations climate negotiations before a summit late this year in Paris to produce the world's first global climate agreement closed Oct. 23 with what the UN's top climate official called a "balanced and...

International Climate

Administration Won't Seek Binding Carbon Cuts in Accord

President Barack Obama's administration is "not seeking" legally binding emissions targets as part of an international agreement on climate change in Paris, the State Department told Sen. Bob Corker (R-Tenn.). ...

International Climate

Nations Back Post-2020 Tightening of Paris Climate Pact

Talks in Bonn toward the first broad international climate change agreement concluded Oct. 23 with negotiators endorsing a way to repeatedly strengthen efforts to combat climate change every few years after 2020 without reopening the accord,...

Oil & Gas

North Dakota Approves Credits for Gas Flaring Reduction

The North Dakota Industrial Commission Oct. 22 voted to offer flaring credits to oil producers who are able to meet the state's natural gas flaring-reduction goals....

INTERVIEW

Energy

Moeller: Next FERC Challenge Is Integrating Renewables

Philip Moeller is bidding adieu to the Federal Energy Regulatory Commission the week of Oct. 26 after serving as commissioner for nearly 10 years, beginning in 2006. Looking into the future, Moeller sees integrating renewables onto the grid...

News Briefs

EPA Ozone NAAQS Publication Will Start Clock For Suits

EPA plans to publish in the Oct. 26 *Federal Register* its final rule revising its ozone national ambient air quality standard (NAAQS) of 75 parts per billion (ppb) down to 70 ppb, starting a 60-day Clean Air Act clock for lawsuits that could come from advocates who say the rule is too weak and industry groups that say it is too strict.

Fertilizer Manufacturers Sue EPA Over Air Toxics Rule

Fertilizer manufacturers are suing EPA over its final rule tightening air toxics standards for the sector, claiming that the agency imposed unreasonable emissions control requirements that were applicable immediately upon the rule's issuance, even though EPA never gave the companies a chance to weigh in on the mandates.

Greenwire

CLEAN POWER PLAN:

States, industries launch legal assault

Robin Bravender and Jean Chemnick, E&E reporters

Published: Friday, October 23, 2015

The legal onslaught against the Obama administration's Clean Power Plan kicked off today as 25 states, industry and labor groups challenged the rule in court.

Today's formal publication of the U.S. EPA rule to curb power plants' greenhouse gas emissions triggered a 60-day deadline for challenging the rule in court. And opponents didn't waste any time; challenges began streaming in early this morning, and EPA's foes are asking judges to halt the power plant rules while the legal battle plays out. Today's court filings represent the opening salvo in a court fight that's expected to take years and may ultimately be decided by the Supreme Court.

More than two dozen states opposed to EPA's regulations promptly filed lawsuits this morning.

A coalition led by West Virginia filed a petition challenging the rule on behalf of 24 states: Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Indiana, Kansas, Kentucky, Louisiana, Michigan, Missouri, Montana, Nebraska, New Jersey, North Carolina, Ohio, South Carolina, South Dakota, Texas, Utah, West Virginia, Wisconsin and Wyoming.

West Virginia Assistant Attorney General J. Zak Ritchie arrived at the U.S. Court of Appeals for the District of Columbia Circuit early this morning to be first in line to file a lawsuit. Those who file the first petition win the distinction of being named on the lawsuit, and several petitioners were lined up at court this morning to file their petitions as soon as the clerk's office opened at 9 a.m.

"Petitioners will show that the final rule is in excess of the agency's statutory authority, goes beyond the bounds set by the United States Constitution, and otherwise is arbitrary, capricious, an abuse of discretion and not in accordance with law," the West Virginia petition says.

West Virginia Attorney General Patrick Morrisey (R) told reporters on a conference call this morning that states will file a motion with the court later this afternoon asking judges to freeze the rule while they consider its legality. He called the EPA rule "one of the most onerous and illegal regulations coming out of Washington, D.C., that we've seen in a long time."

Oklahoma today filed a separate lawsuit challenging EPA's power plant rules.

Additional petitions filed before press time came from the National Mining Association, Murray Energy Corp., the American Coalition for Clean Coal Electricity and the International Brotherhood of Boilermakers. Further challenges are expected.

The challenges to EPA's power plant rules will likely be consolidated into one lawsuit.

Opponents of the climate regulations have already previewed their arguments to the D.C. Circuit.

Early this year, the court denied an unusual request by states, energy companies and industry groups to block EPA from finalizing its proposed greenhouse gas standards for power plants. The judges refused to rule on the legality of the standards before they were finalized (*Greenwire*, June 9).

And in September, the appeals court denied another early effort to block the standards. Fifteen states led by West Virginia sought an emergency stay to halt the Clean Power Plan as litigation challenging the regulations played out. But the court denied that request, too, saying challengers hadn't met the "stringent standards" that apply to halt agency actions. The D.C. Circuit typically doesn't entertain challenges to air rules until they are formally published in the *Federal Register* (*Greenwire*, Sept. 9).

The coalition of states challenging EPA's final rule in court is broader than the group that waged the initial challenges. States that sued today that weren't involved in the preliminary challenges include Arizona, Colorado, Georgia, Missouri, Montana, New Jersey, North Carolina, Texas and Utah.

"We wanted to wait until the rules were final," Texas Attorney General Ken Paxton (R) told reporters

today.

Many legal experts viewed the preliminary court challenges as long shots. But now that EPA's rule is officially ripe for court challenges, EPA's foes say they like their chances.

"There are many compelling legal reasons why this rule should be declared invalid," Morrisey said. And Paxton said state challengers are "pretty confident that we're going to get a stay."

Challengers are asking the court to issue a stay halting the rules "as fast as possible" to "avoid the harms to the states," Morrisey said. He said states are particularly concerned in light of a June decision by the Supreme Court that found an EPA mercury rule unlawful.

EPA said that plants had already invested in pollution controls and were "well on their way to making emissions reductions." That is "obviously unacceptable, and we're seeking a stay to avoid a repeat of that result and put an end to this unlawful rule now," Morrisey said today.

It's unclear when the court will decide whether to halt the rule. The judges may wait until the 60-day deadline for lawsuits and another 30-day deadline for filing court motions have passed to allow all interested parties to weigh in.

EPA, allies on defense

But EPA and its defenders say the rule is on firm legal footing, the product of exhaustive stakeholder outreach and likely to stand the test of time.

EPA Administrator Gina McCarthy in a blog post today called the rule "fair, flexible, affordable, and designed to reflect the fast-growing trend toward cleaner American energy."

She argued that -- far from being a departure from past practice -- the existing power plan rule is "fully consistent with the Clean Air Act" and respects the "state-federal partnership" that has been the basis for air quality rules since the law was enacted in 1970.

The rule's opponents say it raises constitutional questions because EPA is preparing to implement a federal plan in states that opt not to put forward their own. The proposed federal implementation plan was also published in the *Federal Register* today and will be open for comment until January.

Rep. Ed Whitfield (R-Ky.), chairman of the House Energy and Commerce Subcommittee on Energy and Power, said at a hearing yesterday that the rule represented an "executive branch power grab at the expense of the legislative branch and the states."

But Richard Revesz of New York University School of Law said at the same hearing that the rule posed no constitutional problems "because states are not required to do anything." If they opt not to regulate, the federal government will instead. But there is no penalty to them for making that choice.

While the total number of states suing EPA has climbed, only five governors have thus far said they will not submit an implementation plan. The vast majority of the 25 states that will go to court hoping to topple the rule are also planning to comply with it.

McCarthy and EPA acting air chief Janet McCabe have claimed this as a victory. "We're encouraged to see that many states are beginning their own planning processes because that means they're preparing to take action," McCarthy said in today's blog post.

McCabe, air office senior counsel Joe Goffman and others note that they continue to communicate with states as they pivot to implementing the rule, often participating in lengthy meetings and calls with state administrators.

"We are committed to helping everyone better understand the Clean Power Plan and have been impressed -- but certainly not surprised -- by the remarkable level of constructive engagement across the board," McCarthy said in the post. "Conversations are happening across the country."

EPA also has allies among state attorneys general, and a group of 15 states and the District of Columbia released a statement in August criticizing the states led by West Virginia for seeking to stay the rule after it was first signed.

Today, New York Attorney General Eric Schneiderman (D) said he would back EPA when it came time to defend the rule in court.

"My office is prepared to join with our partners to aggressively defend EPA's Clean Power Plan -- rules that will significantly reduce climate change pollution nationally," he said in a statement this morning. "These rules give states the flexibility to choose the best measures to cut pollution, while maintaining electrical reliability and economic growth."

Eight other states joined New York in August, pledging to stand "with EPA to defend these necessary emission standards if they are challenged in court."

And administration boosters of the rule were quick to claim some Republican support. They circulated a statement in praise of the rule from two past EPA administrators who served under Republican presidents: George H.W. Bush's Administrator William Reilly and William Ruckelshaus, who served under Presidents Nixon and Reagan.

"Already, we understand that 24 states are lined up to ask that its implementation be stayed or suspended," said the two former administrators. "The country needs to reduce CO2 from existing power plants which generate 40 percent of America's [carbon dioxide]. The rule is needed, and the courts we hope will recognize that it is on the right side of history."

Earlier this week, Reilly told a gathering of state environmental regulators who will be responsible for crafting state plans that they should "move ahead with planning and assume the rule will survive" (*Greenwire*, Oct. 21).

While EPA's rule requires an initial submittal next year, final plans are not due until 2018 when courts are likely to have weighed in on the rule. Failure to submit a final plan at that juncture would be "a bad idea," he said, given EPA's authority to regulate power plants directly.

AIR POLLUTION:

Final ozone rule coming in Monday's *Federal Register*

Amanda Reilly, E&E reporter

Published: Friday, October 23, 2015

The Obama administration's final rule setting a new ozone standard will be published Monday in the *Federal Register*.

Congressional foes led by Rep. Jackie Walorski (R-Ind.) this week indicated they intend to challenge the standard using the Congressional Review Act, a legislative oversight law.

Publication will also open the rule to lawsuits and kick off a 60-day clock for the standard to become effective.

U.S. EPA on Oct. 1 set the national ambient air quality standard for ozone at 70 parts per billion. It's the upper end of a proposed range but represents a lower limit than the 75 ppb standard set by the George W. Bush administration in 2008.

Ground-level ozone is a component of smog that's formed when nitrogen oxides and volatile organic compounds react in the presence of sunlight. EPA said that, after a review of more than 1,000 studies, it determined the Bush limit didn't protect the public against negative health effects linked to ozone (*Greenwire*, Oct. 1).

EPA's decision comes after President Obama punted on setting a new standard in 2011 ahead of his re-election push.

According to EPA, limiting ground-level ozone concentrations to 70 ppb will save up to 660 lives, prevent 230,000 asthma attacks in children and prevent 630 asthma-related emergency visits by 2025.

Green groups, though, have opposed EPA's choice, arguing that it doesn't fulfill the Clean Air Act requirement that the standard protect the public with an adequate margin of safety. They've called for a limit to ground-level ozone of no higher than 60 ppb.

Environmentalists have threatened to file legal action challenging the 70 ppb standard (*Greenwire*, Sept. 29).

Industry groups, congressional Republicans and several states had urged EPA to retain the Bush standard. They've repeatedly said a lower limit would come with excessive compliance costs and have questioned the science backing EPA's decision.

EPA says the standard will cost $1.4 billion annually but achieve health care savings of up to $5.9 billion in 2025. The analysis excludes California, which is expected to take longer to come into compliance.

Joined by Republican Reps. Luke Messer, Larry Bucshon and Todd Rokita of Indiana and Rep. Glenn Grothman of Wisconsin, Walorski yesterday filed a Congressional Review Act joint resolution opposing the new standard.

In a statement, Walorski cited EPA's cost estimates and said she worried that the standard would affect job growth.

"It's time to end the EPA's assault on business," Walorski said in a statement. "We should focus on policies that grow the economy, not burying job creators under red tape and burdensome mandates."

Through the CRA, Congress can disapprove new rules once they are published under an expedited process; the president, however, would likely veto any congressional action that seeks to undo the new ozone standard.

EPA is poised to make determinations on which areas of the country are out of compliance with the new standard in 2017. States with areas in "nonattainment" will be required to develop plans to reduce ozone concentrations.

Manufacturers warn that the new standard will affect new construction projects right away by creating a permitting "limbo" (*Greenwire*, Oct. 8).

CLEAN POWER PLAN:

EPA foes teeing up Congressional Review Act bids

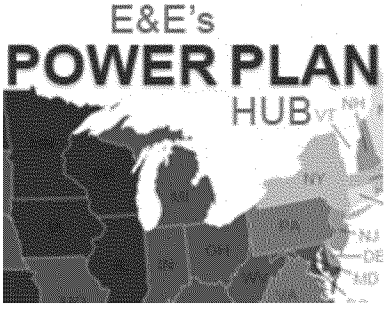
Jean Chemnick, E&E reporter

Published: Friday, October 23, 2015

Republicans on both sides of Capitol Hill are poised to introduce resolutions early next week to kill U.S. EPA's Clean Power Plan and its new power plant rule, which were published in the *Federal Register* this morning.

Senate Majority Leader Mitch McConnell (R-Ky.) will introduce his resolution targeting EPA's new source rule with Sen. Joe Manchin (D-W.Va.), and will back a separate motion sponsored by Sens. Shelley Moore Capito (R-W.Va.) and Heidi Heitkamp (D-N.D.) that would scuttle the existing power plant rule.

The rule for new power plants would effectively mandate carbon capture and storage technology for new coal-fired generation, while the Clean Power Plan pursues a 32 percent cut in power-sector emissions nationwide through rules that encourage renewable energy use and efficiency over fossil fuels.



"Here's what is lost in this Administration's crusade for ideological purity: the livelihoods of our coal miners and their families," said McConnell in a statement announcing the move. "I have vowed to do all I can to fight back against this Administration on behalf of the thousands of Kentucky coal miners and their families, and this CRA is another tool in that battle."

It's a tool that the House will tap, as well. Rep. Ed Whitfield (R-Ky.) announced today that he would introduce companion resolutions Monday to block both the new and the existing power plant rules.

"Now we've got EPA's cap-and-trade rules, a blueprint for economic disaster, right there in black and white in the *Federal Register*," said Whitfield, who chairs a key Energy and Commerce subcommittee. "Nothing in the Clean Air Act suggests EPA has such sweeping authority to implement this complicated and far-reaching scheme to commandeer each state's electricity system."

The CRA resolutions may not be the only Senate vote on the Clean Power Plan this fall. Capito's bill to permit states to opt out of the rule without fear of a federal implementation plan being imposed could still get floor time, though it is less likely to garner the 60 votes needed to clear the Senate.

Capito said in a statement she'll pursue "all avenues" in combatting the rule, which she said would harm her state's coal industry.

Heitkamp's home state, North Dakota, saw its emissions reduction obligation under the final power plant rule climb from 11 to 45 percent. And the state's posture on the rule became much more aggressive, as did Heitkamp's.

"North Dakota needs flexible, feasible rules if we're going to find a realistic path forward to reduce emissions," said Heitkamp in her statement with Capito. "The EPA regulations on existing power plants don't fit the bill."

The joint resolution with Capito will allow senators like herself to "express their frustration legislatively," she said.

The resolutions will be brought under a law that allows Congress to veto newly final executive actions. The two resolutions could pass the Senate with a simple majority of the vote, but they would still be subject to presidential veto and GOP majorities if both chambers lack the votes to override it.

Still, Republicans hope the timing of the votes in the coming weeks will embarrass the administration as it prepares to send negotiators to Paris next month to hammer out a global climate change agreement. Republicans have warned that foreign officials should not take it for granted that the administration can deliver on its pledges of emissions cuts and aid dollars, because Congress backs neither.

Senate Environment and Public Works Chairman James Inhofe (R-Okla.), a staunch foe of action to curb heat-trapping emissions who plans to attend the Paris confab, said in a statement last night that negotiators huddling in Bonn, Germany, this week should take note of Republicans' attitude toward any deal.

CYBERSECURITY:

Power sector issues warning on Senate amendments

Geof Koss, E&E reporter

Published: Friday, October 23, 2015

A coalition of utility and power grid interests has outlined its opposition to a number of amendments to the Senate cybersecurity bill that it says would undercut the thrust of the legislation.

The Senate on Monday will resume debate on the bill, S. 754, which would grant liability protections to companies that disclose cybersecurity data with the federal government, while also changing the manner in which such intelligence flows between the private and public sectors.

While the power interests say the bill would complement existing public and private efforts to share information about cyberthreats, they urged senators this week to oppose a number of amendments "that would significantly undermine the information sharing incentives and legal protections in the bill or unnecessarily complicate information sharing efforts."

Of primary concern is an amendment by Sen. Patrick Leahy (D-Vt.) that would strike from the bill all references to explicit Freedom of Information Act exemptions covering information sharing on threats and defensive measures.

"Eliminating all specific references to FOIA protections from the bill would have a chilling effect on voluntary information sharing, undermining public-private security partnership efforts and thus potentially

making critical infrastructure more vulnerable to cyber attacks," wrote the American Public Power Association, the Edison Electric Institute, the National Rural Electric Cooperative Association and others.

Also "of particular concern" is an amendment by Sen. Al Franken (D-Minn.) that would narrow the bill's definitions of threats and indicators "in a way that would likely result in more litigation, thus creating another legal disincentive to voluntary information sharing, contrary to the fundamental purpose of the legislation."

The groups are also raising concerns about a handful of other amendments, including a proposal by Sen. Dean Heller (R-Nev.) that would alter the conditions under which nongovernmental entities can "scrub" personal information before sharing it with federal authorities. The coalition says Heller's plan would impose a "more subjective" standard than the underlying bill.

The groups also flag an amendment by Sen. Chris Coons (D-Del.) that would impose additional scrubbing of personal information by the Department of Homeland Security, which power interests say will slow information sharing.

A third amendment establishing scrubbing conditions on information sharing offered by Sen. Ron Wyden (D-Ore.) would cause "legal ambiguity and [create] a disincentive to sharing information."

And an amendment by Sen. Jeff Flake (R-Ariz.) that would sunset the bill's authorization after six years "creates uncertainty and will negatively impact participation," they wrote.

Congress has labored for years to legislate on cybersecurity against a background of ever-growing high-profile cyberattacks. However, legislative attempts to address the issue have stalled over industry concerns with giving the federal government new powers over infrastructure that is privately owned, privacy concerns, and the overlapping of jurisdiction among multiple committees.

The House earlier this year passed two bills addressing information sharing, but one key lawmaker -- House Homeland Security Chairman Michael McCaul (R-Texas) -- this week said the Senate's approach was unlikely to pass muster in the lower chamber (*E&E Daily*, Oct. 21).

Reporter Blake Sobczak contributed.

REGULATIONS:

Enzi bill would allow Congress to clarify agency authority

Ariel Wittenberg, E&E reporter

Published: Friday, October 23, 2015

Legislation filed in the Senate today would allow Congress to circumvent the president when telling an agency it is overstepping statutory authority.

Introduced by Sen. Mike Enzi (R-Wyo.), the Regulatory Authority Clarification Act (S. 2199) would give Congress the ability to clarify agencies' authority using concurrent resolutions, which do not require presidential approval.

Using concurrent resolutions would allow Congress to issue guidance to agencies without having to have a two-thirds majority vote that would be needed to override a potential veto.

The concurrent resolutions would be used to clarify what authority Congress has or has not granted agencies, and could be used to overrule "improper interpretations," Enzi, who chairs the Senate Budget Committee, said in a statement.

The bill states that once a concurrent resolution is passed clarifying whether a previous law delegates certain authority to an agency, the agency would not be allowed to write rules that contradict the resolution and would have to write new rules to "carry out the meaning of the provision, as provided in the concurrent resolution."

Enzi said his bill is justified in part by the "billions of dollars that recent regulations from the EPA and other agencies are predicted to cost the economy."

The GOP-controlled House and Senate are currently grappling with how to prevent EPA's Clean Power Plan from going into effect.

In a speech on the Senate floor yesterday, Enzi criticized the Clean Power Plan, describing it as piling onto an already overburdensome slew of recent regulations, including mercury and air toxic standards, as well as newly tightened ozone limits.

"If all those rules weren't onerous enough, in August the EPA doubled down on its war on coal when it released the final rule of the Clean Power Plan," he said. "The coal industry and businesses that rely on it are facing higher regulatory costs at the same time as energy producers are seeing a tougher market than they have in years, which is a bad combination for economic growth and job creation."

CLEAN POWER PLAN:

EnergyWire's Kuckro talks legal, legislative challenges facing plan, previews McCabe sit-down

Published: Friday, October 23, 2015

After nearly three months of anticipation, U.S. EPA's Clean Power Plan was published in the *Federal Register* today. It's a significant step that tees up a series of legal and legislative challenges. On today's The Cutting Edge, *EnergyWire* reporter Rod Kuckro discusses the road ahead for the plan and previews his sit-down interview with acting EPA air chief Janet McCabe.

Click here to watch E&ETV's The Cutting Edge.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Mon., October 26, 2015

READ FULL EDITION

1. NEGOTIATIONS:

Finance, compensation shaping up as endgame issues for Paris climate deal

Former Defense Secretary Donald Rumsfeld once said, "You go to war with the army you have, not the army you might want." Climate change negotiators are saying something similar about the text they have going into December's landmark U.N. talks.

2.REGULATION:

As legal onslaught begins, EPA tells states how to buy time on climate rule

As expected, the publication of the final Clean Power Plan in the *Federal Register* on Friday brought on a swarm of lawsuits from opponents of the U.S. EPA rule.

TODAY'S STORIES

3.EXTREME WEATHER:

Record-breaking hurricane gives Mexico little warning, floods parts of Texas

4.POLICY:

As Obama meets with Indonesia's president, activists push for action on forests and climate change

5.ELECTRICITY MARKETS:

Western state regulators see region 'ripe' for collaboration

6.BUSINESS:

China's nuclear industry looks for buyers abroad

7.FINANCE:

New investment index targets 'climate efficient' companies

8.REGIONS:

Arctic nations will push for cuts in methane, black carbon emissions in Paris talks

9.TRANSPORTATION:

Finnish company envisions world without cars via 'Uber Inter-city' platform

10.PUBLIC OPINION:

Texas poll shows jump in GOP support for belief in climate change

11.STATES:

Scientists offer to educate Ind.'s governor about climate change

12.CHINA:

Beijing's growth plans could help the environment -- report

13.CITIES:

Danish town aims for carbon neutrality with wind, efficiency and biogas

E&E INTERACTIVE

14.POWER PLAN HUB:

EPA's Goffman, McCabe hit the road to tout Clean Power Plan

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Mon., October 26, 2015

READ FULL EDITION

1.CLEAN POWER PLAN:

Opponents push to block rule while defenders prep for battle

Defenders of U.S. EPA's Clean Power Plan are wading through stacks of challenges this week in the wake of a massive new legal assault against the climate rule.

TOP STORIES

2.OIL:

Price is still too high for saturated market

3.ELECTRICITY MARKETS:

Western regulators see region 'ripe' for collaboration

4.EFFICIENCY:

Major Mo. utility's program in limbo after regulator rejection

ELECTRICITY

5.TECHNOLOGY:

Southern Co. makes global moves on coal gasification

6.PEOPLE:

To replace incoming CEO, ERCOT taps new general counsel

7.WIND:

Texas blows past production record

OIL AND GAS

8.NATURAL GAS:

Alaska gets sales guarantees for LNG project

9.NORTH DAKOTA:

Frack water program for farmers runs dry

10.PEOPLE:

Phillips 66 appoints new CFO

11.MARCELLUS SHALE:

Gas driller pulls out of parts of Pa., W.Va.

12.OFFSHORE DRILLING:

Norwegian gas field upgrades, expects first growth in years

13.TRANSPORT:

Increased oil train traffic brings more scrutiny from Minn. governor

E&E INTERACTIVE

14.POWER PLAN HUB:

EPA's Goffman, McCabe hit the road to tout Clean Power Plan

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Bunker, Byron[bunker.byron@epa.gov]; Wehrly, Linc[wehrly.linc@epa.gov]
From: Ex. 7
Sent: Mon 10/26/2015 4:35:25 PM
Subject: FW: NAR vehicles for WOB, Germany: next batch JFK

Hello Byron and Linc,

Volkswagen of America has been procuring various generation 2009 – 2014 2.0L TDI vehicles at the request of VWAG. These vehicles are being returned to Germany for testing purposes as the recall remedies are being evaluated. If you see the email string that follows, legal wanted me to provide notice to the EPA that these vehicles were being procured and exported back to Germany.

I'm not sure this is necessary and I realize you are probably not involved in this type of activity, but you are my point of contact for providing the agency with information.

This may be an initial shipment - it is my understanding up to 40 vehicles total may be sent back to Germany as part of the ongoing test program.

Please let me know if there are any additional requirements or information needed to take this action. I intend to notify the staff below that you have been notified and to proceed with shipping the vehicles.

Thank you and best regards,

Ex. 7

Volkswagen of America

Ex. 7

From: Ex. 7
Sent: Monday, October 26, 2015 12:19 PM
To: Ex. 7
Cc: sdrake@kirkland.com; lhjelm@akingump.com; Ex. 7
Subject: RE: NAR vehicles for WOB, Germany: next batch JFK

PRIVILEGED & CONFIDENTIAL

Ex. 7 See below. As discussed, we believe these vehicles are okay to export, but recommend a "heads-up" to EPA. Can you take care of that?

Once that notice has been given, please let us know and then Pat's team can proceed.

Thanks.

Ex. 7

From: Ex. 7
Sent: Monday, October 26, 2015 10:37 AM
To: Ex. 7 Ex. 7 Ex. 7
Cc: Ex. 7 Ex. 7 Ex. 7
Subject: RE: NAR vehicles for WOB, Germany: next batch JFK

Ex. 7

Yes, this is what I was told by the business. My customs team was contacted to assist in the export of these vehicles. We want to make sure there is no legal conflict with these shipments. Please note that our first export is scheduled for this Friday and it will take time to process once we are confirmed – so there is an urgency to this request or these shipments will be delayed.

Ex. 7

From: Ex. 7
Sent: Monday, October 26, 2015 10:28 AM
To: Ex. 7
Ex. 7
Cc: Ex. 7
Ex. 7
Subject: RE: NAR vehicles for WOB, Germany: next batch JFK

PRIVILEGED & CONFIDENTIAL

Are these being sent to Germany for testing related to a "fix"? Is this something that's done in the ordinary course?

I am checking with our outside experts, but I anticipate they will need some background info.

From: Ex. 7
Sent: Thursday, October 22, 2015 2:35 PM
To: Ex. 7
Cc: Ex. 7
Ex. 7
Subject: RE: NAR vehicles for WOB, Germany: next batch JFK

Ex. 7

For your information – Due to our situation with affected TDI models, I cannot provide further export support until this shipment is approved by our legal counsel.

Ex. 7 in copy.

Ex. 7

Volkswagen Group of America

Ex. 7

From: Ex. 7
Sent: Thursday, October 22, 2015 2:03 PM
To: Ex. 7
Ex. 7
Cc: Ex. 7
Ex. 7

Subject: RE: NAR vehicles for WOB, Germany: next batch JFK

Hi Ex. 7

All vehicles are 2.0TDI

See book values in the table below:

Vehicles for EA division

No	Carline	MY	VIN	Transmission	Source	Current Location	Title	value
15	Jetta	13	Ex. 6		BB	JFK, NY	yes	23561
18	Passat	13			BB	Manheim Pennsylvania	yes	21333

Vehicles for EE division

No	Carline	MY	VIN	Transmission	Source	Current Location	Title	value
3	Jetta	13	Ex. 6		AC	Manheim Illinois	yes	15671
4	Golf A6	10-14			AC	ADESA Boston	yes	16844
6	Audi A3	10-13			AC	Manheim New Jersey	yes	24396
7	Beetle	13			AC	Manheim Atlanta	yes	15009
8	Beetle Convertible	13/14			Company Car	Auburn Hills	yes	22711

Thanks

Ex. 7

From: Ex. 7
Sent: Thursday, October 22, 2015 1:40 PM
To: Ex. 7
Ex. 7
Cc: Ex. 7
Ex. 7
Subject: RE: NAR vehicles for WOB, Germany: next batch JFK

Can I please get book values for each VIN. Also I need to know the engine in the Passat model.

Ex. 7

Volkswagen Group of America

Ex. 7

From: Ex. 7
Sent: Wednesday, October 21, 2015 4:00 PM
To: Ex. 7
Ex. 7
Cc: Ex. 7
Ex. 7
Subject: NAR vehicles for WOB, Germany: next batch JFK

Hi all,

seven vehicles for the next shipment to JFK and eventually Germany have been identified. They will be moved to auction Manheim, PA before they will be transported to JFK.

Vehicles for EA division

No	Carline	MYVIN	Transmission	Source	Current Location	Title	Shipping Date	Departure	Arrival	comments
15	Jetta	13	Ex. 6		JFK, NY	yes				Vehicle still at JFK, title available now
18	Passat	13			Manheim Pennsylvania	yes				

Vehicles for EE division

No	Carline	MYVIN	Transmission	Source	Current Location	Title	Shipping Date	Departure	Arrival	comments

				Date	
3 Jetta	13	[redacted]	anheim Illinois	yes	To be moved to Manheim, PA
4 Golf A6	10	[redacted]	DESA Boston	yes	To be moved to Manheim, PA
	14				
6 Audi A3	10	[redacted]	anheim New	yes	To be moved to Manheim, PA
	13		rsey		
7 Beetle	13	[redacted]	anheim Atlanta	yes	To be moved to Manheim, PA
8 Beetle	13/	[redacted]	uburn Hills	yes	To be moved to Manheim, PA
Convertible			Car		

Ex. 6

Ex. 7 Is the broker the same one as in the last shipment? Who is the contact person for the titles this time?

Ex. 7 Could you please provide a pro forma invoice for the VINs above?

Ex. 7 Could you provide an ETA for Manheim, PA? Please let us know when the vehicles arrived at the auction in PA.

Thank you very much

Ex. 7

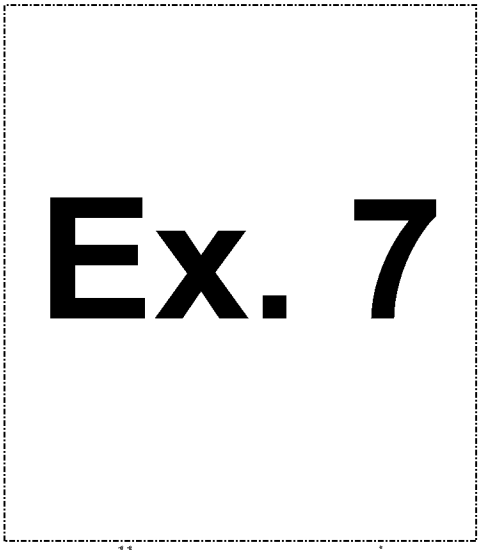
Best regards / Mit freundlichen Grüßen

Ex. 7

Quality Powertrain Engineer

Quality Analysis

VOLKSWAGEN Group of America, Inc.



www.volkswagengroupamerica.com

To: Allen, Laura[Allen.Laura@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Senn, John[Senn.John@epa.gov]; Millett, John[Millett.John@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Hull, George[Hull.George@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Grantham, Nancy[Grantham.Nancy@epa.gov]; StClair, Christie[StClair.Christie@epa.gov]; Davis, Jay[Davis.Jay@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]; Brooks, Phillip[Brooks.Phillip@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Purchia, Liz[Purchia.Liz@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]; Cook, Leila[cook.leila@epa.gov]
From: Urrutia, Katiana
Sent: Mon 10/26/2015 7:59:05 PM
Subject: 10/23/15 - 10/26/15 VW Clips

Fortune:

http://fortune.com/2015/10/26/emissions-testing-software-cheat-volkswagen-scandal/

VW fooled everyone. Was it the only one?

by Erika Fry @ErikaFry OCTOBER 26, 2015, 10:00 AM EDT

The sustainability movement faces an existential crisis.

In early September the Dow Jones Sustainability Index (DJSI) crowned Volkswagen VLKAY 1.97% the world's most sustainable car company. The German automaker issued a press release celebrating the title and its high marks—91 out of 100—on the Corporate Sustainability Assessment, a lengthy survey of corporate behaviors. It scored perfects on "codes of conduct, compliance, and anti-corruption as well as innovation management [and] climate strategy." Then-CEO Martin Winterkorn called the win a "great success for the entire team."

Just 10 days later, of course, he issued an apology for what turned out to be his company's profound lack of all of the above; by the end of the month, he had stepped down.

How did an emissions cheat land atop the world's longest-running and, per Rate the Raters, most credible of corporate sustainability indexes? Or for that matter, place first on Boston Consulting Group's Brand Advocacy Index? Or fool everyone, from the EPA down to the earth-loving Jetta driver, that VW was a car company as clean and green as they come?

Mostly, by saying all the right things. Yes, VW rigged its software—but despite all the box-checking, testing and indexing that put VW in such good stead, there wasn't much to trip it up: the influential DJSI, like others of its kind, relies on data that companies themselves provide.

"All of this data is still imperfect. It can be gamed—especially if you're willfully gaming it," says Chris Guenther, Research Director at SustainAbility, a green consulting firm that runs the "Rate the Raters" survey. He's still stunned by VW's stunt and says it has prompted soul-searching in the field. "Fundamentally this is about assurance and how rigorously we interrogate questions like this. This will reverberate for a long time."

Indeed, work is already underway. VW was removed from the DJSI shortly after news of the scandal broke, and RobecoSAM, the firm that does the index's number-crunching is reviewing the questions it asks corporations. Emissions testing, in the US and the EU, is under review too. If the efforts are successful, VW may not be the last to get caught gaming the system.

Automotive News:

http://www.autonews.com/article/20151026/RETAIL04/310269960/price-drops-on-used--vw-diesels-gather-speed

Price drops on used VW diesels gather speed

Values will stay volatile until emissions fix is found

Tim Fleming, KBB analyst: "Some auctions are still holding off on selling the affected Volkswagen inventory."

October 26, 2015 - 12:01 am ET

WASHINGTON -- Prices for used Volkswagen diesels have accelerated their decline as the automaker's emissions scandal entered its second month with no definitive word from VW on its repair plans.

Moreover, the actual volume of used VW diesels sold at auction has plummeted, making it tough for analysts to get a clear sense of just how severely the scandal will hit the value of the affected cars.

Analysts say the value of used VW diesels will continue to be volatile until it's known how VW will fix the cars and what the effects of those fixes will be on fuel economy and vehicle performance. Time is of the essence, they say, because the scandal is also beginning to have spillover effects on used prices of VW's gasoline models.

Compared with levels before Sept. 18, when the EPA announced VW's violations, wholesale prices on Jetta TDIs were off 7.9 percent as of Oct. 12 and down 13.8 percent as of Oct. 19, according to data from Black Book, which tracks used-car prices at auctions. Passat TDI price declines accelerated from 7.9 percent to 13.5 percent in the same period, while Golf TDI price declines went from 5 percent to 8.7 percent.

Kelley Blue Book is finding a similar trend, with average auction price declines widening from down 13 percent two weeks after the scandal broke to down nearly 16 percent through Oct. 16. Average auction prices for gasoline-powered VW models declined by 2.9 percent in the same period.

"Some auctions are still holding off on selling the affected Volkswagen inventory," KBB analyst Tim Fleming said in a statement last week. "While Volkswagen diesel auction prices are in decline, we could see larger fluctuations depending on how this inventory is handled."

Fleming said auction volume of affected VW diesels declined about 25 percent in the last month. Auction houses are holding many used VW diesels controlled by VW Credit in storage, he said. Used diesels that are being offered for sale are coming from independent owners, he said, and those units are seeing little or no bidding activity.

The National Automobile Dealers Association, in its October report on the used-car market, said that auction volumes of diesel-powered Jetta, Golf and Beetle models were down 28 percent, while Passat diesel sales were down 33 percent in the two-week period ending Oct. 3, compared with the four-week average prior to the EPA's announcement.

Likewise, Black Book's values are based on scant auction activity, says Anil Goyal, vice president of automotive valuation and analytics with Black Book. Just one or two VW diesels from a given model year have passed through auctions each week on average since Sept. 18, down from roughly 10 to 12 a week prior to the disclosure.

"It's difficult to track those trends because there's not a lot of information around it," Goyal said.

Matthew Welch, general manager of Auburn Volkswagen near Seattle, says he's able to absorb the lower values for now since used-vehicle values always fluctuate week to week.

Unlike some dealers, Welch is accepting trade-ins of diesel VWs affected by the scandal. He says he has used some of the discretionary funds provided this month by Volkswagen of America to pad trade-in allowances on the TDIs.

"So far we've made the decision to keep taking cars on trade, and we give them the value closer to what it was a month ago," Welch said.

Green Car Reports:

http://www.greencarreports.com/news/1100610_vw-newest-diesel-engines-had-no-defeat-software-legal-in-europe

VW: Newest Diesel Engines Had No 'Defeat' Software, Legal In Europe

By John Voelcker

One of the many complications of the VW diesel emission scandal is that the 482,000 affected cars in the U.S. encompass three different types of engine and emission-control system.

In Germany, Volkswagen has investigated its newest generation of 2.0-liter diesel engines to find out if they too include the "defeat device" software that allowed the cars to bypass emission controls in real-world use.

Yesterday, the company issued a statement saying that those engines--named EA288--do not have that software installed in their European versions.

Therefore, VW's statement said, cars with EA288 engines designed to meet both Euro 5 and Euro 6 emission standards "comply with legal requirements and environmental standards" within the European Union.

Euro 5 standards, in effect from 2006 through last year, are roughly equivalent to U.S. standards in effect through 2007. The tougher Euro 6 limits that came into effect this year are similar to U.S. standards that have now been in place since 2008.

2016 Volkswagen Beetle TDI Convertible2016 Volkswagen Beetle TDI Convertible

The company is investigating roughly 11 million diesel vehicles altogether, including 2.4 million sold in Germany.

This announcement does not, however, get cars with that engine off the hook in the U.S.

They include all 2015 TDI models of the Golf, Golf SportWagen, Jetta, Passat, and Beetle already sold, as well as the 2016 models that the EPA has refused to certify for sale.

That's because VW recently told the EPA that those cars have a second piece of software that could affects their emissions as well.

2015 Volkswagen Passat TDI2015 Volkswagen Passat TDI

It apparently functions to warm up some part of the exhaust emission treatment system; carmakers must disclose such devices to the EPA during the certification process so the agency can evaluate and test them if necessary.

The EPA said last week it has a "long list" of questions about that software, and plans to test VW's 2016 diesel vehicles extensively to understand exactly how they behave--and what they emit--in real-world use.

The company's translated release says, in typically stilted fashion, "After thorough examination it is now confirmed that no software constituting an improper defeat device as defined in law is installed in vehicles with EA 288 EU5-engines."

What constitutes an "improper defeat device" under EU law may differ from what the EPA considers to be problematic software, but the agency now appears to be deep into its investigation of those issues.

2015 Volkswagen Golf TDI SE2015 Volkswagen Golf TDI SE

While VW's North American unit had hoped that its 2016 models could be certified for sale in a matter of weeks--while it develops fixes for the earlier vehicles on the road--it now appears that the certification may take considerably longer.

Volkswagen dealers cannot sell 2015 or 2016 2.0-liter TDI vehicles, either new or used, and some are reportedly worried about running out of cars. October sales reports should provide a better picture of any such problems.

Fixing the new EA288 diesel engines is still expected to be the easiest task VW faces in the U.S., however, likely involving only a software update.

The company no doubt hopes that 2012-2015 Passat TDIs, which are fitted with the earlier EA189 engine but also have a urea-based Selective Catalytic Reduction aftertreatment system, will also require only software changes.

2014 Volkswagen Passat TDI2014 Volkswagen Passat TDI

But the bulk of the U.S. 2.0-liter TDI cars--325,000 of them--have the older EA189 engine and no urea system.

They will be both the hardest and the most expensive to retrofit, assuming the EPA approves a plan to do so. Analysts expect that VW may simply have to buy back some of those vehicles.

Green car Reports:

http://www.greencarreports.com/news/1100635_u-s-emission-tests-are-unrealistic-but-european-testing-is-far-worse

U.S. Emission Tests Are Unrealistic, But European Testing Is Far Worse

By Stephen Edelstein

The ongoing Volkswagen diesel-emissions scandal has, to say the least, exposed weaknesses in the U.S. Environmental Protection Agency (EPA) testing regime.

VW was able to get away with installing "cheat" software on 482,000 cars from model years 2009 to 2015.

But it wasn't until independent researchers tested one of these cars that the deception was discovered.

DON'T MISS: Why Did Volkswagen Cheat On Diesel Emissions In Its TDI Cars?

Still, it appears that it could have been worse. While U.S. emission tests are based on very gentle, 40-year-old driving cycles, the emission limits carmakers must meet are tougher.

European emissions-testing standards not only offer greater opportunities for cheating, they're also worse at predicting real-world emissions and fuel efficiency, according to the Economist (registration may be required).

The European Union is less stringent about nitrogen-oxide (NOx) emissions than the U.S., instead focusing more on fuel economy and carbon-dioxide emissions.

2014 Volkswagen Jetta SportWagen2014 Volkswagen Jetta SportWagen

While standards for those factors in Europe are reportedly very tough, they don't bear much resemblance to what cars return in real-world use.

The difference between rated fuel economy and what drivers are actually seeing has grown to 40 percent in recent years, says green advocacy group Transport & Environment.

Indeed, European fuel-economy ratings tend to be much more optimistic than U.S. EPA ratings.

ALSO SEE: European Makers: NOx Limits Must Rise For Real-World Emissions Tests

In part, that's because the EPA applies numerous "adjustment factors" to the raw emission-test datato create window-sticker fuel-economy ratings that roughly resemble reality.

Further, there are reportedly even greater opportunities for cheating in Europe than the U.S.

In the U.S., carmakers test their own cars and then submit the results to the EPA, which also audits results by testing a handful of cars itself each year.

2014 Volkswagen Jetta SportWagen2014 Volkswagen Jetta SportWagen

In Europe, testing is contracted out to private firms, which compete for carmakers' business.

That appears to create an incentive to doctor test results to keep clients happy--including modifying test cars.

Items such as sound systems are removed to lower weight, mirrors are removed, and gaps between body panels taped to reduce drag, reports the Economist.

MORE: Will European Fuel-Efficiency Tests Get More Realistic Under New Rules? (Jul 2014)

Tires can also reportedly be over-inflated, alternators disconnected, and cars run only in very high gears.

While its resources are limited by budgetary concerns, the EPA can conduct tests of its own to catch cheating like this--and levy fines.

In 2014, it fined Hyundai and Kia a total of $300 million for misstating fuel economy; Ford subsequently restated mileage figures for six of its cars. This generally does not happen in

Europe.

2016 Volkswagen Beetle TDI Convertible2016 Volkswagen Beetle TDI Convertible

Volkswagen's cheating in the U.S. was the result of a pattern of behavior the "European system created," said David Kodjak of the International Council on Clean Transportation, the organization largely responsible for uncovering the carmaker's cheating.

Europe is considering stricter testing standards, which could be enacted as early as 2017.

In response to the VW scandal, PSA Peugeot Citroën also says that it will begin publishing real-world fuel-economy test results, according to Automotive News Europe.

The information will be compiled by an independent body, and should be available next spring, the carmaker says.

The Roanoke Times:

http://www.roanoke.com/opinion/commentary/lindholm-putting-volkswagen-s-dirty-cheater-diesels-in-perspective/article_acac6826-106c-52f8-916b-c43de09d29e6.html

Lindholm: Putting Volkswagen's 'dirty cheater' diesels in perspective

Posted: Sunday, October 25, 2015 2:00 am

By Brian Lindholm

Volkswagen made the news in a bad way recently, when the company admitted to placing software in its diesel engines that made them run cleaner when being tested, but allowing more pollution when being driven normally. The specific pollutants are nitrogen oxides (NOx), which

are a precursor to ground-level ozone (O3), a highly reactive compound that impairs lung function and exacerbates a broad range of health problems. VW's reputation took a tremendous hit, but how much harm did the additional pollution actually cause? Let's look at that.

The EPA's "Tier 2" emissions rules went into full effect in 2009, requiring that diesel cars and light trucks emit no more than 0.07 grams of NOx per mile. With the software "cheat" enabled, VW's cars typically emitted 20 times that amount, or about 1.4 grams/mile. This seems like a lot, but it's worth noting that the typical gasoline-based car of 1967 emitted a whopping 20.8 g/mile of NOx. Even in "dirty cheater" mode, a modern Volkwagen diesel produces 93 percent less NOx than a gasoline classic from the '60s. Yet the EPA declares this insufficient and demands 99.6 percent less instead. Are these tremendously tighter standards worth it? Let's look at the numbers.

If 482,000 cars with 1967-grade emissions are each driven 11,300 miles per year, those cars will generate about 125,000 tons of NOx per year. If they are VW "dirty cheaters," they'll produce around 8,400 tons (a reduction of about 116,500). And if they are fully compliant diesels, they'll produce merely 400 tons (a reduction of about 8,000 relative to the "cheaters"). How much benefit does that last 8,000 ton reduction yield?

Research at MIT, the NIH and the EPA indicate that every thousand tons of NOx emissions causes two premature deaths. The 8,000 extra tons per year therefore causes 16 extra deaths. This is comparable to GM's faulty ignition switches killing more than 120 people over the course of a decade.

On the other hand, every year Volkswagen's 482,000 "dirty cheater" diesels save their owners more than $110 million in fuel costs and produce nearly 400,000 fewer tons of carbon dioxide (CO2). Does this help? Well, back in 2012, the Centers for Disease Control did an extensive study on the deleterious health effects of poverty, determining that every hundred dollars of lost income increased the chances of a premature death in the household by 15 parts in a million. This happens mainly because reduced income increases the chances of a lower-quality diet and skipped medical care. The opposite is also true. Increased income is beneficial to health. Indeed, if you can increase the income of a community by $6.6 million, you will (on average) prevent one premature death. The $110 million in annual fuel savings achieved by Volkwagen's diesels is enough to prevent approximately 18 premature deaths per year. This cancels out the deaths caused by the increased NOx entirely.

And from a global warming standpoint, there's more. The EPA currently estimates the "social cost of carbon" to be about $40 per ton. Reducing CO2 emissions by 400,000 tons provides $16 million in social benefit, preventing about 2.4 deaths per year.

So if you own a Volkswagen diesel and are feeling blue, chin up. It's no more harmful to people than the gasoline counterpart, even when running in "dirty cheater" mode. So does this mean that VW is off the hook?

Alas, it is not. While the true health impact of VW's transgression is quite minimal, it intentionally deceived regulators and customers in order to gain competitive advantage. It's a shocking breach of ethics. From a truth-in-advertising standpoint alone, the EPA should impose fines, and criminal charges should strongly be considered.

But while the government considers its response, officials might also consider the wisdom of such extraordinarily tight regulations. This 0.07 g/mile has proven difficult to achieve and saves very few lives, if any at all. Indeed, VW's excess 8,000 tons of NOx is utterly dwarfed by the 145,000 tons that forest fires typically produce per year. How much cleaner than Mother Nature do we really need to be?

To prevent premature deaths, we'd get vastly more benefit by focusing on trans fats (about 7,000 premature deaths per year), pollution in the form of particulates (about 170,000 premature deaths), or smoking (about 480,000 premature deaths, 8 percent of which are secondhand). Heck, if somebody with the FDA invented a better cigarette filter that prevented a mere 1 percent of smoking deaths, they'd make up for VW's sin 300 times over!

Telegraph UK:

http://www.telegraph.co.uk/news/uknews/road-and-rail-transport/11952066/VW-owners-could-fail-MOTs-if-they-ignore-recall.html

VW owners could fail MOTs if they ignore recall

Patrick McLoughlin, the Transport select committee, is considering plans to change MOT tests if people fail to respond to Volkswagen's recall in wake of diesel emissions scandal

Volkswagen has announced the recall of 1.2million cars

By Steven Swinford, Deputy Political Editor10:00PM BST 23 Oct 2015

Volkswagen owners who ignore the recall of their vehicles following the diesel emissions scandal could fail their MOTs under plans being considered by ministers.

The German car company has announced that up to 1.2million vehicles will be recalled to remove "defeat devices", software that allows cars to cheat emissions tests, and ensure their engines meet emissions standards.

MPs and campaigners have raised concerns that motorists will fail to respond to the recall and continue to drive vehicles which emit unsafe levels of nitrogen dioxide.

Patrick McLoughlin, the Transport Secretary, is considering changing the MOT test next year so that affected Volkswagen cars are barred from the road unless they have been recalled.

He told MPs that if there is a "wider problem" and people fail to return their vehicles he will consider changing MOT tests to ensure that "cars are operating legally and correctly".

It comes after Robert Flello, a Labour MP and member of the transport select committee, raised concerns that some people may choose not to respond to the recall amid fears that they could damage their car's performance.

A Volkswagen logo on a vehicle in a staff parking lot at the VW plant in Wolfsburg, Germany

He told The Daily Telegraph: "The whole point is to cut down on pollution which car owners

will be exposed to, along with the general public.

"Nitrogen dioxide is a killer. This work has to be done on people's cars for the good of the environment.

"But if a motorist decides that they are not going to take in their car because they might get fewer miles to the gallon then at present there is nothing to stop them."

Mr Flello suggested during a meeting of the transport select committee earlier this month that MOT's should be "invalidated" if people fail to respond to the Volkswagen recall.

Mr McLoughlin said: "Mr Flello, you make a point there and it is something I will reflect on. I think most people will want to ensure their cars are operating legally and correctly, but if it becomes a wider problem once we start he recall I will consider it."

The recall, the biggest in history, is due to start in January next year and could take up to two years to complete.

Earlier this year Volkswagen revealed that it equipped 11 million diesel vehicles worldwide with software that switches the engine to a low-emissions mode during tests.

Cars affected in the UK include VW passenger cars and vans as well as those manufactured by other VW-owned brands Audi, Seat and Skoda.

Stephen Joseph, head of the Campaign for Better Transport, said: "The problem is that we are in completely unchartered waters. I don't think anybody knows what to do here.

"I think what's still becoming clear is that the emerging health evidence of the damage done by vehicle exhausts is getting stronger.

"Just because you can't see it doesn't mean it isn't doing damage. We have to make a choice between clean air and having to drive around polluting vehicles.

"Using the MOT test as a way of getting compliance may have to happen to get cleaner vehicles."

Close to 1.2 million vehicles are affected in the UK with recalls due to start in the first quarter of next year for remedial work.

Paul Willis, the UK head of VW, said it was "implausible" and "absolutely inconceivable" that there was any deliberate attempt to mislead people, adding: "I reject the accusation that we've been lying as an industry."A source close to Mr McLoughlin said: "We expect Volkwagen to foot the bill for their actions. Clearly their recall must be satisfactory for drivers. Our guiding principle has always been that customers should not be out of pocket or penalised."

Deutsche Welle:

http://www.dw.com/en/emissions-scandal-shows-eu-failings-but-reform-elusive/a-18798139

Emissions scandal shows EU failings, but reform elusive

The Volkswagen scandal has exposed the fact that EU rules on car emissions are not being enforced and that test procedures don't reflect reality. Next week will see changes to that system - but not substantial ones.

exhaust fumes

Elsbieta Bienkowska did not mince words when reacting to the revelations that Volkswagen had manipulated emissions.

"Our message is clear: zero tolerance on fraud and rigorous compliance with EU rules," said Bienkowska, the EU's industry commissioner.

The words came in the wake of "dieselgate," in which the US Environmental Protection Agency exposed that German carmaker Volkswagen had used software to manipulate emissions readings of diesel cars to meet EPA regulations.

Volkswagen later admitted to having used the software in 11 million sold all over the world.

But environmental activists paint a picture that shows not-so-rigorous compliance with EU legislation on car emissions - and a lot of tolerance for that.

Rules that are not followed

EU legislation on the subject dates back several years, to 2007. It states the importance of reducing vehicle emissions to achieve such air-quality objectives as "reducing harmful effects on human health."

There were 430,000 premature deaths in EU member states in 2011 because of bad air, according to the European Environment Agency.

The 2007 emissions regulation prohibits "the use of defeat devices that reduce the effectiveness of emission control systems" and mandates that by 2009 EU member states introduce penalties to impose on manufacturers who flout the law.

Industry Commissioner Elsbieta Bienkowska said there would be no tolerance for fraud.

So far, not a single member state has introduced such penalties.

Nor have there been any investigations into defeat devices - though a 2013 report by the European Commission's Joint Research Center was only one example detailing the possibility that such devices could exist and be used to activate emissions control systems.

"Years have passed, but the European Commission hasn't taken any action," says Axel Friedrich, who used to head up a department at Germany's Federal Environment Agency and now works as a consultant.

He says the Commission has shown itself capable of taking action to ensure compliance with its regulations and directives in other matters - for instance, by taking member states to the European Court of Justice or opening infringement procedures for air pollution.

Earlier this month Gerben-Jan Gerbrandy, a Dutch member of the European Parliament's liberal bloc, also asked why no investigations and infringement procedures had been launched with regard to violations of emission limits.

Representatives say, though, that the Commission established a working group to develop a new procedure to reflect emissions on the road rather than tests done under lab conditions back in 2011.

Powerful automotive lobby

Friedrich says there is a simple explanation of why the Commission has not been more active in enforcing the regulations: Relations between the car industry and politics are too close - both in Germany and in Brussels.

According to the Corporate Europe Observatory, a campaign group that aims to expose the influence by corporations and lobby groups on EU policymaking, the car lobby is one of the most powerful in Brussels, spending about 18 million euros in 2014 to influence climate, energy, trade and transport policy.

Aside from the question of political will, there is that of political power. The European Union has no equivalent of the EPA. In order to sell cars in the United States, manufacturers must demonstrate compliance with the Clean Air Act and EPA regulations; in Europem, manufacturers can choose a member state in which to seek certification.

Feinstaub Luftverschmutzung Messung Berlin

Axel Friedrich started out as a technical chemist and is passionate about measuring - and reducing - emissions.

"We have 28 European agencies for certification," Friedrich says. "They compete with each other. And if one manufacturer has problems getting a car certified, he just takes it to another country."

Once a car type has been approved by one EU member state, that decision applies to the other 27 countries.

Yet, Friedrich says, creating a European agency to control compliance with emission regulations is not the way to go.

"I think there should be control of the national authorities instead," he says, arguing that car emissions are an environmental problem that responsible national agencies should be in charge of.

In the case of Germany, certification is in the hands of the Federal Motor Transport Authority. Friedrich's former employer, on the other hand, the Federal Environment Authority, "only has the power to admonish politicians: It can't recall cars."

Commission to introduce new test procedures

Though changes to national certification procedures do not appear imminent, the European Commission is in the process of overhauling test procedures.

Following years of consultations, the Commission is set to come forth on October 26 with a new regulation introducing a "real driving emission" test that better reflects normal conditions of use than lab procedures do.

The new test procedures, to be implemented in January, will involve a device to measure emissions attached to the rear of the car.

Testvorrichtung für Abgasrest im Realbetrieb Real drive emissions RED

The real drive emissions test

In the initial phase, these new devices will only be used for monitoring purposes; they measure will not have an impact on certification.

Also, emission limits will be raised for this transition period, meaning that instead of the 80 milligrams of nitrogen oxides allowed to be emitted per kilometer (0.13 grams per mile) under the Euro 6 norm, cars will be allowed to emit more.

How long that first phase will last and by what factor emission limits will be raised is still being debated.

Friedrich calls the new test a step in the right direction - but only a very small step.

"Why do road tests and lab tests when you know lab tests won't show you real-life emissions?" he asks.

The only way to get test results that reflect reality is to test randomly, he says, like the EPA does in the United States.

However the European Union improves test procedures in the near future, enforcing emission limits appears likely to remain a sore spot for some time to come.

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Mon 10/26/2015 9:34:13 PM
Subject: Chamber: Obama, EPA putting Paris 'ambition' ahead of law

Advertise | Contact

Energy and environment headlines for the afternoon of Monday, October 26, 2015

Chamber: Obama, EPA putting Paris 'ambition' ahead of law

By Kevin Rogers

In its zeal to present the "strongest hand possible" at the upcoming United Nations-sponsored climate negotiations, the Obama administration finalized a "radical transformation of the entire energy sector," knowing that it might not pass legal muster, the Chamber of Commerce's top energy official charged Monday.

"In the administration's own words, they want to march into Paris with the strongest hand

possible." Karen Harbert, president and CEO of the Chamber's Institute for 21st Century Energy, said. "Implementing a transformation of the entire electric sector certainly gives one the appearance of a strong hand, albeit the fact that this is going to be litigated for a number of years."

Asked to respond, EPA spokeswoman Melissa Harrison said the rule is "grounded firmly in science and the law and is fair, flexible, and affordable."

"I do think it's fair to say that there's a political aspiration here to show leadership in Paris and to encourage or coerce other countries to follow suit," Harbert said.

The Clean Power Plan, which seeks to cut power sector emissions by 32 percent by 2030, based on a 2005 baseline, includes rules for existing and new power plants. It's a key component of the administration's pledge to cut overall U.S. emissions by up to 28 percent from 2005 levels and achieve those reductions by 2025.

The climate negotiations, set to kick off on November 30, seek a deal that would cut emissions enough to keep average global temperatures from rising 2 degrees Celsius from pre-industrial levels. The Intergovernmental Panel on Climate Change projects that the world could exceed that threshold by 2050, absent strong action, and predicts that doing so could lead to irreversible damage to the planet.

While the rule for new fossil fuel plants has hard emissions limits, the rule for existing plants, while requiring states to hit specific carbon reduction targets, gives them the flexibility to achieve the cuts through a combination of steps, including improving the efficiency of coal-fired plants, converting them to natural gas, or installing new renewable energy capacity.

The Chamber, along with 15 other trade associations, on Friday sued the agency over the existing plant rule, petitioning a U.S. appeals court to temporarily stop its implementation, saying they would suffer irreparable harm if the rule takes effect. Other industry groups, private companies and 26 states filed separate suits against the regulations.

They contend that the agency is illegally double-regulating power plants under two different sections of the Clean Air Act, and that the regulations unlawfully force states to alter their energy mixes.

The National Association of Manufacturers, which joined the Chamber suit, said the administration was misusing the Clean Air Act to press its international agenda.

"The Clean Air Act wasn't designed as a tool for climate negotiations," Linda Kelly, the group's senior vice president and general counsel, said. "We have to make sure that the agency is acting within the bounds of its regulatory authority, which it is not here."

Joanne Spalding, the chief climate counsel for the Sierra Club, said the groups were stretching for arguments.

"It's wishful thinking," she said. "This rule has been in the works for years, and EPA has been carefully constructing it with input from stakeholders across the spectrum."

She also dismissed the likelihood of plaintiffs winning a stay of the rule, despite the large coalition of states and groups petitioning for one.

"I do think that the court will be looking at if the petitioners have actually demonstrated what they need to demonstrate in order to get a stay and not the number of petitioners that are before the court," she said. "EPA is on firm ground in its legal authority to issue the Clean Power Plan."

To obtain a stay, the plaintiffs would have to prove they would suffer "irreparable harm" by implementing the rules; that the harm would outweigh the damage done by not implementing the rules; and that they would likely succeed on the merits of their arguments.

Harlow said the harm from immediately implementing the regulations is clear enough for a stay, since, as the rule is implemented, states will have to begin making decisions on implementation plans ahead of their first draft deadline in September 2016. She also said the rule would raise electricity prices, cost jobs in the mining and power sectors, and make manufacturing more expensive.

"It is our view that the rule will impose significant harm on a broad cross-section of American industry," she said.

Spalding said she was skeptical that the plaintiffs could make that case, noting that states would have up to three years to submit final plans, and that those plans wouldn't go into effect until 2022.

"Given the lengthy timeframe EPA has adopted in the final rule, they really can't show irreparable harm," she said.

Quick Links

Whitfield files resolutions to overturn carbon rules

Coal mine expansion stalls in lawsuit citing climate change

World's Catholic bishops issue appeal to Paris climate talks

An intolerable unimaginable heat forecast for Persian Gulf

EPA: Remedy to landfill fire won't come before 2017

Halting leak near sunken Lake Erie barge poses big challenge

New way to bet on oil wipes out billions in investor savings

Duke Energy buying Piedmont Natural Gas $4.9B

Nissan expands fuel leak recall to 59,000 sedans

Scandal-hit Volkswagen hires Opel exec as strategy chief

Polish prospective PM: Coal miner's daughter who rose up ranks

EPA points states toward carbon rule extensions

Colorado officials divided over Clean Power Plan

No compromises hammered out yet ahead of Paris climate talks

Oil to two-month lows on supply worries, demand concerns

Drillship delay for Transocean, Royal Dutch Shell

Western wants Northern Tier for $1.6 billion

Obama gave LWCF a push over the weekend

Xcel CEO: 'Wind is becoming pretty close to parity' with natural gas

UK think tank plays down methane leak concerns

NY's Cuomo gambling on solar panels and SolarCity

More Nebraska farmers turning to solar panels and solar power

Upcoming Events

Whitfield files resolutions to overturn carbon rules

By Kevin Rogers

Rep. Ed Whitfield, R-Ky., on Monday took the first step toward a congressional effort to overturn the Environmental Protection Agency's power plant carbon rules, introducing a pair of resolutions to block the regulations for new and existing fossil fuel power plants.

Sponsored Links

Whitfield, chairman of the House Energy and Commerce Subcommittee on Energy and Power, said EPA's rules were illegal and would have disastrous economic effects if implemented. The resolutions are issued under the Congressional Review Act, which gives Congress a 60-day window to weigh in on published regulations.

"There's nothing in the Clean Air Act that authorizes EPA to implement these unprecedented rules," he said in a statement. "These resolutions stand up for ratepayers, jobs, and affordable energy in Kentucky and throughout the country."

The resolutions would have to be approved by both chambers of Congress and signed by President Barack Obama. The House would need 290 votes to overturn a likely veto, while the Senate would need 67 votes.

Senate Majority Leader Mitch McConnell, R-Ky., and supporters plan to issue their own resolutions against the regulations this week.

Coal mine expansion stalls in lawsuit citing climate change

By Matthew Brown

BILLINGS, Mont. (AP) — The U.S. Interior Department should not have approved the expansion of a southeastern Montana coal mine before taking a closer look at its effect on the environment, a federal judge said about a lawsuit arguing the government ignored coal's contributions to climate change.

Environmental groups sued the Interior Department after it approved an expansion of the Spring Creek Coal mine in 2012. The case marks the second time conservationists have used worries over climate change to successfully challenge approval of a coal mine after it had been granted.

But unlike in the previous case involving Colorado mines, U.S. Magistrate Judge Carolyn Ostby did not explicitly name climate change as a factor in her decision issued Friday. She instead referred more broadly to "air quality" concerns, saying the government had failed to explain its thinking on the issue before granting approval.

Ostby said work at the mine near Decker will not be shut down immediately. Rather, the judge recommended that federal officials reconsider the environmental effects of the expansion by Wyoming-based Cloud Peak Energy. The mine, which employs about 260 people, is allowed to continue operating in the meantime.

More

World's Catholic bishops issue appeal to Paris climate talks

By Nicole Winfield

VATICAN CITY (AP) — Catholic patriarchs, cardinals and bishops representing five continents on Monday appealed to climate negotiators to approve a "transformative" and fair, legally binding agreement that sets global temperature limits and goals for eliminating fossil-fuel emissions.

Representatives of bishops' conferences from around the globe signed the appeal in a renewed push to encourage climate negotiators meeting in Paris next month to heed Pope Francis' call to protect God's creation and the poor who suffer most from its exploitation.

The church's 10-point proposal calls for governments to approve legally binding limits to global average temperatures, set a mid-century goal for phasing out emissions from fossil fuels and provide binding and ambitious mitigation commitments that recognize the different responsibilities for, and abilities to adapt to, global warming.

No precise temperature limit was proposed in the appeal. Indian Cardinal Oswald Gracias, who heads the Asian bishops' conference, suggested the omission was a compromise designed to ensure all bishops could sign onto the appeal, which is the first of its kind for the episcopal conferences from each of the five continents.

More

An intolerable unimaginable heat forecast for Persian Gulf

By Seth Borenstein

WASHINGTON (AP) — If carbon dioxide emissions continue at their current pace, by the end of century parts of the Persian Gulf will sometimes be just too hot for the human body to tolerate, a new study says.

How hot? The heat index — which combines heat and humidity — may hit 165 to 170 degrees (74 to 77 Celsius) for at least six hours, according to numerous computer simulations in the new study. That's so hot that the human body can't get rid of heat. The elderly and ill are hurt most by current heat waves, but the future is expected to be so hot that healthy, fit people would be endangered, health experts say.

"You can go to a wet sauna and put the temperature up to 35 (Celsius or 95 degrees Fahrenheit) or so. You can bear it for a while, now think of that at an extended exposure" of

six or more hours, said study co-author Elfatih Eltahir, an MIT environmental engineering professor.

While humans have been around, Earth has not seen that type of prolonged, oppressive combination of heat and humidity, Eltahir said. But with the unique geography and climate of the Persian Gulf and increased warming projected if heat-trapping gas emissions continue to rise at current rates, it will happen every decade or so by the end of the century, according to the study published Monday in the journal Nature Climate Change.

More

EPA: Remedy to landfill fire won't come before 2017

By Jim Suhr

ST. LOUIS (AP) — An Environmental Protection Agency administrator says a plan to make sure an underground suburban St. Louis landfill fire doesn't reach a buried cache of nearby Cold War-era nuclear waste won't come before the end of next year.

As acting chief of the EPA region that includes Missouri, Mark Hague also told reporters Monday that the public isn't in any immediate danger from embers smoldering below the Bridgeton Landfill. He says that fire is still 1,000 feet from the nuclear waste at the West Lake Landfill.

Missouri Attorney General Chris Koster on Sunday again called on the EPA to figure out "without delay" how to keep the smoldering underground garbage away from the nuclear waste.

Hague says any EPA fix won't be rushed and will be based on the best science.

A message from America's Natural Gas Alliance

Clean is Powerful. Natural gas helps Georgia Power's plant generate electricity with 50% fewer emissions. Think about it.

Learn more at www.thinkaboutit.org.

Halting leak near sunken Lake Erie barge poses big challenge

By John Seewer

TOLEDO, Ohio (AP) — The U.S. Coast Guard is leading efforts to find a leak of what it believes is a petroleum-based substance coming from a sunken barge on the bottom of Lake Erie near the U.S.-Canadian border.

What makes that so challenging goes beyond just the location of the wreckage.

Among the questions — what is leaking, where is it coming from, how much remains and is there anything else that could a pose a danger on the recently discovered tanker barge 45 feet below the lake's surface.

—

THE WRECKAGE

While the barge's identity is uncertain, shipwreck hunters and the Coast Guard suspect it's the Argo, among 87 shipwrecks on a federal registry created two years ago to identify the most serious pollution threats to U.S. waters. The Argo is among five such wrecks within the Great Lakes but is the only one whose location hasn't been confirmed.

More

New way to bet on oil wipes out billions in investor savings

By Bernard Condon

NEW YORK (AP) — When Karen Robinson's husband died, she worried she wouldn't have enough money to raise her two young girls and save for retirement.

Then she met a financial planner, Tom Parks, who told her about investment partnerships that would allow her to ride the boom in U.S. oil and gas production while receiving a steady stream of payments to help pay her bills.

"He showed me this picture of the United States, and said they were getting oil out of shale, and energy was the way to go," says Robinson, a high school teacher from Cranfills Gap, Texas. She liked that Parks seemed so confident. "I trusted him."

Two years later, her partnerships have plunged in value and Robinson has lost more than half of the $202,000 she invested, according to a complaint filed with regulators against Parks and his firm, Ameriprise Financial Services. Parks did not return phone calls and emails; Ameriprise declined to comment.

More

Duke Energy buying Piedmont Natural Gas $4.9B

By The Associated Press

CHARLOTTE, N.C. (AP) — Duke Energy will spend about $4.9 billion in cash to acquire Piedmont Natural Gas, adding about a million new customers in the Carolinas and Tennessee.

The Charlotte, North Carolina, companies are key partners in the $5 billion Atlantic Coast Pipeline that will be the first major natural gas pipeline to serve the eastern part of the state.

Piedmont shareholders will receive $60 in cash for each share of common stock. That's a 42 percent premium to Friday's closing price. Duke Energy Corp. will also assume approximately $1.8 billion in Piedmont debt.

Piedmont will keep its name and maintain its headquarters in Charlotte, North Carolina, and one of its directors will join Duke's board. It will become a unit of Duke Energy.

More

Nissan expands fuel leak recall to 59,000 sedans

By The Associated Press

DETROIT (AP) — A Nissan recall for possible fuel leaks in crashes has been expanded to include nearly 59,000 Altima and Maxima sedans worldwide.

The recall now covers certain 2013 to 2016 Altima midsize cars and some 2016 Maxima large cars. Also included are some 2014 to 2016 Teana sedans made in Russia. All have V6 engines.

Nissan says in documents posted by U.S. safety regulators that in a crash, fuel could leak from a seal between the gas tank and the fuel sending unit. That could cause a fire.

The company says the problem was discovered in crash tests, and it has no reports of fires, injuries or fuel leaks.

More

Scandal-hit Volkswagen hires Opel exec as strategy chief

By The Associated Press

FRANKFURT, Germany (AP) — Volkswagen is hiring a top strategy executive from

competitor Opel as it seeks to recover from a scandal over its cheating on U.S. diesel emissions tests.

Taking on Thomas Sedran as Volkswagen's new chief of corporate strategy brings another outside voice to the company as it re-examines its culture in the wake of the scandal.

The move announced Monday by the automaker based in Wolfsburg, Germany, comes on top of the company's decision to hire Christine Hohmann-Dennhardt, a former judge who oversaw legal compliance at competitor Daimler AG in the wake of a bribery scandal there.

Sedran is a former managing director for turnaround firm Alix Partners. He joined General Motors' Opel division as head of strategy and operations in 2012.

More

Polish prospective PM: Coal miner's daughter who rose up ranks

By Monika Scislowska

WARSAW, Poland (AP) — The conservative Law and Justice Party, which won Poland's general elections, has tapped Beata Szydlo to become the nation's next prime minister — the second woman in a row to hold the post. Here are key facts about the 52-year-old politician.

———

STRONG CAMPAIGNER:

In the spring, Szydlo ran the presidential campaign of Andrzej Duda, then a little-known figure who pulled off a shock upset of the widely-favored incumbent.

On the heels of that success, party leader Jaroslaw Kaczynski named Szydlo the Euro-skeptic party's candidate to lead the government in the fall parliamentary elections.

PERSONAL TOUCH:

Szydlo says her success lies in listening and talking to ordinary people, and she won much support by criss-crossing Poland in her campaign "Szydlobus." That personal touch may be a key asset as she attempts to bridge a widening divide between Poles who have benefited from the nation's economic boom and those who feel they have been left out, and look to her party for help.

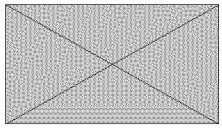
COAL-MINER'S DAUGHTER:

Szydlo was born Beata Maria Kusinska in 1963 to a coal mining family near Oswiecim, in

southern Poland, where she was raised in the shadow of the former Nazi death camp of Auschwitz. Her maternal great- grandfather died in Auschwitz as a Polish inmate. Her maternal grandfather suffered burns in a fire in the nearby Brzeszcze coal mine. Her father, also a coal miner, wanted her to be a mining engineer. She once told The Associated Press that she sometimes regrets she did not follow that advice.

More

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

EPA points states toward carbon rule extensions

A memo from the Environmental Protection Agency tells states that "the process is simple" if they want to get an extension on the time they need to submit a compliance plan for the rule on cutting power plant carbon emissions, E&E reports.

More

Colorado officials divided over Clean Power Plan

The move by Colorado Attorney General Cynthia Coffman—a Republican—to join other states in suing the Environmental Protection Agency over its regulations to cut power plant carbon emissions will be challenged by Democratic Gov. John Hickenlooper, who told The Denver Post he'll get a state Supreme Court ruling on whether she can file the lawsuit.

More

No compromises hammered out yet ahead of Paris climate talks

Some of the issues are clearer after a week of work by global climate negotiators in Bonn, but no compromises have been worked out yet even if U.S. envoy Todd Stern has been expressing optimism, E&E reports.

More

Oil to two-month lows on supply worries, demand concerns

Continued worries about oversupply coupled with concerns about Chinese economic woes

translating into weaker demand, pressured oil prices Monday. West Texas Intermediate crude for December delivery lost 62 cents to settle at $43.98 a barrel on the Nymex, the lowest level since August 27, while in London, Brent fell 45 cents to $47.54, Marketwatch reports.

More

Drillship delay for Transocean, Royal Dutch Shell

With the oil industry in the doldrums as a result of continued low prices, Transocean says it has agreed with Royal Dutch Shell to push back delivery of two ultradeep-water drilling rigs by a year, FuelFix reports.

More

Western wants Northern Tier for $1.6 billion

Western Refining Inc. has made an offer of close to $1.6 billion in cash and stock to fully take over Northern Tier Energy LP and make the master limited partnership a subsidiary, FuelFix reports.

More

Obama gave LWCF a push over the weekend

President Obama used his weekly address to call on Republicans to reauthorize the now-expired Land and Water Conservation Fund, The Hill reports.

More

Xcel CEO: 'Wind is becoming pretty close to parity' with natural gas

Minneapolis-based Xcel Energy Inc. has been getting wind energy bids for 20-year power purchase agreements around $25 per megawatt hour, while the utility estimates the cost for natural gas generation over the period to be $32 per megawatt hour, CEO Ben Fowke told Bloomberg.

More

UK think tank plays down methane leak concerns

Concerns about methane leaks shouldn't undermine a shift from coal- to gas-fired plants, according to the Centre for Policy Studies, a British free-market think tank, which says projections of such leaks from the shale gas extraction process have been "seriously overestimated," Platts reports.

More

NY's Cuomo gambling on solar panels and SolarCity

Pushed by Gov. Andrew Cuomo, New York state is spending up to $750 million to build a solar panel factory in Buffalo that will be operated by Elon Musk's SolarCity, The New York Times reports.

More

More Nebraska farmers turning to solar panels and solar power

Money-saving and carbon-saving solar panels are proving attractive for some Nebraska farmers, the Lincoln Journal Star reports.

More

Upcoming Events

- Oct. 27, Washington: The Senate Energy and Natural Resources Committee to hold a full panel hearing on the Office of Surface Mining Reclamation and Enforcement's Stream Protection Rule. Interior Assistant Secretary for Land and Minerals Management Janice Schneider; National Mining Association President Hal Quinn; Randy Huffman, West Virginia secretary of the Department of Environmental Protection; Todd Parfitt, Wyoming director of the Department of Environmental Quality; and Jim Hecker, Public Justice's Environmental Enforcement Project director to testify. 9:00 am , 366 Dirksen.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Mon 10/26/2015 9:34:14 PM
Subject: Chamber: Obama, EPA putting Paris 'ambition' ahead of law

Advertise | Contact

Energy and environment headlines for the afternoon of Monday, October 26, 2015

Chamber: Obama, EPA putting Paris 'ambition' ahead of law

By Kevin Rogers

In its zeal to present the "strongest hand possible" at the upcoming United Nations-sponsored climate negotiations, the Obama administration finalized a "radical transformation of the entire energy sector," knowing that it might not pass legal muster, the Chamber of Commerce's top energy official charged Monday.

"In the administration's own words, they want to march into Paris with the strongest hand

possible." Karen Harbert, president and CEO of the Chamber's Institute for 21st Century Energy, said. "Implementing a transformation of the entire electric sector certainly gives one the appearance of a strong hand, albeit the fact that this is going to be litigated for a number of years."

Asked to respond, EPA spokeswoman Melissa Harrison said the rule is "grounded firmly in science and the law and is fair, flexible, and affordable."

"I do think it's fair to say that there's a political aspiration here to show leadership in Paris and to encourage or coerce other countries to follow suit," Harbert said.

The Clean Power Plan, which seeks to cut power sector emissions by 32 percent by 2030, based on a 2005 baseline, includes rules for existing and new power plants. It's a key component of the administration's pledge to cut overall U.S. emissions by up to 28 percent from 2005 levels and achieve those reductions by 2025.

The climate negotiations, set to kick off on November 30, seek a deal that would cut emissions enough to keep average global temperatures from rising 2 degrees Celsius from pre-industrial levels. The Intergovernmental Panel on Climate Change projects that the world could exceed that threshold by 2050, absent strong action, and predicts that doing so could lead to irreversible damage to the planet.

While the rule for new fossil fuel plants has hard emissions limits, the rule for existing plants, while requiring states to hit specific carbon reduction targets, gives them the flexibility to achieve the cuts through a combination of steps, including improving the efficiency of coal-fired plants, converting them to natural gas, or installing new renewable energy capacity.

The Chamber, along with 15 other trade associations, on Friday sued the agency over the existing plant rule, petitioning a U.S. appeals court to temporarily stop its implementation, saying they would suffer irreparable harm if the rule takes effect. Other industry groups, private companies and 26 states filed separate suits against the regulations.

They contend that the agency is illegally double-regulating power plants under two different sections of the Clean Air Act, and that the regulations unlawfully force states to alter their energy mixes.

The National Association of Manufacturers, which joined the Chamber suit, said the administration was misusing the Clean Air Act to press its international agenda.

"The Clean Air Act wasn't designed as a tool for climate negotiations," Linda Kelly, the group's senior vice president and general counsel, said. "We have to make sure that the agency is acting within the bounds of its regulatory authority, which it is not here."

Joanne Spalding, the chief climate counsel for the Sierra Club, said the groups were stretching for arguments.

"It's wishful thinking," she said. "This rule has been in the works for years, and EPA has been carefully constructing it with input from stakeholders across the spectrum."

She also dismissed the likelihood of plaintiffs winning a stay of the rule, despite the large coalition of states and groups petitioning for one.

"I do think that the court will be looking at if the petitioners have actually demonstrated what they need to demonstrate in order to get a stay and not the number of petitioners that are before the court," she said. "EPA is on firm ground in its legal authority to issue the Clean Power Plan."

To obtain a stay, the plaintiffs would have to prove they would suffer "irreparable harm" by implementing the rules; that the harm would outweigh the damage done by not implementing the rules; and that they would likely succeed on the merits of their arguments.

Harben said the harm from immediately implementing the regulations is clear enough for a stay, since, as the rule is implemented, states will have to begin making decisions on implementation plans ahead of their first draft deadline in September 2016. She also said the rule would raise electricity prices, cost jobs in the mining and power sectors, and make manufacturing more expensive.

"It is our view that the rule will impose significant harm on a broad cross-section of American industry," she said.

Spalding said she was skeptical that the plaintiffs could make that case, noting that states would have up to three years to submit final plans, and that those plans wouldn't go into effect until 2022.

"Given the lengthy timeframe EPA has adopted in the final rule, they really can't show irreparable harm," she said.

Quick Links

Whitfield files resolutions to overturn carbon rules

Coal mine expansion stalls in lawsuit citing climate change

World's Catholic bishops issue appeal to Paris climate talks

An intolerable unimaginable heat forecast for Persian Gulf

EPA: Remedy to landfill fire won't come before 2017

Halting leak near sunken Lake Erie barge poses big challenge

New way to bet on oil wipes out billions in investor savings

Duke Energy buying Piedmont Natural Gas $4.9B

Nissan expands fuel leak recall to 59,000 sedans

Scandal-hit Volkswagen hires Opel exec as strategy chief

Polish prospective PM: Coal miner's daughter who rose up ranks

EPA points states toward carbon rule extensions

Colorado officials divided over Clean Power Plan

No compromises hammered out yet ahead of Paris climate talks

Oil to two-month lows on supply worries, demand concerns

Drillship delay for Transocean, Royal Dutch Shell

Western wants Northern Tier for $1.6 billion

Obama gave LWCF a push over the weekend

Xcel CEO: 'Wind is becoming pretty close to parity' with natural gas

UK think tank plays down methane leak concerns

NY's Cuomo gambling on solar panels and SolarCity

More Nebraska farmers turning to solar panels and solar power

Upcoming Events

Whitfield files resolutions to overturn carbon rules

By Kevin Rogers

Rep. Ed Whitfield, R-Ky., on Monday took the first step toward a congressional effort to overturn the Environmental Protection Agency's power plant carbon rules, introducing a pair of resolutions to block the regulations for new and existing fossil fuel power plants.

Sponsored Links

Whitfield, chairman of the House Energy and Commerce Subcommittee on Energy and Power, said EPA's rules were illegal and would have disastrous economic effects if implemented. The resolutions are issued under the Congressional Review Act, which gives Congress a 60-day window to weigh in on published regulations.

"There's nothing in the Clean Air Act that authorizes EPA to implement these unprecedented rules," he said in a statement. "These resolutions stand up for ratepayers, jobs, and affordable energy in Kentucky and throughout the country."

The resolutions would have to be approved by both chambers of Congress and signed by President Barack Obama. The House would need 290 votes to overturn a likely veto, while the Senate would need 67 votes.

Senate Majority Leader Mitch McConnell, R-Ky., and supporters plan to issue their own resolutions against the regulations this week.

Coal mine expansion stalls in lawsuit citing climate change

By Matthew Brown

BILLINGS, Mont. (AP) — The U.S. Interior Department should not have approved the expansion of a southeastern Montana coal mine before taking a closer look at its effect on the environment, a federal judge said about a lawsuit arguing the government ignored coal's contributions to climate change.

Environmental groups sued the Interior Department after it approved an expansion of the Spring Creek Coal mine in 2012. The case marks the second time conservationists have used worries over climate change to successfully challenge approval of a coal mine after it had been granted.

But unlike in the previous case involving Colorado mines, U.S. Magistrate Judge Carolyn Ostby did not explicitly name climate change as a factor in her decision issued Friday. She instead referred more broadly to "air quality" concerns, saying the government had failed to explain its thinking on the issue before granting approval.

Ostby said work at the mine near Decker will not be shut down immediately. Rather, the judge recommended that federal officials reconsider the environmental effects of the expansion by Wyoming-based Cloud Peak Energy. The mine, which employs about 260 people, is allowed to continue operating in the meantime.

More

World's Catholic bishops issue appeal to Paris climate talks

By Nicole Winfield

VATICAN CITY (AP) — Catholic patriarchs, cardinals and bishops representing five continents on Monday appealed to climate negotiators to approve a "transformative" and fair, legally binding agreement that sets global temperature limits and goals for eliminating fossil-fuel emissions.

Representatives of bishops' conferences from around the globe signed the appeal in a renewed push to encourage climate negotiators meeting in Paris next month to heed Pope Francis' call to protect God's creation and the poor who suffer most from its exploitation.

The church's 10-point proposal calls for governments to approve legally binding limits to global average temperatures, set a mid-century goal for phasing out emissions from fossil fuels and provide binding and ambitious mitigation commitments that recognize the different responsibilities for, and abilities to adapt to, global warming.

No precise temperature limit was proposed in the appeal. Indian Cardinal Oswald Gracias, who heads the Asian bishops' conference, suggested the omission was a compromise designed to ensure all bishops could sign onto the appeal, which is the first of its kind for the episcopal conferences from each of the five continents.

More

An intolerable unimaginable heat forecast for Persian Gulf

By Seth Borenstein

WASHINGTON (AP) — If carbon dioxide emissions continue at their current pace, by the end of century parts of the Persian Gulf will sometimes be just too hot for the human body to tolerate, a new study says.

How hot? The heat index — which combines heat and humidity — may hit 165 to 170 degrees (74 to 77 Celsius) for at least six hours, according to numerous computer simulations in the new study. That's so hot that the human body can't get rid of heat. The elderly and ill are hurt most by current heat waves, but the future is expected to be so hot that healthy, fit people would be endangered, health experts say.

"You can go to a wet sauna and put the temperature up to 35 (Celsius or 95 degrees Fahrenheit) or so. You can bear it for a while, now think of that at an extended exposure" of

six or more hours, said study co-author Elfatih Eltahir, an MIT environmental engineering professor.

While humans have been around, Earth has not seen that type of prolonged, oppressive combination of heat and humidity, Eltahir said. But with the unique geography and climate of the Persian Gulf and increased warming projected if heat-trapping gas emissions continue to rise at current rates, it will happen every decade or so by the end of the century, according to the study published Monday in the journal Nature Climate Change.

More

EPA: Remedy to landfill fire won't come before 2017

By Jim Suhr

ST. LOUIS (AP) — An Environmental Protection Agency administrator says a plan to make sure an underground suburban St. Louis landfill fire doesn't reach a buried cache of nearby Cold War-era nuclear waste won't come before the end of next year.

As acting chief of the EPA region that includes Missouri, Mark Hague also told reporters Monday that the public isn't in any immediate danger from embers smoldering below the Bridgeton Landfill. He says that fire is still 1,000 feet from the nuclear waste at the West Lake Landfill.

Missouri Attorney General Chris Koster on Sunday again called on the EPA to figure out "without delay" how to keep the smoldering underground garbage away from the nuclear waste.

Hague says any EPA fix won't be rushed and will be based on the best science.

A message from America's Natural Gas Alliance

Clean is Powerful. Natural gas helps Georgia Power's plant generate electricity with 50% fewer emissions. Think about it.

Learn more at www.thinkaboutit.org.

Halting leak near sunken Lake Erie barge poses big challenge

By John Seewer

TOLEDO, Ohio (AP) — The U.S. Coast Guard is leading efforts to find a leak of what it believes is a petroleum-based substance coming from a sunken barge on the bottom of Lake Erie near the U.S.-Canadian border.

What makes that so challenging goes beyond just the location of the wreckage.

Among the questions — what is leaking, where is it coming from, how much remains and is there anything else that could a pose a danger on the recently discovered tanker barge 45 feet below the lake's surface.

—

THE WRECKAGE

While the barge's identity is uncertain, shipwreck hunters and the Coast Guard suspect it's the Argo, among 87 shipwrecks on a federal registry created two years ago to identify the most serious pollution threats to U.S. waters. The Argo is among five such wrecks within the Great Lakes but is the only one whose location hasn't been confirmed.

More

New way to bet on oil wipes out billions in investor savings

By Bernard Condon

NEW YORK (AP) — When Karen Robinson's husband died, she worried she wouldn't have enough money to raise her two young girls and save for retirement.

Then she met a financial planner, Tom Parks, who told her about investment partnerships that would allow her to ride the boom in U.S. oil and gas production while receiving a steady stream of payments to help pay her bills.

"He showed me this picture of the United States, and said they were getting oil out of shale, and energy was the way to go," says Robinson, a high school teacher from Cranfills Gap, Texas. She liked that Parks seemed so confident. "I trusted him."

Two years later, her partnerships have plunged in value and Robinson has lost more than half of the $202,000 she invested, according to a complaint filed with regulators against Parks and his firm, Ameriprise Financial Services. Parks did not return phone calls and emails; Ameriprise declined to comment.

More

Duke Energy buying Piedmont Natural Gas $4.9B

By The Associated Press

CHARLOTTE, N.C. (AP) — Duke Energy will spend about $4.9 billion in cash to acquire Piedmont Natural Gas, adding about a million new customers in the Carolinas and Tennessee.

The Charlotte, North Carolina, companies are key partners in the $5 billion Atlantic Coast Pipeline that will be the first major natural gas pipeline to serve the eastern part of the state.

Piedmont shareholders will receive $60 in cash for each share of common stock. That's a 42 percent premium to Friday's closing price. Duke Energy Corp. will also assume approximately $1.8 billion in Piedmont debt.

Piedmont will keep its name and maintain its headquarters in Charlotte, North Carolina, and one of its directors will join Duke's board. It will become a unit of Duke Energy.

More

Nissan expands fuel leak recall to 59,000 sedans

By The Associated Press

DETROIT (AP) — A Nissan recall for possible fuel leaks in crashes has been expanded to include nearly 59,000 Altima and Maxima sedans worldwide.

The recall now covers certain 2013 to 2016 Altima midsize cars and some 2016 Maxima large cars. Also included are some 2014 to 2016 Teana sedans made in Russia. All have V6 engines.

Nissan says in documents posted by U.S. safety regulators that in a crash, fuel could leak from a seal between the gas tank and the fuel sending unit. That could cause a fire.

The company says the problem was discovered in crash tests, and it has no reports of fires, injuries or fuel leaks.

More

Scandal-hit Volkswagen hires Opel exec as strategy chief

By The Associated Press

FRANKFURT, Germany (AP) — Volkswagen is hiring a top strategy executive from

competitor Opel as it seeks to recover from a scandal over its cheating on U.S. diesel emissions tests.

Taking on Thomas Sedran as Volkswagen's new chief of corporate strategy brings another outside voice to the company as it re-examines its culture in the wake of the scandal.

The move announced Monday by the automaker based in Wolfsburg, Germany, comes on top of the company's decision to hire Christine Hohmann-Dennhardt, a former judge who oversaw legal compliance at competitor Daimler AG in the wake of a bribery scandal there.

Sedran is a former managing director for turnaround firm Alix Partners. He joined General Motors' Opel division as head of strategy and operations in 2012.

More

Polish prospective PM: Coal miner's daughter who rose up ranks

By Monika Scislowska

WARSAW, Poland (AP) — The conservative Law and Justice Party, which won Poland's general elections, has tapped Beata Szydlo to become the nation's next prime minister — the second woman in a row to hold the post. Here are key facts about the 52-year-old politician.

———

STRONG CAMPAIGNER:

In the spring, Szydlo ran the presidential campaign of Andrzej Duda, then a little-known figure who pulled off a shock upset of the widely-favored incumbent.

On the heels of that success, party leader Jaroslaw Kaczynski named Szydlo the Euro-skeptic party's candidate to lead the government in the fall parliamentary elections.

PERSONAL TOUCH:

Szydlo says her success lies in listening and talking to ordinary people, and she won much support by criss-crossing Poland in her campaign "Szydlobus." That personal touch may be a key asset as she attempts to bridge a widening divide between Poles who have benefited from the nation's economic boom and those who feel they have been left out, and look to her party for help.

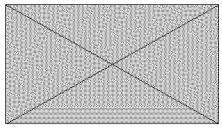
COAL-MINER'S DAUGHTER:

Szydlo was born Beata Maria Kusinska in 1963 to a coal mining family near Oswiecim, in

southern Poland, where she was raised in the shadow of the former Nazi death camp of Auschwitz. Her maternal great- grandfather died in Auschwitz as a Polish inmate. Her maternal grandfather suffered burns in a fire in the nearby Brzeszcze coal mine. Her father, also a coal miner, wanted her to be a mining engineer. She once told The Associated Press that she sometimes regrets she did not follow that advice.

More

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

EPA points states toward carbon rule extensions

A memo from the Environmental Protection Agency tells states that "the process is simple" if they want to get an extension on the time they need to submit a compliance plan for the rule on cutting power plant carbon emissions, E&E reports.

More

Colorado officials divided over Clean Power Plan

The move by Colorado Attorney General Cynthia Coffman—a Republican—to join other states in suing the Environmental Protection Agency over its regulations to cut power plant carbon emissions will be challenged by Democratic Gov. John Hickenlooper, who told The Denver Post he'll get a state Supreme Court ruling on whether she can file the lawsuit.

More

No compromises hammered out yet ahead of Paris climate talks

Some of the issues are clearer after a week of work by global climate negotiators in Bonn, but no compromises have been worked out yet even if U.S. envoy Todd Stern has been expressing optimism, E&E reports.

More

Oil to two-month lows on supply worries, demand concerns

Continued worries about oversupply coupled with concerns about Chinese economic woes

translating into weaker demand, pressured oil prices Monday. West Texas Intermediate crude for December delivery lost 62 cents to settle at $43.98 a barrel on the Nymex, the lowest level since August 27, while in London, Brent fell 45 cents to $47.54, Marketwatch reports.

More

Drillship delay for Transocean, Royal Dutch Shell

With the oil industry in the doldrums as a result of continued low prices, Transocean says it has agreed with Royal Dutch Shell to push back delivery of two ultradeep-water drilling rigs by a year, FuelFix reports.

More

Western wants Northern Tier for $1.6 billion

Western Refining Inc. has made an offer of close to $1.6 billion in cash and stock to fully take over Northern Tier Energy LP and make the master limited partnership a subsidiary, FuelFix reports.

More

Obama gave LWCF a push over the weekend

President Obama used his weekly address to call on Republicans to reauthorize the now-expired Land and Water Conservation Fund, The Hill reports.

More

Xcel CEO: 'Wind is becoming pretty close to parity' with natural gas

Minneapolis-based Xcel Energy Inc. has been getting wind energy bids for 20-year power purchase agreements around $25 per megawatt hour, while the utility estimates the cost for natural gas generation over the period to be $32 per megawatt hour, CEO Ben Fowke told Bloomberg.

More

UK think tank plays down methane leak concerns

Concerns about methane leaks shouldn't undermine a shift from coal- to gas-fired plants, according to the Centre for Policy Studies, a British free-market think tank, which says projections of such leaks from the shale gas extraction process have been "seriously overestimated," Platts reports.

More

NY's Cuomo gambling on solar panels and SolarCity

Pushed by Gov. Andrew Cuomo, New York state is spending up to $750 million to build a solar panel factory in Buffalo that will be operated by Elon Musk's SolarCity, The New York Times reports.

More

More Nebraska farmers turning to solar panels and solar power

Money-saving and carbon-saving solar panels are proving attractive for some Nebraska farmers, the Lincoln Journal Star reports.

More

Upcoming Events

- Oct. 27, Washington: The Senate Energy and Natural Resources Committee to hold a full panel hearing on the Office of Surface Mining Reclamation and Enforcement's Stream Protection Rule. Interior Assistant Secretary for Land and Minerals Management Janice Schneider; National Mining Association President Hal Quinn; Randy Huffman, West Virginia secretary of the Department of Environmental Protection; Todd Parfitt, Wyoming director of the Department of Environmental Quality; and Jim Hecker, Public Justice's Environmental Enforcement Project director to testify. 9:00 am , 366 Dirksen.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Alexander, David[Alexander.David@epa.gov]; Van Eaton, Josh (ENRD)[Josh.Van.Eaton@usdoj.gov]
Cc: Karene Brown[kbrown@hausfeld.com]; Engel, Bethany (ENRD)[Bethany.Engel@usdoj.gov]; Belser, Evan[Belser.Evan@epa.gov]
From: Christopher L. Lebsock
Sent: Tue 10/27/2015 1:03:30 AM
Subject: RE: VW Citizen Suit
(VW MDL) #607 Supplemental Response re Settlement Negotiations 10-26-15.pdf

Josh/David:

Attached is the filing we made with the JPML today. There was no consensus to file anything further in the ED VA, so we are tabling that for now.

Regards,

Chris

From: Alexander, David [mailto:Alexander.David@epa.gov]
Sent: Sunday, October 25, 2015 12:40 PM
To: Van Eaton, Josh (ENRD) <Josh.Van.Eaton@usdoj.gov>; Christopher L. Lebsock <clebsock@hausfeld.com>
Cc: Karene Brown <kbrown@hausfeld.com>; Engel, Bethany (ENRD) <Bethany.Engel@usdoj.gov>; Belser, Evan <Belser.Evan@epa.gov>
Subject: Re: VW Citizen Suit

Josh,

My schedule is good for the planed follow up call after 2 PM Monday.

To get us started I'll note that Evan Belser is very booked except from 2 or 2:30 - 3 PM. However, I can't speak to whether he will participate at all this time; I will be there continuously to represent EPA Air Enforcement Division.

David

David Alexander, Attorney

Air Enforcement Division

United States Environmental Protection Agency

1200 Pennsylvania Ave. NW, Rm. WJC South 1111-B

Washington, DC 20044

telephone (202) 564-2109

From: Van Eaton, Josh (ENRD) <Josh.Van.Eaton@usdoj.gov>
Sent: Sunday, October 25, 2015 3:17 PM
To: Christopher L. Lebsock
Cc: Karene Brown; Engel, Bethany (ENRD); Belser, Evan; Alexander, David
Subject: RE: VW Citizen Suit

Mr. Lebsock-

Following up on our call from last Thursday where we agreed to reconvene on Monday (Aug. 26). Beth and I are available any time after 2pm (ET).

Please let us know what time works for you and your colleagues.

Evan and David (EPA)-

Please chime in as well so we can get a time set up.

Thanks all,

Josh

From: Christopher L. Lebsock [mailto:clebsock@hausfeld.com]
Sent: Wednesday, October 21, 2015 4:47 PM
To: Van Eaton, Josh (ENRD) <JVanEaton@ENRD.USDOJ.GOV>; Belser, Evan <Belser.Evan@epa.gov>
Cc: Karene Brown <kbrown@hausfeld.com>
Subject: RE: VW Citizen Suit

Evan and Josh,

We'd be happy to speak to you at 9:00 a.m. Pacific/Noon EST tomorrow. We can circulate a dial in number, as my partner Michael Hausfeld would like to participate.

Non-Responsive

Regards,

Chris

From: Van Eaton, Josh (ENRD) [mailto:Josh.Van.Eaton@usdoj.gov]
Sent: Wednesday, October 21, 2015 1:38 PM
To: Belser, Evan <Belser.Evan@epa.gov>; Christopher L. Lebsock <clebsock@hausfeld.com>
Subject: RE: VW Citizen Suit

Thanks, Evan. I am also available today at 5:30 (Eastern).

Josh Van Eaton

Joshua H. Van Eaton

Trial Attorney

U.S. Department of Justice

Environment and Natural Resources Division

Environmental Enforcement Section

P.O. Box 7611

Washington, DC 20044-7611

p:202.514-5474

f: 202.514-0097

josh.van.eaton@usdoj.gov

Overnight:

601 D. Street, N.W. (Rm. 6423)

Washington, DC 20004

From: Belser, Evan [mailto:Belser.Evan@epa.gov]
Sent: Wednesday, October 21, 2015 4:24 PM
To: clebsock@hausfeld.com
Cc: Van Eaton, Josh (ENRD) <JVanEaton@ENRD.USDOJ.GOV>
Subject: VW Citizen Suit

Mr. Lebsock,

I hope this finds you well. I'm writing to ask for a call with you and my colleague from US DOJ, Josh Van Eaton, to discuss your notice of intent to file a citizen suit against Volkswagen.

Do you have time for a 5:30 ET (2:30 PT) call today? Perhaps between 12 noon or 2pm ET (9am or 11am PT) tomorrow?

Thanks,
Evan

Evan Belser

Chief, Mobile Source Enforcement Branch, Air Enforcement Division

National Coordinator for Administrative Litigation, Office of Civil Enforcement

Office of Enforcement and Compliance Assurance

United States Environmental Protection Agency

202-564-6850

BEFORE THE UNITED STATES
JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

IN RE: VOLKSWAGEN "CLEAN DIESEL" MARKETING, SALES PRACTICES, AND PRODUCTS LIABILITY LITIGATION	**MDL NO. 2672**

SUPPLEMENTAL RESPONSE BY PLAINTIFFS MARIA BOURN, DAVID WATSON, STEPHEN VERNER, MARK SCHUMACHERAND THE CENTER FOR AUTO SAFETY APPRISING THE JUDICIAL PANEL ON MULTIDISTRICT LITIGATION OF IMPENDING SETTLEMENT NEGOTIATIONS IN TWO DISTRICT COURTS

Pursuant to 28 U.S.C. § 1407 and Judicial Panel on Multidistrict Litigation ("Panel") Rule 6.3(f), Respondents Maria Bourn, David Watson, Stephen Verner, Mark Schumacher and the Center for Auto Safety ("CAS") ("collectively, E.D. Va. Plaintiffs") respectfullyprovide this short supplemental response to advise the Panel of new information that has come to light since their response was filed on October 21, 2015.

Since the time of that filing, Chief Judge Gerald E. Rosen in the Eastern District of Michigan entered an "Order Appointing The Honorable Layn R. Phillips And The Honorable Steve W. Rhodes As Masters For Expedited Settlement Negotiations" (Oct. 22, 2015) (Dkt. No. 14) in *In re: Volkswagen "Clean Diesel" Cases*, Case No. 15-13360 GER-APP (E.D. Mich.), attached as Exhibit A. In that order, Chief Judge Rosen states that the appointment is "for the purpose of facilitating expedited settlement negotiations between the Plaintiffs and all Defendants" and "Judges Phillips and Rhodes are directed to proceed with all reasonable diligence in facilitating these negotiations . . . " *Id.* at 1.

One day later, Judge Joel L. Linares in the District of New Jersey entered an "Order Appointing The Honorable Layn R. Phillips And The Honorable Faith S. Hochberg As Masters For Expedited Settlement Negotiations" (Oct. 23, 2015) (Dkt. No. 31) in *In re: Volkswagen "Clean Diesel" Cases*, No. 15-7012 (JLL)(JAD) (D.N.J.). Exhibit B. In this order, Judge Phillips and Judge Hochberg "are hereby appointed for the purpose of facilitating expedited settlement negotiations between the Plaintiffs and all Defendants" and they "are directed to proceed with all reasonable diligence in facilitating these negotiations . . . ." *Id.* at 1. The substantive terms of the two orders are largely identical.

The Michigan order was brought to the attention of Judge Liam O'Grady in the Eastern District of Virginia (who is presiding over the cases brought against Volkswagen and Audi in that District), at a hearing held on Friday, October 23. While denying a stay

VW FOIA, EPA 06/20/2017 2017-FFP_035281

of all proceedings and remarking on the need for the cases to proceed expeditiously, Judge O'Grady noted that appointing mediators might be premature:

> THE COURT: Well, this is appointment of Masters to attempt to settle the case, and that's an interesting twist that may be jumping the gun. But if the parties -- I don't know the circumstances under which that was entered.
>
> MR. WILBURN[1]: I don't either.

"Hearing on Motions" at 11:12-16 (Oct. 23, 2015) in *Steffensen v. Volkswagen Group of America, Inc.*, No. 1:15-cv-1218 LO (E.D. Va.). Exhibit C.

The E.D. Va. Plaintiffs assume that additional efforts to push cases toward resolution before the Panel rules on any transfer order in MDL No. 2626 will be made before judges in other Districts around the United States. Indeed, in the Central District of California, a motion for class certification has been set for hearing on November 23, 2015—10 days before this Panel will consider the pending motions for centralization. "Plaintiff Christopher J. D'Angelo's Notice of Motion and Motion and Memorandum of Points and Authorities In Support of Motion for Class Certification" in *D'Angelo v. Volkswagen Group of America, Inc.*, Case No. 2:15-cv-07390-DOC (SPx) (C.D. Cal.). Exhibit D.

It is respectfully submitted that the goals underlying 28 U.S.C. §1407 would be best served by allowing the Panel to act before expedited settlement negotiations begin or class certification motions are decided. While the pendency of a multidistrict litigation does not automatically stay proceedings in potential transferee courts, piecemeal settlement negotiations ought not to occur while the Panel has yet to decide where to send all of these cases for coordinated pretrial proceedings. One of the potential benefits of a transfer under Section 1407 is the opportunity to provide a forum where a global pretrial settlement involving all interested parties can be reached. *See In re Asbestos Prods. Liability Litig. (No. VI)*, 771 F.Supp. 415, 421-22 (J.P.M.L. 1991) ("*Asbestos*").

[1] Counsel for the Volkswagen and Audi defendants.

VW FOIA, EPA 06/20/2017 2017-FFP_035282

Two groups not accounted for in the proceedings in the Eastern District of Michigan and the District of New Jersey are: (a) federal and state regulators and (b) private parties who have provided the requisite notice needed to bring a penalty and injunctive relief action pursuant to 42 U.S.C. § 7604 (part of the Clean Air Act). The E.D. Va. Plaintiffs, through their counsel, have been in contact with attorneys for the United States Department of Justice ("DOJ"), the United States Environmental Protection Agency ("EPA"), and various state and local regulatory agencies, and to date, they are the *only* group of private plaintiffs anywhere in the United States that have provided such notice. The E.D Va. Plaintiffs and the regulators must coordinate their actions to ensure that they are speaking with one voice, since both have overlapping enforcement rights under that statute.[2]

To be clear, the E.D. Va. Plaintiffs do not oppose mediation of this dispute and they believe Judge Phillips and the other designated Special Masters would be excellent choices to preside over settlement negotiations. All involved, including the E.D.Va. Plaintiffs, seek an expeditious resolution to the very serious misconduct that the Volkswagen and Audi defendants have admitted occurred here, but any decentralized, head-long rush to resolution should be slowed, if only for a short period, so that this Panel can centralize the cases in one District for coordinated pretrial proceedings. Indeed, the Volkswagen and Audi defendants, the regulators, and the private plaintiffs all have an interest in how the affected vehicles will be "fixed" so that federal and state emissions laws are complied with and so that there is an assurance that the vehicles can be registered with the various state Departments of Motor Vehicles. This will require coordination that cannot be achieved until the Panel enters a transfer order.

[2] In addition, CAS is also not accounted for. It has filed its own lawsuit in the Eastern District of Virginia for declaratory and injunctive relief and is pursuing broader environmental goals than those pursued by individual owners of the affected Volkswagen and Audi vehicles.

VW FOIA, EPA 06/20/2017 2017-FFP_035283

The present situation is similar to the dynamic that eventually led this Panel to centralize thousands of cases in *Asbestos*. The E.D. Va. Plaintiffs agree that this litigation needs to move swiftly, but it should do so in an organized manner, and a delay of roughly six weeks in order to allow the Panel to complete its work is appropriate. As an alternative, the E.D. Va. Plaintiffs suggest that the Panel consider dispensing with oral argument and send the cases to its chosen venue immediately. There is no serious dispute that centralization is needed here.

Dated: October 26, 2015

Respectfully submitted,

/s/ *Christopher L. Lebsock*
Michael D. Hausfeld
Walter D. Kelley, Jr.
James J. Pizzirusso
HAUSFELD LLP
1700 K Street NW, Suite 650
Washington, DC 20006
Tel: (202) 540-7200
Fax: (202)540-7201
Email: mhausfeld@hausfeld.com
Email: wkelley@hausfeld.com
Email: jpizzirusso@hausfeld.com

Michael P. Lehmann (SBN 77152)
Bonny E. Sweeney (SBN 176174)
Christopher L. Lebsock (SBN 184546)
HAUSFELD LLP
600 Montgomery St., Suite 3200
San Francisco, CA 94111
Tel: (415) 633-1908
Fax: (415) 358-4980
Email: mlehmann@hausfeld.com
Email: bsweeney@hausfeld.com
Email: clebsock@hausfeld.com

Bernard J, DiMuro (VSB No. 18784)
Harvey B. Cohen (VSB No. 06440)
DIMUROGINSBERG, P.C.
1101 King Street, Suite 610
Alexandria, Virginia 23314
Telephone: (703) 684-4333
Facsimile: (703) 548-3181

VW FOIA, EPA 06/20/2017 2017-FFP_035284

Email: bdimuro@dimuro.com
Email: hcohen@dimuro.com

Counsel for Plaintiffs Center for Auto Safety, Maria Bourn, David Watson, Stephen Verner, and Mark Schumacher

Lesley E. Weaver (Cal. Bar No. 191305)
Whitney E. Street (Cal. Bar No. 223870)
BLOCK & LEVITON LLP
520 Third Street, Suite 108
Oakland, CA 94607
Office: (415) 968-8999
Cell: (415) 797-2617
Email: lweaver@blockesq.com
Email: wstreet@blockesq.com

Counsel for Plaintiffs Maria Bourn, David Watson, Stephen Verner, and Mark Schumacher

VW FOIA, EPA 06/20/2017 2017-FFP_035285

EXHIBIT A

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

In re: VOLKSWAGEN "CLEAN DIESEL" CASES /

No. 15-13360
Hon. Gerald E. Rosen

ORDER APPOINTING THE HONORABLE LAYN R. PHILLIPS AND THE HONORABLE STEVEN W. RHODES AS MASTERS FOR EXPEDITED SETTLEMENT NEGOTIATIONS

At a session of said Court, held in the U.S. Courthouse, Detroit, Michigan on October 22, 2015

PRESENT: Honorable Gerald E. Rosen
United States District Chief Judge

Based upon the large number of parties involved and the overall complexity of this litigation, and after discussing the matter with Plaintiffs' Interim Coordinating Class Counsel and counsel for Defendants at a Status Conference held on October 14, 2015, as well as in numerous telephone conferences,

NOW, THEREFORE, IT IS HEREBY ORDERED that:

In accordance with Federal Rule of Civil Procedure 53, the Honorable Layn R. Phillips and the Honorable Steven W. Rhodes are hereby appointed as Masters for the purpose of facilitating expedited settlement negotiations between the Plaintiffs and all Defendants. In their roles as Masters, Judges Phillips and Rhodes are directed to proceed with all reasonable diligence in facilitating these negotiations, in the manner and at the times and locations they deem appropriate.

VW FOIA, EPA 06/20/2017 2017-FFP_035287

For each settlement negotiation session, Judges Phillips and Rhodes shall have the authority to establish the negotiation process, including the submission of documents, the attendance of parties with authority to settle, the procedure governing the settlement negotiations, and the schedule for the negotiations.

All proceedings, discussions, and writings incident to these settlement negotiations shall be privileged and confidential and shall not be disclosed, filed or placed in evidence.

Defendants Volkswagen AG and Audi AG are directed to participate in these expedited settlement negotiations but may proceed without prejudice to their right to later raise any defenses to service of process or jurisdiction.

Judges Phillips and Rhodes may communicate *ex parte* with any party or the Court, at their discretion. Judges Phillips and Rhodes, in their discretion, may impose non-contempt sanctions under Rule 53(c)(2) and may, where they deem necessary, recommend contempt proceedings to the Court. They may also conduct any discovery-related proceedings and any evidentiary hearings that they deem necessary to facilitate settlement or to resolve any issues that arise in the settlement negotiations.

As Masters appointed under this Order, Judges Phillips and Rhodes shall function as quasi-judicial officers under the authority of the Court, and are, therefore, immune from suit. Neither Judge Phillips nor Judge Rhodes shall be called as a witness.

Judges Phillips and Rhodes shall be compensated by the Plaintiffs and the

Defendants in accordance with rates to be determined by Judges Phillips and Rhodes following their discussion of this matter with the parties. The Plaintiffs shall pay half of the Masters' fees and expenses, and the Defendants shall collectively pay the other half of these fees and expenses. The right to entertain motions seeking redistribution of these fees and expenses following the entry of judgment in this matter shall be reserved to the then-presiding court.

Finally, in accordance with Rule 53(b)(1), the parties shall within **seven (7) days** of the date of this Order, file and serve any objections they might have to the appointment of Judges Phillips and Rhodes as Masters or any other terms of this Order.

SO ORDERED.

s/Gerald E. Rosen
Chief Judge, United States District Court

Dated: October 22, 2015

I hereby certify that a copy of the foregoing document was served upon the parties and/or counsel of record on October 22, 2015, by electronic and/or ordinary mail.

s/Julie Owens
Case Manager, (313) 234-5135

VW FOIA, EPA 06/20/2017 2017-FFP_035289

EXHIBIT B

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

In re: VOLKSWAGEN "CLEAN DIESEL" CASES	Civil Action No.: 15-7012 (JLL) (JAD) **ORDER APPOINTING THE HONORABLE LAYN R. PHILLIPS AND THE HONORABLE FAITH S. HOCHBERG AS MASTERS FOR EXPEDITED SETTLEMENT NEGOTIATIONS**

Based upon the large number of parties involved and the overall complexity of this litigation, and after discussing the matter with Plaintiffs' Interim Co-Liaison Counsel and counsel for Defendants at a Status Conference held on October 20, 2015, as well as a telephone conference held on October 22, 2015,

IT IS on this 23rd day of October, 2015,

ORDERED that in accordance with Federal Rule of Civil Procedure 53, the Honorable Layn R. Phillips and the Honorable Faith S. Hochberg are hereby appointed as Masters for the purpose of facilitating expedited settlement negotiations between the Plaintiffs and all Defendants. In their roles as Masters, Judges Phillips and Hochberg are directed to proceed with all reasonable diligence in facilitating these negotiations, in the manner and at the times and locations they deem appropriate; and it is further

ORDERED that for each settlement negotiation session, Judges Phillips and Hochberg shall have the authority to establish the negotiation process, including the submission of documents, the attendance of parties with authority to settle, the procedure governing the settlement negotiations, and the schedule for the negotiations; and it is further

ORDERED that all proceedings, discussions, and writings incident to these settlement negotiations shall be privileged and confidential and shall not be disclosed, filed or placed in evidence; and it is further

ORDERED that Defendants Volkswagen AG and Audi AG are directed to participate in these expedited settlement negotiations but may proceed without prejudice to their right to later raise any defenses to service of process or jurisdiction; and it is further

ORDERED that Interim Co-Liaison Counsel shall participate in these expedited settlement negotiations on behalf of Plaintiffs consolidated in the above action; and it is further

ORDERED that Judges Phillips and Hochberg may communicate ex parte with any party or the Court, at their discretion. Judges Phillips and Hochberg in their discretion, may impose non-contempt sanctions under Rule 53(c)(2) and may, where they deem necessary, recommend contempt proceedings to the Court. They may also conduct any discovery related proceedings and any evidentiary hearings that they deem necessary to facilitate settlement or to resolve any issues that arise in the settlement negotiations; and it is further

ORDERED that as Masters appointed under this Order, Judges Phillips and Hochberg shall function as quasi-judicial officers under the authority of the Court, and are, therefore, immune from suit. Neither Judge Phillips nor Judge Hochberg shall be called as a witness; and it is further

ORDERED that Judges Phillips and Hochberg shall be compensated by the Plaintiffs and the Defendants in accordance with rates to be determined by Judges Phillips and Hochberg following their discussion of this matter with the parties. The Plaintiffs shall pay half of the Masters' fees and expenses, and the Defendants shall collectively pay the other half of

VW FOIA, EPA 06/20/2017 2017-FFP_035292

these fees and expenses. The right to entertain motions seeking redistribution of these fees and expenses following the entry of judgment in this matter shall be reserved to the then-presiding court; and it is further

ORDERED that in accordance with Rule 53(b)(1), the parties shall within **seven (7) days** of the date of this Order, file and serve any objections they might have to the appointment of Judges Phillips and Hochberg as Masters or any other terms of this Order.

IT IS SO ORDERED.

JOSE L. LINARES,
UNITED STATES DISTRICT JUDGE

VW FOIA, EPA 06/20/2017 2017-FFP_035293

EXHIBIT C

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF VIRGINIA
Alexandria Division

KIRK STEFFENSEN, et al., Plaintiffs,	Case No.	1:15-cv-1218
	&	1:15-cv-1223
-vs-	&	1:15-cv-1225
	&	1:15-cv-1229
	&	1:15-cv-1239
VOLKSWAGEN GROUP OF, AMERICA, INC.,	&	1:15-cv-1241
	&	1:15-cv-1245
	&	1:15-cv-1295
Defendant.		

HEARING ON MOTIONS

October 23, 2015

Before: Liam O'Grady, USDC Judge

APPEARANCES:

Gregory Y. Porter, Counsel for the 1218 Plaintiffs

Daniel M. Cohen and Warren T. Burns,
Counsel for the 1223 Plaintiffs

William D. Dolan, III, Joseph H. Meltzer, David H. Thompson,
and Michael Weitzner, Counsel for the 1225 Plaintiffs

Walter D. Kelley, Jr., Bernard J. DiMuro, Harvey B. Cohen
Hugh B. McCormick, III and Andrew P. Bell,
Counsel for the 1229 Plaintiffs

Paul B. Hynes, Jr., Carl S. Kravitz and Tana Lin,
Counsel for the 1239 Plaintiffs

Douglas J. McNamara and Geoffrey Graber,
Counsel for the 1241 Plaintiffs

J. Gregory Webb, Counsel for the 1245 Plaintiffs

Walter D. Kelley, Jr., Bernard J. DiMuro and Harvey B. Cohen,
Counsel for the 1295 Plaintiffs

John D. Wilburn, Terrence M. Bagley, Christopher E. Trible and
Heather A. Britton, Counsel for Defendant Volkswagen

VW FOIA, EPA 06/20/2017 2017-FFP_035296

THE COURT: All right, let's have the counsel for Volkswagen and the various cases all come up and identify themselves for the record.

I know you, you're Mr. Dolan.

MR. DOLAN: Judge, I've forgotten my name by now. William Dolan on behalf of the Johnson, et al. plaintiffs in 1225.

With me, Your Honor, my co-counsel Joseph Meltzer -- there is Joe right here.

MR. MELTZER: Good morning, Your Honor.

THE COURT: Good morning, Mr. Meltzer.

MR. DOLAN: From Kessler, Topaz, Meltzer & Check.

And also is our other co-counsel David Thompson from Cooper & Kirk.

MR. THOMPSON: Good morning, Your Honor.

THE COURT: Good morning.

MR. DOLAN: Also from Copper & Kirk is Michael Weitzner, who is a member of this court.

MR. WEITZNER: Good morning.

THE COURT: All right. Good morning to you.

MR. DOLAN: We are delighted to be in front of the Court.

THE COURT: All right. Thank you, Mr. Dolan.

MR. KELLEY: Walt Kelley on behalf of the plaintiffs in the 1229 action, as well as the 1295 action. And Mr. DiMuro

is also co-counsel in those actions, and is Mr. Cohen.

MR. DiMURO: Harvey Cohen.

MR. KELLEY: Yes, Harvey Cohen.

THE COURT: Good morning to each of you.

MR. McNAMARA: Good morning, Your Honor. Douglas McNamara from Cohen Milstein. We're here on Shalov versus Volkswagen, 1241. I am here with my colleague Geoff Graber.

THE COURT: All right, good morning.

MR. GRABER: Good morning, Your Honor. Geoffrey Graber.

MR. PORTER: Good morning, Your Honor. Gregory Porter on behalf of plaintiff Steffensen in the 1218 number. Thank you.

THE COURT: All right, good morning to you, sir. Thank you.

MR. COHEN: Good morning, Your Honor. Daniel Cohen, Cuneo Gilbert & LaDuca. And I am here in 1223. I am here with my co-counsel, Warren Burns, of Burns Charest, LLP.

MR. BURNS: Good morning, Your Honor.

THE COURT: All right, good morning to both of you.

MR. COHEN: Thank you.

MR. WEBB: Good morning, Your Honor. Greg Webb from the MichieHamlett law firm in Charlottesville, Virginia on behalf of the Butler plaintiffs, 1245.

THE COURT: 1245. All right, good morning to you,

sir.

MR. WEBB: Good morning, Your Honor.

MR. HYNES: Good morning, Your Honor. Paul Hynes from Zuckerman Spaeder for the plaintiffs in the Proudlove v. Volkswagen action, number 1239.

THE COURT: All right.

MR. HYNES: With me is my colleague Carl Kravitz from Zuckerman Spaeder. And my co-counsel, Tana Lin from Keller Rohrback.

MS. LIN: Good morning, Your Honor.

MR. KRAVITZ: Good morning, Your Honor.

THE COURT: Good morning.

MR. WILBURN: Good morning, Your Honor. John Wilburn from McGuire Woods on behalf of Volkswagen Group of America.

With me today are my colleagues also from McGuire Woods Terry Bagley, Christopher Trible, and Heather Britton on behalf of the defendant.

THE COURT: All right, good morning to each of you.

MR. BAGLEY: Good morning, Your Honor.

MR. TRIBLE: Good morning.

THE COURT: Mr. Kelley.

MR. WILBURN: I'm sorry --

MR. KELLEY: Judge O'Grady, I'm sorry, I neglected -- hold on just a moment -- to fully introduce our folks. Let's see. Okay, we have got -- I seem to have -- come on up, you do

it.

I'm sorry, we've got a cast of thousands we're coordinating here.

MR. BELL: Good morning, Your Honor. Andrew Bell from Locks Law Firm on the 1229 case. Mr. Kelley is going to be arguing on our case this morning. Thank you for having us here this morning.

THE COURT: All right. Good morning, Mr. Bell.

MR. McCORMICK: Good morning, Your Honor. Hugh McCormick with Patten Warnom Hatten & Diamonstein in Newport News. We are also on the 1229 case. And Mr. Kelley is going to be arguing that for us.

THE COURT: Okay. Good morning to you.

MR. McCORMICK: Pleasure to see you, sir.

THE COURT: All right, do we have everybody now? All right.

This comes on Volkswagen's motion to stay the proceedings until the Multidistrict Litigation Panel makes their decision. And I understand the hearing is still set for December 3, is that right?

MR. WILBURN: Yes, Your Honor, it is.

THE COURT: All right. I have sat in that -- you know, it seems like they find the biggest auditoriums that they can find, and everybody mills around for a long time while they go through with their process. Actually, I've been there

VW FOIA, EPA 06/20/2017 2017-FFP_035300

several times, and at the end of the day I'm still not sure how decisions are made. I think back in my day they gave everybody about three minutes, and perhaps now they give everybody five minutes, I'm not sure, but it's not much time. Which underlines the importance of written pleadings.

So I've looked at all of the oppositions and the reasons for the oppositions. Counsel have pointed me to Judge Linares from New Jersey and Judge Rosen from Michigan as to things that have been done in preparation for the decision by the Panel.

I don't need further argument on the motion to stay.

I will hear, and I do this with great trepidation, if somebody has anything new to add to their pleadings, and they believe that I should have that information, I am happy to hear that at this time.

MR. KELLEY: I have one thing that you may already know, so please stop me. Earlier this week the District of New Jersey, as I understand it --

THE COURT: That's Judge Linares, I think.

MR. KELLEY: And you may know this, so please stop me if you do. Basically stayed substantive work in the case, but allowed the case to go forward as far as preservation letters and ESI. You know, the preliminaries that lead up to the discovery.

THE COURT: Correct. I read Judge Linares' order.

Mr. Dolan.

MR. DOLAN: Just briefly, Judge. Last night Judge Rosen entered an order, again you may know that.

THE COURT: That I am not familiar with.

MR. DOLAN: They are continuing in Michigan. And he appointed two judges, the Honorable Layn Phillips and the Honorable Steven Rhodes as Masters for the purpose of facilitating expedited settlement negotiations between the plaintiffs and all the defendants. And then he went on to outline the standards.

I have a copy if the Court were to be interested in that.

THE COURT: Sure, I am happy to read that.

MR. DOLAN: Our takeaway from that would be it's an illustration that stay was not granted there and that activity is underway.

And that when you combine that with the notion that even the defendant believes that either the Eastern District of Virginia or Michigan would be the most logical and persuasive locations for these 350 cases, we believe that it indicates motion that a stay -- that there are things that we can do between now and whenever the Panel renders its decision. And you've heard what we think can be done.

For instance, the preservation order, because that's a real issue. Getting started on ESI. Asking them for the

documents that they've already given the government. Things that clearly can be done to move things along, particularly if you are of the view that the case may very well come here.

The second point I would like to raise, with all due respect and with a certain amount of trepidation because I have never asked a judge questions, I've always tried to answer them, whether this Court would entertain favorably, less than dancing a jig, of the receipt of these cases by the MDL Panel?

And the reason I raise that issue is that if the Court were inclined to be open to that, it would enable the lawyers who are going to argue in New Orleans in December to make that Court, make the Panel aware of that issue, of your position.

It may be a bit inappropriate, but I thought I would at least raise that potential issue with you.

THE COURT: All right, thank you.

Yes, sir.

MR. McNAMARA: Thank you, Your Honor.

Douglas McNamara for Cohen Milstein on behalf of Mr. Shalov. And adding on a little bit to what Mr. Dolan said.

The only thing new I wanted to bring to Your Honor's attention is I have had the privilege now in working in front of Judge Trenga on the Lumber Liquidators MDL with Mr. Trible and his colleagues here at McGuire Woods, and adding on to what counsel just stated, we had managed to do a lot of work before

VW FOIA, EPA 06/20/2017 2017-FFP_035303

there was even an operative complaint before the court, including ESI protocol discussions, search term discussions, preservation orders, figuring out coordinating counsel.

A lot of the -- I mean, Your Honor, attached to our brief was Judge Trenga's order from July 2 --

THE COURT: I read it. It's a masterpiece.

MR. McNAMARA: It is. There is a lot that can be done without any chance --

THE COURT: Truly one of the most comprehensive initial orders without question I have ever read. And I think very favorably of what has happened to date in Lumber Liquidators.

In answer to your question, Mr. Dolan, I am happy, if the Panel decides that they want to send the case to the Eastern District of Virginia, I am happy to receive it and do the best I can in the case as it moves forward.

And I had intended without question to alert the parties to the fact that I thought that Judge Trenga and the parties had done a terrific job in putting that in a position to move forward, and recommend that they read it comprehensively if the case comes back here.

MR. McNAMARA: Thank you, Your Honor.

THE COURT: All right, thank you.

Yes, sir. Does anybody else on the plaintiffs' side want to be heard about new information? All right, thank you.

MR. WILBURN: Good morning, Your Honor. John Wilburn from McGuire Woods.

THE COURT: Yes.

MR. WILBURN: I don't have new information. I did want to address the order that Mr. Dolan passed up just to inform the Court that we haven't yet seen that. But based on Mr. Dolan's description of its contents, we would assert that that exacerbates, that sort of makes the point of the problem of not staying it. Is we would be dealing with inconsistent potentially ESI here versus there, and I think it makes the point of our argument.

THE COURT: Well, this is appointment of Masters to attempt to settle the case, and that's an interesting twist that may be jumping the gun. But if the parties -- I don't know the circumstances under which that was entered.

MR. WILBURN: I don't either.

THE COURT: And what the arguments there were. It may well be that the parties in that case said, Judge, we would be happy to try and sit down and resolve this, especially given the public statements that have been made by Volkswagen.

But I understand your position. Thank you, sir.

MR. WILBURN: Thank you, Your Honor.

THE COURT: All right. Well, you know, these cases present circumstances that require immediate attention. And a stay is not necessary in my mind under the Fisher versus United

States standards. And I certainly am very concerned about any adverse rulings or inappropriate areas where the judge who handles -- and I am as confident as the rest of you are that there will be a jurisdiction designated for the case for discovery to be held.

But the allegations in the complaint as amplified by the CEO of Volkswagen America demonstrate that half a million people and their families have cars that they rely on for their livelihood. These nitric oxides are polluting the environment.

I think there is really two significant reasons to move forward to the extent we can here today. And the fact that these cars are emitting harmful pollutants is one.

The second is that many of these cars are coming up for emission standards tests, they're going to fail them. I don't know what is going to happen at that stage. And certainly I don't expect the EPA to pull the cars off the road, but that's not impossible given the fact that they are beholding to administrative tensions.

So I strongly believe that we should get as far as along as possible in the case without interfering with the District Court who receives the consolidated cases. And it seems to me that in looking at what Judge Rosen did and Judge Linares, we can at least get a preservation order in place.

And I historically know that the German laws on keeping records are a little different. And, of course, they

don't even have discovery there in civil cases. And who knows what has happened through the search warrants that were executed. But I think a preservation order is appropriate.

We can do a -- I can do an order consolidating the cases that are here already.

I think we should appoint interim lead counsel to represent the class that is here for the purposes of the work that we can do prior to the Panel's decision.

We can draft discovery on both sides that will be exchanged but not responded to, but we could get started on that to identify what each side believes is appropriate in the discovery area.

A protective order certainly could be worked on. Protocol for electronic discovery.

In the Kolomeets case there was a request for documents produced to the Energy and Commerce Committee by Volkswagen. The request for a creation of a document depository. I am a little bit concerned about that.

And then the production of exemplars of Volkswagen's communications to customers who are not represented by counsel.

So that's where I am. And perhaps let's hear from Volkswagen. Where do you think we may run into trouble?

MR. WILBURN: Well, a couple of issues, Your Honor. One, Your Honor didn't address the time for a responsive pleading. And I think even in the --

THE COURT: Yeah, everybody has agreed that they are not going to require you to respond, and I think that that's appropriate.

MR. WILBURN: Thank you, Your Honor. If I may go through, I had a list of these items. I was hopefully tracking them accurately. The preservation order is one. I assume we can work that out among counsel.

The appointment of interim lead counsel was primarily an issue for the plaintiffs, I believe.

But you mentioned discovery on both sides that would be shared but not responded to. I wasn't tracking exactly what Your Honor meant by that.

THE COURT: Well, here in the Eastern District of Virginia, you know, a case is answered. And as soon as an answer is filed, we issue a scheduling order. And that scheduling order, we open discovery. And the parties are free to do interrogatories, document requests, and requests for admissions. And I would assume that we would work on that written discovery, not take depositions, not at this stage even 30(b)(6) depositions, that we would hold off on that.

But then Volkswagen may in its mind have discovery that it intends to ask each of the plaintiffs in the class. And you may want to, if you choose, you may want to disclose that earlier so that the parties have a chance to reflect on whether they are going to object to it or not.

VW FOIA, EPA 06/20/2017 2017-FFP_035308

And so, we would move to a stage where if the case does come here or it goes to Michigan, these plaintiffs and you have an idea of what is going to be sought down the road and can integrate that into the consolidated case.

MR. WILBURN: Would the discovery process proceed in the ordinary course? And by that I mean, once we get the initial scheduling order from the Court, we would simply follow that? You are not authorizing discovery today?

THE COURT: Discovery is going to change a little bit if the case comes back. And I would invite you to look at the Lumber Liquidators -- well, you probably have.

MR. WILBURN: Yes.

THE COURT: I am sorry. That would be the model that I would be looking at. And to the extent that it needed tweaking, we would get together and do that at the beginning of the case.

So for purposes now, I'm just talking about really just advancing the ball to further understand what the parties believe they need moving down the road.

One, it's something that you can notify your client about. I think it dovetails with the preservation order. And if your clients are unaware that plaintiffs are going to be seeking this information, then they may go awry of that preservation order.

Hopefully there is no question that when this whole

thing blew up, that immediately they were told that all documents needed to be preserved. But sometimes a preservation order just makes that clear.

MR. WILBURN: Yes, Your Honor. What's the Court's thought in terms of the filed but unserved? There are a series of cases that have been either served we are here on, some have been partially served that we don't have -- there is not service on the European parent that needs to go through the ordinary course, and some that are not served at all and aren't before the Court.

Does the Court have any guidance on how you might treat those?

THE COURT: I know that there is summons outstanding for a series of the cases. I mean, my thought would be that you ought to -- well, one, I want the plaintiffs to get together.

And, Mr. Dolan, would you be willing to serve as one of the interim counsel for purposes of the case while it remains here prior to the Panel's decision?

MR. DOLAN: Yes, Your Honor.

THE COURT: All right. Then I would like Mr. Dolan to be one of those interim leaders. And if you would talk amongst yourselves, and if you need a couple more lead counsel on an interim basis to coordinate things, I'm sure that Mr. Dolan will be coordinating with those who have filed suits

regardless of whether the summons have been served or not.

So collectively, I think you're better served having a unified front and not having people coming in two weeks later and three weeks later filing different stuff, but all be coordinating with Mr. Dolan and colleagues now versus later.

MR. WILBURN: Based on your comments, I think what we would suggest to do is we would start with the Lumber Liquidators order as you described as being sort a useful model at least on these topics. Would that be the Court's preference?

THE COURT: In terms of discovery that would be forthcoming?

MR. WILBURN: Well, some of these -- yes, Your Honor, in terms of discovery that would be forthcoming in particular.

THE COURT: I'm happy to have you -- I can't put my -- I don't have in mind the exact -- that section. So I am unsure the order, what it requests.

MR. WILBURN: And I'm not suggesting to lock in an order on that today. I was just, in terms of providing the Court, I think what our expectation might be is to start with that language as a form, and obviously consult with Mr. Dolan and whomever else on the plaintiffs' side about that.

THE COURT: Mr. Dolan, you are not involved in the Lumber Liquidators case?

MR. DOLAN: I am not.

VW FOIA, EPA 06/20/2017 2017-FFP_035311

THE COURT: So it will take a little time for him to review that and decide. All right.

What's Volkswagen's position on the disclosure at this stage of the documents produced to the Energy and Commerce Committee? I'm unfamiliar as to what documents they are. As well as the creation of a document depository or the contacts with unrepresented customers.

MR. WILBURN: I don't know, Your Honor. That wasn't an issue that we had flagged for today. And I apologize for that. But it's something that we can speak with our client about and formulate a position and advise the Court and the plaintiffs on. I just can't speak to that today.

THE COURT: All right. Well, let's take a week, decide whether you oppose any of the production of any of those documents, or the depository, or your communications with those customers. And I'll -- can you do that in seven days? Can you get me a brief on that?

MR. WILBURN: Yes, Your Honor.

THE COURT: And then I can get a response from plaintiffs in seven days after that. And, Mr. Dolan, you coordinate that response. Then I will make a decision on that aspect.

Otherwise, unless I hear opposition, I would be looking for a preservation order. If the parties can agree on one, great. If you can't, then within ten days, how about a

week from Monday, let's submit a plaintiffs' preservation order and a defendant's preservation order if you can't agree on it. And I will review it and I will issue one or the other or a combination.

I will order consolidation of the cases. Why don't you take 30 days to try and work on some draft discovery and exchange that. And to the extent you need me to referee anything -- it's just moving forward with discovery. But if there are going to be objections to the disclosure of certain discovery and you want to file objections, let's take 15 days and file any objections.

Maybe then I don't even have a hearing on that if I think that's going too far. I think the judge who ultimately gets the case should fashion the parameters of discovery. So I don't want to get in the middle of that, but I want to get people starting thinking about what discovery is going to be necessary and what privileges may exist, and why there may be objections to plaintiffs' seeking discovery. And the same with defendants.

MR. WILBURN: Would Your Honor consider pushing those deadlines back by just a couple of weeks? And the reason I suggest that is we may have a decision, we anticipate having an MDL decision roughly middle of December. And if we exchange draft discovery a little bit later and push the objections, the draft objections or formal objections behind that, we'll know

whether we are here or whether the issue is mooted, at least for the purpose of the MDL litigation.

COURT: All right. So 45 days, that will push us into the 10th or 12th of December, is that right?

MR. WILBURN: Perhaps submitting the discovery 30 days out, the draft discovery, makes sense. But I think what I am suggesting is providing the objections after the MDL decision.

THE COURT: Yeah, that's fine. I am agreeable to that.

MR. WILBURN: And the Court is agreeable that the responsive pleadings would be filed at some point after the MDL decision?

THE COURT: Correct. And the protective order, is that something you think you can work through now or -- I do, but you can tell me why you don't think it's appropriate.

MR. WILBURN: I think we can work on a protective order with opposing counsel. I don't see any reason why we can't work on that over the next -- it might take more than a week.

THE COURT: Right.

MR. WILBURN: We have got to interact with more than just a couple of people on these issues. So if we could have more time to circulate a draft, that would be helpful.

THE COURT: Yeah, why don't you take 21 days, and

circulate a draft, and let me know if you are able or unable to reach a decision on a protective order.

MR. WILBURN: Yes, Your Honor, we will work hard on that.

THE COURT: Protocol for electronic discovery.

MR. WILBURN: That will take some time, at least on our end. That sort of work takes time in far less complex cases than this one.

And I know that at least at the McGuire Woods side right now, we're not in a position to -- we are not in a position I think to suggest protocols. It will take I think well more than 30 days. 60 days I think would be optimistic to get our hands around that.

Is that something the Court would be agreeable to putting out until after the MDL decision?

THE COURT: Let me hear from counsel for plaintiff who wants to be heard on that issue. It's an important issue and it's not an easy one.

Mr. Kelley.

MR. KELLEY: It's not easy negotiating those things. But it would seem to me that it's something that we ought to go ahead and get started on pretty quickly because of the lead time that goes into the document productions.

So really with an ESI order, they are pretty standard. I appreciate the fact that you have got to under

your client's computer system and all of that, but I would think that VW would be pretty far along in that given the onslaught that has occurred.

So I would suggest that we try to get something negotiated and to you in 30 days instead of 60.

THE COURT: Why don't we start by plaintiffs notifying Volkswagen of the discovery that they are -- the electronic discovery they're seeking. And that may include search terms, it may include locations where, to the extent you have any idea at this stage, you believe documents may exist. And at least give notice as to what's coming down the pike. And then we'll let Volkswagen respond to that.

How about that?

MR. KELLEY: I think we can do that within two weeks.

THE COURT: All right. Why don't you try and get that together, 14 days. And notify Volkswagen of that. Send me a copy of that so I can track it.

And then we'll give -- well, if we give you 14 days, that gets you into early November, and then we get into the middle of December. Go ahead.

MR. WILBURN: If I may, just as an example. The ESI protocol that was utilized in the Lumber Liquidators' case, which is the other MDL in this court, the case was filed in July, and it was just resolved about a week or two ago. And the complexity of the case that we are in front of the Court on

now dwarfs, frankly, what is taking place with Lumber Liquidators.

So this isn't really something that from our side that we would be in a position to respond to I think inside of 60 days. And again, in that case it took a period of many months.

THE COURT: Yeah.

MR. BUCKLEY: Additionally, Your Honor, this case I think everybody agrees and most of the parties have asked that it will go to the MDL and the transferee judge. And we've stated a preference for this court in addition to another forum. But the transferee judge will have to develop an ESI plan that includes all of the stakeholders. And they are far more than the stakeholders that are in this room today.

And so, that I think is an example -- I appreciate counsel providing us with ESI, what their suggestion of what it would be, but in all fairness I think we really do need to see the ESI suggestions of the other stakeholders that are almost certainly going to be before this court or the MDL in order to process a reasonable response.

What I would ask is that the Court not order that issue, although we're certainly happy to receive and work with and engage plaintiffs' counsel on their ESI suggestion, but until after the decision on MDL. And either come back to this Court and the Court can follow-up on this program or to go

VW FOIA, EPA 06/20/2017 2017-FFP_035317

somewhere. But at least at that point all the stakeholders will have a voice in ESI, and we'll be doing it or responding to it just one time.

THE COURT: Well, in theory, of course, Volkswagen is going to have a unified position on all cases as to what discovery they think is necessary under the rules. So I'm not sure that your position is going to change all that much as you move forward, but there may be new plaintiffs' requests that are outside those that we hear about in a couple of weeks.

So -- yes, sir.

MR. McNAMARA: Yes, Your Honor. It's Doug McNamara from Cohen Milstein. And I have been part of the negotiations with Mr. Trible and the rest of McGuire Woods with regard to the Lumber Liquidators ESI orders.

And just to give Your Honor some background, that was not begun on July 2. There was the parts of finding, getting counsel and lead counsel appointed. The process, the bulk of the ESI protocol was agreed to. And some of the things that Judge Kelley talked about could get done very quickly.

Aspects of it took a little longer than it had to because of -- not even because of search terms, but sort of deadlines as to when a second group of custodians might be found, and also conforming with -- the judge by that time had a discovery plan.

So a lot of it can get done very quickly. And to the

extent that we have to talk to other stakeholders in New Jersey, we have worked with Mr. Cecchi and the persons who were assigned to interim counsel in New Jersey. We have also worked with Mr. Sarko and I know also folks from his firm here at Keller Rohrback.

The stakeholders who are involved as interim coordinating counsel in other places can give us feedback, so I don't imagine it would be nearly as complicated and I don't think it would take 60 days.

Thank you.

MR. PORTER: Your Honor, if I may. Gregory Porter from Bailey Glasser and Mr. Steffensen. I think regardless of how the deadlines are set for presenting a national ESI protocol, I do think Your Honor can order Volkswagen to immediately commence the kind of gathering of information, the inventory of the locations of information, and the custodians, and the types of information, and where it's all located. There is no reason to delay that for any reason whatsoever.

THE COURT: All right, thank you.

I have no doubt that they are doing exactly that because I'm sure that counsel has told them to do exactly that.

Let's do this. 30 days after you receive the proposed protocol on the electronic discovery, and the parameters suggested as to where and how to search for those records, you investigate with your client the feasibility of

doing so, you respond by letter to plaintiffs with a copy to the Court saying that you are agreeable to moving forward on this or you are not agreeable to moving forward on that.

Obviously, the discovery can't be ordered until I think a judge has been chosen by the Panel. I am not going to order discovery. I think that's going too far. I think a judge should have full control over the discovery process who is going to hear the case.

But I do think that you should be -- I'm sure you are in constant contact, or your co-counsel are, and gathering document. This will put you on notice as to what's being sought. And you are to notify your client immediately as to what that discovery consists of, and get feedback from your client, and notify the parties 30 days after you have had a chance to speak with counsel.

All right.

MR. WILBURN: Yes, Your Honor.

THE COURT: All right. Yes, sir.

MR. WILBURN: The last point on this, I may have mentioned it earlier, and I apologize if I have not done that, I am being repetitive.

We are here on behalf of the U.S. entity only. There has been some discussion --

THE COURT: Yes.

MR. BUCKLEY: -- by I think plaintiffs' counsel or

even perhaps the Court about Germany or the parent company. And they still do need to be served by some or all of the plaintiffs. I don't believe they have been served in any case.

THE COURT: You know, there is no way to get at the foreign company without service, I don't think. And I know there are issues going on there. I don't know what obligation you believe you have to notify the German entity that there is discovery being sought.

I will tell you without question that if an issue like that comes up where evidence has been destroyed, Germany is resisting discovery, that there is any claim being made that they just didn't know about what was going on and they are unprepared to move forward for six months or whatever, that won't be looked at very favorably.

You have a duty to notify Germany and tell them what's going on and what is expected of them. Whether they can be formally required to provide discovery is an entirely different issue, but not the notice.

MR. WILBURN: Your Honor, and I didn't suggest that, I didn't suggest the service issue to create or suggest there is some loophole. We are in contact with our clients, and they do understand their obligations.

But I did want to be clear since we have sort of loosely talked about Volkswagen, who we have entered an appearance for, and that nothing today absolves the plaintiffs

of service in the ordinary course with respect to the Federal Rules.

THE COURT: Well, I am sure you have been asked to waive service. And your position is that presently there is no waiver anticipated, and that's a decision that the parent company makes.

So you're right, we have been loosely talking about Volkswagen, but all the discovery is in Germany. The parties responsible are evidently in Germany. The decision making ultimately will be from Germany. And so, disclosure to the German entity I think of what has happened here and what is expected should be made immediately.

MR. WILBURN: We are in regular contact and will be right after this hearing with our client, Your Honor.

THE COURT: Okay. There are also Sherman Antitrust Act claims, racketeering claims brought by one or more of the plaintiffs. I think Mr. DiMuro and Mr. Kelley on behalf of Bourn, and I think there is one other one, a securities fraud action.

Do you anticipate those cases will go to the judge who is handling the Panel?

MR. WILBURN: I think they will, Your Honor. I think those are appendant litigation to what are clearly related action and would go to the transfer --

THE COURT: They would all?

VW FOIA, EPA 06/20/2017 2017-FFP_035322

MR. WILBURN: I think they will, to the transferee judge. And that would be our position.

THE COURT: I would think so, but I wasn't sure. I am just unfamiliar enough about what the Panel would do, whether they would sever those out because they are a little different.

MR. WILBURN: They could, and they may. I don't think they need to, and I don't think that would be an efficient use of resources.

And I am not sure whether Mr. DiMuro and his clients want that to occur. But we think all of these related actions will be decided or be handled by the transferee judge either here or somewhere else.

THE COURT: Okay. All right.

MR. KELLEY: We anticipate the same thing.

THE COURT: Mr. DiMuro, do you agree?

MR. DiMURO: I agree with Mr. Kelley.

THE COURT: Okay.

MR. WILBURN: And with me.

THE COURT: All right. Anything else that we can discuss this morning? I have got somebody coming up behind you here.

MR. BURNS: Your Honor, Warren Burns with Burns Charest. Thank you for gathering us here today. It sounds like we have a full slate, which is certainly what many of us

VW FOIA, EPA 06/20/2017 2017-FFP_035323

have encouraged.

I just wanted to know whether the Court wished to entertain submissions from plaintiffs' counsel for the leadership positions, or how you would like us to handle that. But it occurs to me we need to do that quickly.

THE COURT: Yeah, I agree with you. And I think that counsel should all get together, discuss it, discuss it with Mr. Dolan, who I have appointed to lead the discussion.

But I certainly, as I have said earlier, if there are two or three firms and entities that believe -- that the parties believe should be included in that, that's fine with me.

I don't want 12 interim lead counsel. You know, I have worked with Mr. Toll previously, and several other firms that have appeared in like cases with excellent results.

So I will leave that up to you to get together and work on two or three counsel that can work with the rest of counsel for just the next couple of months.

MR. BURNS: Certainly, Your Honor.

THE COURT: Okay.

MR. BURNS: Thank you.

THE COURT: All right. Anything else? All right, we will issue an order. You all get started. Hopefully the Panel won't decide to adjourn until February or March, and we will get a decision from them. And if it's their decision, I look

VW FOIA, EPA 06/20/2017 2017-FFP_035324

forward to seeing you in the new year.

Thank you all. Have a good weekend.

All right, we are in recess.

HEARING CONCLUDED

I certify that the foregoing is a true and accurate transcription of my stenographic notes.

/s/ Norman B. Linnell

Norman B. Linnell, RPR, CM, VCE, FCRR

EXHIBIT D

MORRIS POLICH & PURDY LLP
David J. Vendler, Esq. (SBN 146528)
Email: DVendler@mpplaw.com
Kevin M. Pollack, Esq. (SBN 272786)
Email: KPollack@mpplaw.com
1055 West Seventh Street, Suite 2400
Los Angeles, CA 90017
Tel.: (213) 417-5100
Fax: (213) 488-1178

Attorneys for Plaintiff CHRISTOPHER J. D'ANGELO and all others similarly situated

UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

CHRISTOPHER J. D'ANGELO, an individual on behalf of himself and all others similarly situated,

Plaintiff,

vs.

VOLKSWAGEN GROUP OF AMERICA, INC., a New Jersey Corporation and VOLKSWAGEN AG, a German corporation,

Defendants.

Case No.: 2:15-cv-07390-DOC (SPx)

PLAINTIFF CHRISTOPHER J. D'ANGELO'S NOTICE OF MOTION AND MOTION AND MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF MOTION FOR CLASS CERTIFICATION

Date: **November 23, 2015**
Time: **8:30 a.m.**
Ctrm.: **9D**
Judge: **Hon. David O. Carter**

TO ALL PARTIES AND TO THEIR ATTORNEYS OF RECORD:

PLEASE TAKE NOTICE that on November 23, 2015 at 8:30 a.m., or as soon thereafter as the matter may be heard in Courtroom 9D before the Honorable David O. Carter, of the above-entitled Court located at 411 W. Fourth Street, Santa Ana, California 92701, Plaintiff Christopher J. D'Angelo ("Plaintiff") will, and hereby does, move pursuant to Rule 23 of the *Federal Rule of Civil Procedure* ("Rule 23")

VW FOIA, EPA 06/20/2017 2017-FFP_035327

and California *Civil Code* Section 1781(b) to certify the following classes of plaintiffs:

- **CLASS 1: All owners or lessees of VW Clean Diesel Vehicles[1] who purchased or leased a new or used such vehicle in the Unites States or its territories and protectorates from an authorized VW dealership between 2008 and the present ("the Class Period") that contained software designed to hide the vehicle's true emission levels,[2]**
- **CLASS 2: All owners of VW Clean Diesel Vehicles as of September 18, 2015 who did not purchase their VW Clean Diesel Vehicle from an authorized VW dealership.**

[1] VW's Clean Diesel vehicles include the following models and shall be referred to herein as "VW Clean Diesel Vehicles":

Year	EPA Test Group	Make and Model
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGAV02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

[2] Excluded from the Classes are the judges to whom this case is or will be assigned and any member of those judges' immediate families.

VW FOIA, EPA 06/20/2017 2017-FFP_035328

In addition, Plaintiff is seeking to certify two subclasses comprised of:

- **SUBCLASS 1: All Class 1 Members who purchased or leased their VW Clean Diesel Vehicle in California during the Class Period.**
- **SUBCLASS 2: All Class 2 Members whose VW Clean Diesel Vehicles were registered in California as of September 18, 2015.**

This motion is being brought at this time pursuant to Rule 23(c)(1)(A) and Local Rule 23-3. Rule 23(c)(1)(A) requires that "[a]t an early practicable time after a person sues or is sued as a class representative, the court must determine by order whether to certify the action as a class action." Consistent with this Rule, Local Rule 23-3 requires that within 90 days of service of the complaint, "the proponent of the class *shall* file a motion for certification that the action is maintainable as a class action, unless otherwise ordered by the Court." (Emphasis added).[3] Given Defendants' public admissions of wrongdoing, there is no good reason to delay the bringing of such a motion in this case.

This Motion is based upon this Notice of Motion, the accompanying Memorandum of Points and Authorities in Support of Plaintiff's Motion for Class

[3] Plaintiff D'Angelo has filed a motion before the Multi-District Panel seeking to consolidate all of the more than 100 class action cases filed in federal courts across the nation in this Court. Currently, that motion is schedule to be heard on December 3, 2015. See MDL No. 2672 (Document No. 26). Plaintiff served his complaint on Volkswagen Group of America, Inc. on September 22. Thus, the 90 day limit under Local Rule 23-3 will have already expired by the time of the JPML hearing. Plaintiff further believes that in this case an early certification ruling will benefit the class by: (1) establishing an attorney client relationship that will prevent VW from communicating directly with the Class Members (including about its recently announced plan for a recall) in an unsupervised manner; (2) assist in the settlement process; and (3) will avoid any potential that VW could attempt what was done in the *Campbell-Ewald Company v. Gomez* case now pending before the Supreme Court -- involving whether a defendant to an uncertified class action case can derail the class action by picking off the class representative's claim by making an offer of complete settlement. See 135 S.Ct. 2311. While Plaintiff does not believe that VW can moot his claims because of his request for punitive damages, an early certification order will eliminate this potential entirely.

VW FOIA, EPA 06/20/2017 2017-FFP_035329

Certification, the Declarations of David J. Vendler and Christopher J. D'Angelo, the pleadings on file in this action, and upon such other matters, evidence, and arguments as may be presented to the Court before or at the hearing on the Motion.

This motion is made following the conference of counsel pursuant to L.R. 7-3 which took place on (date).

Date: October 19, 2015

MORRIS POLICH & PURDY LLP

By: */s/ David J. Vendler*
David J. Vendler
Kevin M. Pollack

Attorney for Plaintiff CHRISTOPHER J. D'ANGELO and all those similarly situated

VW FOIA, EPA 06/20/2017 2017-FFP_035330

TABLE OF CONTENTS

Page

I. INTRODUCTION....1

II. STATEMENT OF MATERIAL FACTS....2

A. VW'S OBLIGATIONS TO REPORT THE INSTALLATION OF AECDS....2

B. VW'S WRONGFUL CONDUCT....4

C. The Proposed Class Members' Claims Do Not Materially Differ....7

III. ARGUMENT....9

A. This Case is Ideally Suited For Class Treatment....11

B. The Proposed Class is Sufficiently Ascertainable....12

C. The Rule 23 (a) Factors are Easily Satisfied....12

1. The Class Is Sufficiently Numerous....12

2. Questions of Law and Fact Common to the Class Exist....13

3. Plaintiff's Claims Are Typical of Class Members' Claims....15

4. Plaintiff Will Fairly And Adequately Represent The Class....16

D. The Proposed Class Satisfies Rule 23(b)(3)'s Predominance Requirement....17

1. Plaintiff's CLRA Claim....18

2. Plaintiff's Fraud and Negligent Misrepresentation Claims....19

3. Plaintiff's Unfair Business Practices Claim....20

4. The False Advertising Claim....21

5. The Warranty Claims....21

6. Damages and/or Restitution can be Computed Uniformly....22

E. The Class Action Method is Superior....22

IV. MORRIS POLICH & PURDY LLP SHOULD BE APPOINTED CLASS COUNSEL....25

V. CONCLUSION....25

VW FOIA, EPA 06/20/2017 2017-FFP_035331

TABLE OF AUTHORITIES

Page

Cases

Am. Honda Motor Co., Inc. v. Super. Ct.,
199 Cal. App. 4th 1367 (Cal. App. 2d Dist. 2011).....21

Amchem Prods., Inc. v. Windsor,
521 U.S. 591 (1997).....9

Ansari v. New York Univ.
(SD NY 1998) 179 FRD 112.....13

Armstrong v. Davis,
275 F.3d 849, 872 n.28 (9th Cir. 2001).....11

Blackie v. Barrack,
524 F.2d 891 (C.A.9 1975) 8, 23

Bridge v. Phoenix Bond & Indem. Co.,
553 U.S. 639 (2008).....25

Caro v. Procter & Gamble Co.,
18 Cal. App. 4th 644 (1993).....10

Chamberlan v. Ford,
223 F.R.D. 524 (N.D. Cal. 2004).....11, 19

Costelo v. Chertoff,
258 F.R.D. 600 (C.D. Cal. 2009).....15

Galvan v. KDI Distribuation [sic] Inc.,
No. SACV 08-0999-JVS (ANx), 2011 WL 5116585, at *3 (C.D. Cal. Oct. 25, 2011).....11, 12, 18

General Tel. Co. v. Falcon,
457 U.S. 147 (1982).....17

Hanlon v. Chrysler Corp.,
150 F.3d 1011 (9th Cir. 1998).....passim

Hartless v. Clorox Co.,
273 F.R.D. 630 (S.D. Cal. 2011).....24

Hogya v. Superior Court,
75 Cal. App. 3d 122 (1977).....10, 19

In re MyFord Touch Consumer Litig.,
46 F. Supp. 3d 936 (N.D. Cal. 2014).....22

In re Steroid Hormone Product Cases,
181 Cal. App. 4th 145, 157 (2010).....19

VW FOIA, EPA 06/20/2017 2017-FFP_035332

In re THQ, Inc. Secs. Litig.,
No. CV00-1783AHM (EX), 2002 WL 1832145, at *11 (C.D. Cal. Mar. 22, 2002).....13

In re Tobacco II Cases,
JCCP 4042, 2001 WL 34136870, at *3 (Cal. Super. Ct. Apr. 11, 2001).....21

In re Visa Check/MasterMoney Antitrust Litig.,
280 F.3d 124 (2d Cir. 2001).....25

In re Wells Fargo Home Mortg. Overtime Pay Litig.,
571 F.3d 953 (9th Cir. 2009).....18

Johnson v. General Mills, Inc.,
276 F.R.D. 519, 521 (C.D.Cal. 2011).....11

Joint Equity Comm. of Investors of Real Estate Partners, Inc. v. Coldwell Banker Real Estate Corp.,
281 F.R.D. 422 (C.D. Cal. 2012).....20

Keegan v. Am. Honda Motor Co., Inc.,
284 F.R.D. 504 (C.D. Cal. 2012).....16, 19, 20, 23

Keilholtz v. Lennox Hearth Prods. Inc.,
268 F.R.D. 330 (N.D. Cal. 2010).....12

Klay v. Humana, Inc.,
382 F.3d 1241 (11th Cir. 2004).....25

Kohen v. Pacific Investment Mgmt. Co. LLC,
571 F3d 672 (7th Cir. 2009).....17

Mazza v. Am. Honda Motor Co.,
666 F.3d 581 (9th Cir. 2012).....13

McKenzie v. Fed. Exp. Corp.,
275 F.R.D. 290 (C.D. Cal. 2011).....24

Menagerie Prods. v. Citysearch,
No. CV 08-4263 CAS (FMO), 2009 WL 3770668, at *4 (C.D. Cal. Nov. 9, 2009).....13, 20

Moeller v. Taco Bell Corp.,
220 F.R.D. 604 (N.D. Cal. 2004).....12

O'Connor v. Boeing N. Am., Inc.,
184 F.R.D. 311 (C.D. Cal. 1998).....12

Parkinson v. Hyundai Motor Am.,
258 F.R.D. 580 (C.D. Cal. 2008).....12, 15, 19, 21

Pickett v. Iowa Beef Processors,
209 F.3d 1276 (11th Cir. 2000).....16

Rodman v. Safeway, Inc.,
2014 WL 988992 *11 (N.D.Cal. 2014).....8, 20

VW FOIA, EPA 06/20/2017 2017-FFP_035333

Satchell v. FedEx Corp.,
Case No. 03-02659 SI, 2005 WL 2397522, at *8 (N.D. Cal. Sept. 28, 2005).....16

Simpson v. Fireman's Fund Ins. Co.,
231 F.R.D. 391 (N.D. Cal. 2005).....15

Staton v. Boeing,
327 F.3d 938 (9th Cir. 2003).....15

Stearns v. Ticketmaster Corp.,
655 F.3d 1013 (9th Cir. 2011).....19

Tait v. BSH Home Appliances Corp.,
289 F.R.D. 466 (C.D. Cal. 2012).....23

Valentino v. Carter-Wallace, Inc.,
97 F.3d 1227 (9th Cir. 1996).....23

Wal-Mart Stores, Inc. v. Dukes,
131 S. Ct. 2541 (2011).....13

Withers v. eHarmony, Inc.,
CV 09-2266-GHK (RCx), Order Denying Mot. to Cert. Class, Docket No. 13 (June 2, 2010).....18

Wolin v. Jaguar Land Rover N. Am., LLC,
617 F.3d 1168 (9th Cir. 2010).....15, 16, 18, 23

Xavier v. Phillip Morris USA, Inc.,
787 F. Supp. 2d 1075, 1089 (N.D. Cal. 2011).....12

Yokoyama v. Midland Nat'l Life Ins. Co.,
594 F.3d 1087 (9th Cir. 2009).....8, 17, 20, 22

Statutes

42 U.S.C. § 7522.....3, 6

California *Business & Professions Code* § 17200.....1

California *Civil Code* § 1750.....1

California *Civil Code* § 1781.....2, 10

Other Authorities

Clean Air Act § 203.....3, 6

Rules

Federal Rules of Civil Procedure, Rule 23.....passim

VW FOIA, EPA 06/20/2017 2017-FFP_035334

Regulations

40 C.F.R. § 86.1803-01.....2, 3
40 C.F.R. § 86-1809-01.....3
40 C.F.R. § 86.1811-04.....2
40 C.F.R. § 86.1843-01.....2
40 C.F.R. § 86.1844-01.....2, 3
40 C.F.R. § 86.1848-10.....3
40 C.F.R. § 86-1854-12.....3

VW FOIA, EPA 06/20/2017 2017-FFP_035335

MEMORANDUM OF POINTS AND AUTHORITIES

I. INTRODUCTION

This action arises from defendant Volkswagen Group of America, Inc.'s and Volkswagen AG's (collectively "VW") admitted cheating of American automotive consumers (including Plaintiff) -- and government regulators -- by touting the supposedly "clean" nature of its diesel cars in its national "Clean Diesel" advertising campaign, while knowing that the vehicles' engine management system included software to hide their actual emission rates during governmental testing. Shockingly, VW has admitted that it intentionally designed and installed these electronic cheating devices ("defeat devices") to detect when the vehicles were being tested, and that it knew that during normal operation, its supposedly "Clean Diesel" cars polluted the environment at rates substantially above federal and California-compliant levels. In fact, the EPA and California Air Resource Board have determined that these "Clean Diesel" automobiles produce nitrogen oxide at levels 10 to 40 times above EPA-compliant levels when being driven in normal use.

Plaintiff filed his class action Complaint seeking damages from VW and/or equitable relief (including injunctive relief, rescission and restitution) on behalf of himself and the classes of persons (nationwide and in California) that have been similarly affected by VW's misrepresentations about these *non*-Clean Diesel Vehicles.

Plaintiff's First Amended Complaint asserts the following claims against VW:

1. Violations of the Consumer Legal Remedies Act ("CLRA"), codified at Cal. Civ. Code §§ 1750, et seq.;
2. Negligent misrepresentation;
3. Intentional Misrepresentation (Fraud);
4. Violations of the Unfair/Deceptive Business Practices Act (Cal. Bus. & Prof. Code §§ 17200, et seq.);
5. Violations of the False Advertising Laws (Cal. Bus. & Prof. Code §§ 17500, et seq.);

VW FOIA, EPA 06/20/2017 2017-FFP_035336

6. Violation of Song-Beverly Consumer Warranty Act and the California Commercial Code; and

7. Violation of the Magnuson–Moss Warranty Act.

II. STATEMENT OF MATERIAL FACTS

A. VW'S OBLIGATIONS TO REPORT THE INSTALLATION OF AECDS

Light-duty vehicles (such as the VW Clean Diesel Vehicles) must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce. Without such a certificate, VW could not have sold its Clean Diesel Vehicles in the United States.

In order to obtain a COC, a light-duty vehicle manufacturer such as VW must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-01(d)(11).

An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD "that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered

VW FOIA, EPA 06/20/2017 2017-FFP_035337

in normal vehicle operation and use, unless: (1) Such conditions are substantially included in the Federal emission test procedure; (2) The need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) The AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device (Dec. 11, 1972); see also 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. "Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . ." 40 C.F.R. § 86.1848-10(c)(6). For this reason, COC's issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. See also 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications) and 86.1848-01(b).

The Clean Air Act ("CAA") also makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use." CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86.1854-12(a)(3)(ii).

Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(1), 42 U.S.C. § 7522(a)(1); 40 C.F.R. § 86.1854-12(a)(1).

VW FOIA, EPA 06/20/2017 2017-FFP_035338

B. VW'S WRONGFUL CONDUCT

According to the EPA and California's Air Resource Board ("CARB"), the VW Clean Diesel Vehicles have AECDs that were not described in VW's application(s) for the COC covering the subject vehicles. See EPA and CARB reports attached to the Declaration of David J. Vendler ("Vendler Dec.") as Exhibits "A" and "B."[4] According to the EPA and CARB, VW manufactured and installed software in the electronic control module (ECM) of the VW Clean Diesel Vehicles which both the EPA and CABR call the "switch."

The "switch" senses whether VW Clean Diesel Vehicles are being tested based on various inputs including (but not limited to) the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA emission testing, the VW Clean Diesel Vehicles' ECM ran software which re-tuned the engine to produce compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). However, during normal vehicle operation, the "switch" was activated and the vehicle ECM software ran a separate "road calibration" which re-tuned the engine to substantially reduce the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean NOx trap), but improved the vehicle's performance. As a result, under normal road conditions, emissions of NOx increased by a factor of 10 to 40 times above the EPA-compliant levels, depending on the type of drive cycle (e.g., city, highway). See Exhibits "A" and "B."

The EPA and CARB were alerted to the emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International

[4] Plaintiff has requested the Court to take judicial notice of these governmental reports.

VW FOIA, EPA 06/20/2017 2017-FFP_035339

Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). See Vendler Dec., Exhibit "C."

Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. See Exhibits "A" and "B." In fact, VW issued a voluntary recall in December 2014 to address the issue. *Id.* at pp. 4 and 2, respectively. After the recall, CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' onboard diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing.

It was only when it became clear that VW was going to lose its U.S. market -- because CARB and the EPA were not going to approve certificates of conformity for VW's 2016 model year Clean Diesel Vehicles -- that VW finally admitted the existence of the defeat device which had not been disclosed in its prior COC applications. As Volkswagen Group of America, Inc.'s CEO Michael Horn stated at a press conference about the installation of the defeat devices, "our company was dishonest." See Vendler Dec., Exhibit "D." Mr. Michael Horn reiterated VW's wrongdoing in his testimony on October 8, 2015 before the House Energy and Commerce subcommittee at its hearing on false emissions readings from diesel-powered vehicles manufactured by VW. See Vendler Dec., Exhibits "J" and "K" in which Mr. Horn stated, *inter alia*:

> We have broken the trust of our customers, dealerships, and employees, as well as the public and regulators… VW installed the defeat devices for the purpose of defeating EPA regulations... I again apologize on behalf of

VW FOIA, EPA 06/20/2017 2017-FFP_035340

> everyone at Volkswagen. We will fully cooperate with all responsible authorities. We will find remedies for our customers, and we will work to ensure that this will never happen again.[5]

Similar admissions of VW's fraudulent conduct were also made by Prof. Dr. Martin Winterkorn, the former CEO of VW's parent, Volkswagen AG, just before his resignation. See Vendler Dec., Exhibits "I" and "J."

Because the VW Clean Diesel Vehicles do not conform in material ways to the vehicle specifications described in the COC application(s), VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1) each time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported the hundreds of thousands of VW Clean Diesel Vehicles that it sold or leased to class members. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch."

Yet, despite its knowledge that it was systematically violating U.S. law, VW not only sold and leased these vehicles to U.S. consumers, but "doubled down" on its wrong by focusing its entire marketing campaign on their supposedly "clean" nature and publicizing itself as an environmentally conscientious company. It can honestly be said that the moniker "Clean Diesel" was the centerpiece/pillar of all of VW's advertising. In its nationally advertised television campaigns, VW deliberately targeted people like plaintiff who are environmentally conscious with comparisons of its "clean" high performance cars to sluggish and dirty diesels put out by its competition. This national campaign even resulted in VW being able to successfully charge a price premium over its comparable gas-powered vehicles. D'Angelo Dec., ¶ 3. And see Vendler Dec., Exhibits "E" - "H."

VW's marketing effort was so successful that VW became the largest seller of

[5] Mr. Horn's full October 8, 2015 testimony before Congress is attached to the Vendler Dec. as Exhibit "L."

VW FOIA, EPA 06/20/2017 2017-FFP_035341

diesel passenger vehicles in the United States. But the truth is that VW's claims were all a lie. See Vendler Dec., Exhibits "D," "I" and "J." These (more expensive) cars actually produced emissions at levels far beyond those allowed by federal and state regulations. See Vendler Dec., Exhibits "A" and "B." Worse, when questions began to arise, VW knowingly attempted to conceal the truth about what it had done. *Id.*

C. The Proposed Class Members' Claims Do Not Materially Differ

Plaintiff and his fellow Class Members all purchased or leased VW Clean Diesel Vehicles based on VW's specific representations (made nationwide as part of VW's national advertising campaign) that the VW Clean Diesel Vehicles were both (1) fuel efficient and (2) environmentally "clean." D'Angelo Dec., ¶¶ 3-4. Many examples of VW's national marketing campaign materials prominently uniformly advertising the "cleanliness" of its diesel vehicles are also attached to the Vendler Dec. as Exhibits "E" -"H."[6] Based on the information published by the E.P.A and other state regulatory agencies, and VW's recent admissions about its wrongdoing, Plaintiff learned that the VW's representations about his and other Class Member cars were demonstrably false. He has also learned that the representation that VW's Clean Diesel Vehicles were represented to meet governmental pollution standards and that they don't.

VW's intentional and reckless decision to: (1) design and an install the defeat devices in the VW Clean Diesel Vehicles, (2) misrepresent the true nature of the VW Clean Diesel Vehicles in its nationwide advertising campaign, (3) hide the vehicles' impact on the environment, and (4) charge consumers premiums for supposedly environmentally "clean" cars, has negatively affected Plaintiff and all Class Members uniformly. Not only are the VW Clean Diesel Vehicles that Plaintiff and the Class Members own or lease polluting the environment beyond allowable state and federal limits, but the value of all of these vehicles has instantly plummeted. Further, it

[6] VW's authorized dealerships are agents of VW and rely for their sales on VW's national advertising campaigns, including the "Clean Diesel" advertisements relied on by Plaintiff and other class members.

VW FOIA, EPA 06/20/2017 2017-FFP_035342

appears certain that any "fix" implemented by VW will substantially lessen the vehicles' performance characteristics since the whole purpose of the defeat device was to retain performance while fooling emissions testing. Like all class members, Plaintiff paid a premium for his vehicle based on the misrepresentations that it was not only fuel efficient, but that it was not "sluggish" like other diesels and was "clean" for purposes of the environment. Plaintiff would not have paid this additional premium (or bought the car at all) if he had known the truth about the vehicle's actual characteristics. D'Angelo Dec., ¶ 4.

The Ninth Circuit has held that fraud claims predicated on common documents are ideally suited for class treatment and should be certified. See *Yokoyama v. Midland Nat'l Life Ins. Co.*, 594 F.3d 1087 (9th Cir. 2009) (reversing denial of class certification where plaintiffs based their lawsuit on nondisclosures in standardized written forms). District courts within the Ninth Circuits have also so held. See *Rodman v. Safeway, Inc.*, 2014 WL 988992 *11 (N.D.Cal. 2014) (class action plaintiffs can avoid the need to show each class member's individual reliance by resorting to California law's presumption of common reliance where "the entire class saw the misrepresentations or was exposed to a pervasive long-term advertising campaign").

As in *Yokoyama*, the fraudulent omissions in VW's applications to the EPA and CARB, as well as its blatant misrepresentations to consumers (made via its national TV campaign and print media advertisements), affected all of the Class Members equally.[7] Plaintiff thus seeks to certify the following classes of plaintiffs:

[7] Even if some class members managed not to see VW's "Clean Diesel" advertisements, this would not matter since the pervasiveness of the advertising campaign lifted the overall market for these cars, which deflated just like a stock immediately after VW's admission of wrongdoing. See *Blackie v. Barrack*, 524 F.2d 891, 907 (C.A.9 1975) ("we eliminate the requirement that plaintiffs prove reliance directly in this context because the requirement imposes an unreasonable and irrelevant evidentiary burden. A purchaser on the stock exchanges may be either unaware of a specific false representation, or may not directly rely on it; he may

VW FOIA, EPA 06/20/2017 2017-FFP_035343

- CLASS 1: All owners or lessees of VW Clean Diesel Vehicles who purchased or leased a new or used such vehicle in the Unites States or its territories and protectorates from an authorized VW dealership between 2008 and the present ("the Class Period") that contained software designed to hide the vehicle's true emission levels,
- CLASS 2: All owners of VW Clean Diesel Vehicles as of September 18, 2015 who did not purchase their VW Clean Diesel Vehicle from an authorized VW dealership.

In addition, Plaintiff is seeking to certify two subclasses comprised of:

- SUBCLASS 1: All Class 1 Members who purchased or leased their VW Clean Diesel Vehicle in California during the Class Period.
- SUBCLASS 2: All Class 2 Members whose VW Clean Diesel Vehicles were registered in California as of September 18, 2015.

III. ARGUMENT

A plaintiff seeking to represent a class must demonstrate that: "(1) the class is so numerous that joinder of all members is impracticable; (2) there are questions of law or fact common to the class; (3) the claims and defenses of the representative parties are typical of the claims or defenses of the class; and 4) the respective parties will fairly and adequately protect the interests of the class." Fed. R. Civ. P. 23(a); *Amchem Prods., Inc. v. Windsor*, 521 U.S. 591, 613 (1997).

Additionally, the moving party must satisfy at least one of the requirements of

---

purchase because of a favorable price trend, price earnings ratio, or some other factor. Nevertheless, he relies generally on the supposition that the market price is validly set and that no unsuspected manipulation has artificially inflated the price, and thus indirectly on the truth of the representations underlying the stock price whether he is aware of it or not, the price he pays reflects material misrepresentations. Requiring direct proof from each purchaser that he relied on a particular representation when purchasing would defeat recovery by those whose reliance was indirect, despite the fact that the causational chain is broken only if the purchaser would have purchased the stock even had he known of the misrepresentation. We decline to leave such open market purchasers unprotected.")

VW FOIA, EPA 06/20/2017 2017-FFP_035344

Rule 23(b). Here, Plaintiff seeks to certify the proposed classes and subclasses under Rule 23(b)(3) because: (i) common questions of law or fact predominate over individual questions; and (ii) "a class action is superior to other available methods for fairly and efficiently adjudicating the controversy." Fed. R. Civ. P. 23(b)(3).[8]

Although the Court must examine the issues closely to determine whether a proposed class is appropriate for certification, Rule 23 grants the district court "broad discretion to determine whether a class should be certified, and to revisit that certification throughout the legal proceedings before the court." *Galvan v. KDI Distribuation* [sic] Inc., No. SACV 08-0999-JVS (ANx), 2011 WL 5116585, at *3

---

[8] The standard for certification for Plaintiff's CLRA claim is different. It is set forth in *Civil Code* Section 1781(b). While the decision to certify a class under Rule 23 rests within the sound discretion of the trial court, there is no such discretion provided for under Civil Code Section 1781(b). If the consumer demonstrates the four elements required under Section 1781(b), class certification **must** be granted. See *Hogya v. Superior Court*, 75 Cal. App. 3d 122 (1977) and *Caro v. Procter & Gamble Co.*, 18 Cal. App. 4th 644, 657 (1993). *Civil Code* Sections 1781(a) and (b) provide:

> (a) Any consumer entitled to bring an action under Section 1780 may, if the unlawful method, act, or practice has caused damage to other consumers similarly situated, bring an action on behalf of himself and such other consumers to recover damages or obtain other relief as provided for in Section 1780.
> (b) The court **shall** permit the suit to be maintained on behalf of all members of the represented class if all of the following conditions exist.
> (1) It is impracticable to bring all members of the class before the court.
> (2) The questions of law or fact common to the claims are substantially similar and predominate over the questions affecting the individual members.
> (3) The claims or defenses of the representative plaintiffs are typical of the claims or defenses of the class.
> (4) The representative plaintiffs will fairly and adequately protect the interests of the class. (Emphasis added).

As stated in *Hogya*, "[W]e hold Civil Code section 1781, subdivision (b), establishes exclusive criteria for class certification in suits brought pursuant to the Consumers Legal Remedies Act. If the statutory criteria are satisfied, a trial court is under a duty to certify a class **and is vested with no discretion to deny certification based upon other considerations**." (Emphasis added). *Id.* at 75 Cal. App. 3d 140.

VW FOIA, EPA 06/20/2017 2017-FFP_035345

(C.D. Cal. Oct. 25, 2011) (quoting *Armstrong v. Davis*, 275 F.3d 849, 872 n.28 (9th Cir. 2001)). The Court "need only form a 'reasonable judgment' on each certification requirement," taking the complaint's allegations as true and declining to make merits determinations. Id. (internal citations omitted).

A. This Case is Ideally Suited For Class Treatment.

Class treatment is appropriate where, as here, a large group has been adversely affected by a common scheme perpetrated by an auto manufacturer. See *Chamberlan v. Ford*, 223 F.R.D. 524 (N.D. Cal. 2004) and *Johnson v. General Mills, Inc.*, 276 F.R.D. 519, 521 (C.D.Cal. 2011) (motion for decertification denied since all class members' claims shared a common contention that "Defendants made a material misrepresentation regarding the digestive health benefits of YoPlus.")

In *Chamberlan* Ford was accused of concealing a design defect in violation of the CLRA. The class was made up of over 150,000 consumers who had purchased vehicles containing the vehicle component in question and all of the members of the proposed class had claims arising from the same alleged fraudulent concealment by Ford. Because the court found that the proposed class satisfied the requirements of both F.R.C.P. § 23(a) and 23(b), the Court certified the class. *Id.*

As in *Chamberlan*, VW made material misrepresentations to the public at large about the true nature of the VW Clean Diesel Vehicles in both nationally advertised TV commercials and written advertisements. It also lied to regulators in order to be able to sell its vehicles in the U.S. The undisclosed installation of the defeat device in each of the proposed class members' VW Clean Diesel Vehicles is the central focus of all of the Class Member claims. Indeed, on October 9, 2015, VW admitted in testimony before Congress that to fix its "class-wide" wrong, i.e. the defeat device, it is going to recall all of its Clean Diesel Vehicles beginning in January/February. See Vendler Dec., Exhibit "K." In short, the proposed class will be able to establish liability through proof common to the entire proposed class.

VW FOIA, EPA 06/20/2017 2017-FFP_035346

B. The Proposed Class is Sufficiently Ascertainable.

Despite the fact that Rule 23 does not specifically require that a proposed class be ascertainable, courts have implicitly required such a showing. *Galvan v. KDI Distribuation [sic] Inc.*, No. SACV 08-0999-JVS (ANx), 2011 WL 5116585 (C.D. Cal. Oct. 25, 2011) (citing *Xavier v. Phillip Morris USA, Inc.*, 787 F. Supp. 2d 1075, 1089 (N.D. Cal. 2011)). Ascertainability is satisfied as long as it is administratively feasible for the court to ascertain whether an individual is a member of the class. *O'Connor v. Boeing N. Am., Inc.*, 184 F.R.D. 311, 319 (C.D. Cal. 1998).

The Class definitions that have been proposed by Plaintiff employ objective criteria that make class membership demonstrably verifiable. The purchase or lease of a VW Clean Diesel Vehicle (specified by model and year) is straightforward, and Class members can be readily identified via VW's sales and lease documents. Indeed, VW is admitting as much by its announcement of a recall program to "fix" its cars. Further, Class members who did not purchase or lease from VW directly can self-identify through their own DMV registration materials or insurance documents.

Classes like the one proposed here have been approved in this district. See *Parkinson v. Hyundai Motor Am.*, 258 F.R.D. 580, 593-94 (C.D. Cal. 2008) (finding ascertainability when, as is the case here, the class definition identified the make, model and model year for the class vehicle); *Keilholtz v. Lennox Hearth Prods. Inc.*, 268 F.R.D. 330, 336 (N.D. Cal. 2010) (finding ascertainability when unnamed plaintiffs would be able to identify the allegedly defective goods themselves). Based on the above, Class Members are objectively ascertainable.

C. The Rule 23 (a) Factors Are Easily Satisfied.

1. The Class Is Sufficiently Numerous

Rule 23(a)(1) requires that the class be "so numerous that joinder of all members is impracticable." Fed. R. Civ. P. 23(a)(1); see also *Moeller v. Taco Bell Corp.*, 220 F.R.D. 604, 608 (N.D. Cal. 2004); *Hanlon v. Chrysler Corp.,* 150 F.3d 1011, 1019 (9th Cir. 1998). Although there is no hard and fast rule concerning the

VW FOIA, EPA 06/20/2017 2017-FFP_035347

size of a proposed class, "[g]enerally speaking, courts will find that the 'numerosity' requirement has been satisfied when the class comprises 40 or more members, and will find that it has not been satisfied when the class comprises 21 or fewer." *Ansari v. New York Univ.* (SD NY 1998) 179 FRD 112, 114; *Menagerie Prods. v. Citysearch*, No. CV 08-4263 CAS (FMO), 2009 WL 3770668, at *4 (C.D. Cal. Nov. 9, 2009). Here, the numerosity requirement is satisfied because hundreds of thousands of Clean Diesel Vehicles were sold in the United States during the Class Period (See Vendler Dec., Exhibit "B" -- CARB's September 18, 2015 notice to VW which specifies that there are at least 500,000 VW Clean Diesel Vehicles that were sold in the United States).

2. Questions of Law and Fact Common to the Class Exist.

Rule 23(a)(2) requires that there be "questions of law or fact common to the class." Fed. R. Civ. P. 23(a)(2). This provision is neither exacting nor difficult to satisfy. *Hanlon v. Chrysler Corp.*, 150 F.3d 1011, 1019 (9th Cir. 1998) ("Rule 23(a)(2) has been construed permissively. All questions of fact and law need not be common to satisfy the rule. The existence of shared legal issues with divergent factual predicates is sufficient, as is a common core of salient facts coupled with disparate legal remedies within the class."). Indeed, a single significant common issue is sufficient to satisfy Rule 23(a)(2). *In re THQ, Inc. Secs. Litig.*, No. CV00-1783AHM (EX), 2002 WL 1832145, at *11 (C.D. Cal. Mar. 22, 2002); *Mazza v. Am. Honda Motor Co.,* 666 F.3d 581, 589 (9th Cir. 2012). In short, class members' claims must "depend upon a common contention" such that "determination of its truth or falsity will resolve an issue that is central to the validity of each [claim] in one stroke." *Id.* at 588 (quoting *Wal-Mart Stores, Inc. v. Dukes*, 131 S. Ct. 2541, 2551 (2011)).

The questions of law and fact that are common to the proposed class include:

a. Whether VW misrepresented the true nature of the VW Clean Diesel Vehicles to consumers in advertisements and written publications

VW FOIA, EPA 06/20/2017 2017-FFP_035348

concerning the characteristics of its supposedly environmentally Clean Diesel Vehicles

b. Whether VW acted intentionally in making false claims about the characteristics of its Clean Diesel vehicles;

c. Whether VW's marketing material for its Clean Diesel Vehicles which claim to be environmentally "clean" and made in compliance with federal and state emission standards violate the "unlawful, unfair or fraudulent" prongs of California's Unfair Competition Law or constitute false advertising under that Law;

d. Whether VW's misrepresentations concerning the VW Clean Diesel Vehicles would be misleading to a reasonable consumer;

e. Whether VW knew, or by the exercise of reasonable care should have known, that the misrepresentations and false advertising concerning the VW Clean Diesel Vehicles would be misleading to a reasonable consumer;

f. Whether VW should be enjoined from engaging in the conduct complained of herein;

g. Whether VW has been unjustly enriched through the wrongful conduct set forth herein;

h. Whether punitive damages should be assessed against VW and in what amount;

i. Whether VW misrepresented information contained in its applications for certificates of conformity for the VW Clean Diesel vehicles to the EPA and similar state environmental agencies concerning the auxiliary emission control devices installed in each of the vehicles;

j. Whether VW installed defeat devices in each of the VW Clean Diesel Vehicles designed to reduce the effectiveness of the emission control system under conditions which may reasonably be expected to be

VW FOIA, EPA 06/20/2017 2017-FFP_035349

encountered in normal vehicle operation and use;

k. Whether VW's recall program of its vehicles is adequate and what the legal effect of that recall is upon class members;

l. Whether VW's misrepresentations concerning the VW Diesel Vehicles' emissions were in breach of VW's express and implied warranties to the contrary.

These questions further all arise from the same common nucleus of facts and law. See, e.g., *Parkinson, supra,* (finding commonality where "plaintiffs' central common question is whether the 2003 manual-transmission Tiburon suffered from a flywheel defect"). Consequently, the determination of these common issues will resolve the central issues of this case for all Class Members in one blow. Based thereon, the commonality requirement is satisfied.

3. Plaintiff's Claims Are Typical of Class Members' Claims.

Rule 23(a)(3) requires that "the claims or defenses of the representative parties are typical of the claims or defenses of the class." Fed. R. Civ. P. 23(a)(3). "Under the rule's permissive standards, representative claims are 'typical' if they are reasonably coextensive with those of absent class members; they need not be substantially identical." *Hanlon*, 150 F.3d at 1020. While some degree of individuality is to be expected in all cases, that does not necessarily defeat typicality. See *Wolin v. Jaguar Land Rover N. Am.*, LLC, 617 F.3d 1168, 1175 (9th Cir. 2010) (finding that typicality is satisfied despite differences in "factual circumstances" and remedies) (citing *Lymburner*, 263 F.R.D. at 540, with approval); see also *Staton v. Boeing*, 327 F.3d 938, 957 (9th Cir. 2003). The "focus should be on the defendants' conduct and plaintiff's legal theory, not the injury caused to the plaintiff." *Costelo v. Chertoff*, 258 F.R.D. 600, 608 (C.D. Cal. 2009) (quoting *Simpson v. Fireman's Fund Ins. Co.*, 231 F.R.D. 391, 396 (N.D. Cal. 2005)).

Here, Plaintiff's claims are typical of the claims of the proposed class because they all arise from the same (admitted) wrongful conduct by VW, namely that VW

VW FOIA, EPA 06/20/2017 2017-FFP_035350

engaged in false advertising and violated environmental protection laws. Because VW's publicity campaign advertising its Clean Diesel Vehicles was national in scope, each of the Class Members were uniformly subjected VW's false and misleading statements, advertisements, and commercials concerning the supposed "clean" nature of the VW Clean Diesel vehicles. In this regard, this case is like *Wolin* which found typicality where the class representatives alleged that "they, like all prospective class members, were injured by a defective alignment geometry in the vehicles," and where "[the class representatives] and the class seek to recover pursuant to the same legal theories: violation of consumer protection laws, breach of warranty, and unjust enrichment."). *Id.* at 1173. Here, too, each of the class members' claims all arise from their purchase or lease of a VW Clean Diesel Vehicle that was falsely advertised as being "clean" and environmentally compliant by VW when it was not. Accordingly, the typicality requirement is satisfied.

4. Plaintiff Will Fairly And Adequately Represent The Class.

Rule 23(a)(4) permits certification of a class action only if "the representative parties will fairly and adequately protect the interests of the class." Fed. R. Civ. P. 23(a)(4). This requires: (i) the proposed representative plaintiff does not have conflicts of interest with the proposed class; and (ii) the plaintiff is represented by qualified and competent counsel. See *Hanlon*, 150 F.3d at 1020; *Keegan v. Am. Honda Motor Co., Inc.*, 284 F.R.D. 504, 525 (C.D. Cal. 2012). The first factor—that there is no conflict of interest—only requires similarity, not identity, of interests, and it precludes only adverse interests. *Satchell v. FedEx Corp.*, Case No. 03-02659 SI, 2005 WL 2397522, at *8 (N.D. Cal. Sept. 28, 2005). To assure "adequate" representation, the class representative's personal claim must not be inconsistent with the claims of other members of the class. *Pickett v. Iowa Beef Processors*, 209 F.3d 1276, 1280 (11th Cir. 2000). Hypothetical conflicts do not preclude a finding of adequacy. If and when the conflicts become real, the court can certify subclasses with separate representation of each, if consistent with manageability. *Kohen v. Pacific*

VW FOIA, EPA 06/20/2017 2017-FFP_035351

Investment Mgmt. Co. LLC, 571 F3d 672, 680 (7th Cir. 2009). Where, as here, the claims of the Class members and named Plaintiff are virtually coextensive, there is no conflict. *General Tel. Co. v. Falcon*, 457 U.S. 147, 157-58, n.13 (1982).

Here, Mr. D'Angelo's interests are completely aligned with those of the proposed class; each has suffered economic loss from the same misrepresentations communicated nationwide by VW. Likewise, Plaintiff's counsel is "adequate." In retaining David Vendler of Morris Polich and Purdy LLP ("MPP"), Plaintiff has employed counsel with the qualifications, experience, and resources to vigorously prosecute this action. See Vendler Dec.,¶ 9-25. Further, if, as Plaintiff expects, his consolidation motion is granted, additional plaintiffs' counsel will be available to assist MPP with the prosecution of the case.

D. The Proposed Class Satisfies Rule 23(b)(3)'s Predominance Requirement.

Because of the nature of Plaintiff's claims—fraudulent misrepresentations concerning the true nature of the VW Clean Diesel Vehicles—Plaintiff seeks certification under Rule 23(b)(3), which requires "that the questions of law or fact common to class members predominate over any questions affecting only individual members, and that a class action is superior to other available methods for fairly and efficiently adjudicating of the controversy." Fed. R. Civ. P. 23(b)(3). Predominance does not demand that the common issues be identical so long as there is an essential common factual link between all Class members and the defendant for which the law provides a remedy. *Yokoyama v. Midland Nat. Life Ins. Co.*, 594 F.3d 1087, 1093 (9th Cir. 2010). "There is no definitive test for determining whether common issues predominate, however, in general, predominance is met when there exists generalized evidence which proves or disproves an [issue or] element on a simultaneous, class-wide basis, since such proof obviates the need to examine each class members' individual position." *Galvan*, 2011 WL 5116585, at *8 (quoting *Withers v. eHarmony, Inc.*, CV 09-2266-GHK (RCx), Order Denying Mot. to Cert. Class,

VW FOIA, EPA 06/20/2017 2017-FFP_035352

Docket No. 13 (June 2, 2010)). See also *Dukes*, 131 S. Ct. at 2566 (the predominance inquiry is meant to "tes[t] whether proposed classes are sufficiently cohesive to warrant adjudication by representation." The main concern is "the balance between individual and common issues." *In re Wells Fargo Home Mortg. Overtime Pay Litig.*, 571 F.3d 953, 959 (9th Cir. 2009).

Common issues predominate in this case because the evidence necessary to establish Plaintiff's claims is common to all members of the Class (i.e. - they would all seek to prove that their VW Clean Diesel Vehicles were not "clean" and did not meet federal and state emission standards, despite representations by VW to the contrary). Indeed, VW has essentially admitted commonality exists by stating that it will implement a recall program to fix the defect it admits exists in its vehicles. See Vendler Dec., Exhibit "K."

The evidence to prove the classes' claims will be the same regardless of whether the class is 100 members or 500,000 and will include: (1) VW's admissions of wrongdoing; (2) VW's representations, marketing, and advertisements used to sell its vehicles; (3) VW's development, testing, and decisions to deceive the EPA and CARB as well as the general public concerning the existence of the Defeat Device to; and (4) the manner in which VW's fraudulent activities were ultimately discovered by the EPA and CARB. See, e.g., *Wolin*, 617 F.3d at 1173 (finding that all of the allegations regarding a common defect, the defendant's failure to reveal material facts in violation of consumer-protection laws, and the defendant's unjust enrichment "are susceptible to proof by generalized evidence.") Here, the case for commonality is even stronger for each of Plaintiff's causes of action since VW has admitted that it committed the wrong that is the lynchpin of all of the claims alleged in the Complaint.

1. Plaintiff's CLRA Claim.

Common issues predominate with respect to Plaintiff's CLRA claim. Causation for CLRA claims can be demonstrated as to an entire class by establishing that material misrepresentations or omissions have been made to the class. *Keegan*, *supra,*

VW FOIA, EPA 06/20/2017 2017-FFP_035353

284 F.R.D. at 530 (citing *Stearns v. Ticketmaster Corp.*, 655 F.3d 1013, 1022 (9th Cir. 2011)).

While numerous common issues exist with respect to Plaintiff's CLRA claim, by far the most important is whether VW represented its Clean Diesel vehicles as having properties or characteristics that it did not have. See *Parkinson, supra,* at 258 F.R.D. 593 and 596 (predominance with respect to CLRA claim was met where automaker accused of concealing flywheel defect) and *Chamberlan v. Ford Motor Co.*, 223 F.R.D. 524, 526-27 (N.D. Cal. 2004)). See also, *In re Steroid Hormone Product Cases*, 181 Cal. App. 4th 145, 157 (2010) (class action claim appropriate where defendant sold misbranded and illegal steroid product – "the question that must be answered in this case is whether a reasonable person would find it important when determining whether to purchase a product that it is unlawful to sell or possess that product. It requires no stretch to conclude that the proper answer is 'yes'"). Here, VW's products were just as illegal when sold as the supplements with the undisclosed steroids sold by GNC and a class action is likewise appropriate to redress the wrong VW has caused by representing to consumers that its "Clean Diesel Vehicles" were emissions compliant when they were not. Thus Plaintiff's CLRA claim satisfies the predominance requirement.[9]

2. Plaintiff's Fraud and Negligent Misrepresentation Claims.

Predominance is also satisfied for Plaintiff's nationwide fraud and negligent-representation claims. As with Plaintiff's CLRA claim, both have for their lynchpin the claim that VW concealed material facts concerning emissions compliance. (See Complaint at ¶¶ 27-35). Regardless of whether the misrepresentations were

[9] It is also indisputable that Plaintiff meets the 3 other factors for **mandatory** certification of his CLRA claim under *Hogya*, namely that: (1) it is impracticable to bring all members of the class before the court; (2) the claims or defenses of the representative plaintiffs are typical of the claims or defenses of the class; and (3) that the representative plaintiffs will fairly and adequately protect the interests of the class. As such, this Court must certify at least the CLRA subclass.

VW FOIA, EPA 06/20/2017 2017-FFP_035354

intentional or not, VW's misrepresentations were made with the intent to induce Plaintiff and the Class members into purchasing VW Clean Diesel Vehicles at a premium. And it is VW's scheme of asserting the underlying misrepresentations and "not the details of any individual's experience that forms the nucleus of the class claims." *Joint Equity Comm. of Investors of Real Estate Partners, Inc. v. Coldwell Banker Real Estate Corp.*, 281 F.R.D. 422, 430 (C.D. Cal. 2012) (quoting *Menagerie Prods*., 2009 WL 3770668, at *5); see also See *Yokoyama v. Midland Nat'l Life Ins. Co.*, 594 F.3d 1087 (9th Cir. 2009) (reversing denial of class certification where plaintiffs based their lawsuit on nondisclosures in standardized written forms) and *Rodman v. Safeway, Inc.*, 2014 WL 988992 *11 (N.D.Cal. 2014) (Class action plaintiffs can avoid the need to show each class member's individual reliance by resorting to California law's presumption of common reliance where the entire class saw the misrepresentations or was exposed to a pervasive long-term advertising campaign.) Predominance is thus satisfied for the fraud and negligent misrepresentation claims.

3. Plaintiff's Unfair Business Practices Claim.

Common issues predominate through Plaintiff's UCL claim, again because the same common proof used to establish a violation of the CLRA can be used for Plaintiff's UCL claim. *Keegan, supra,* 284 F.R.D. 533. Furthermore, "relief under the UCL is available without individualized proof of deception, reliance and injury." *Id.* As with Plaintiffs' CLRA claim, there is "a presumption, or at least an inference, of reliance" because Plaintiff and the proposed class can demonstrate that the alleged misrepresentations concerning emissions standards and compliance was material and uniform class wide. *Id*. at 533-34; *Parkinson v. Hyundai Motor Am.*, *supra* at 258 FRD 596-597 (defendant's alleged knowledge of a defect presents common issues for the CLRA and UCL claims because, if materiality is shown, reliance and causation may be presumed as to the entire class); See also *Keegan*, *supra,* 284 F.R.D. 533 (C.D. Cal. 2012) (distinguishing *Am. Honda Motor Co., Inc. v. Super. Ct.*, 199 Cal.

VW FOIA, EPA 06/20/2017 2017-FFP_035355

App. 4th 1367, 1377 (Cal. App. 2d Dist. 2011)).

4. The False Advertising Claim.

Common issues also predominate for Plaintiff's claim for violations of California's False Advertising Law. Plaintiff alleges that VW caused to be made or disseminated throughout California and the United States, through numerous advertising, and marketing mediums (i.e., TV, print, internet, billboard, etc.) statements that were untrue, misleading, and which VW knew to be untrue and misleading. By marketing its VW Clean Diesel Vehicles as low-emission, fuel-efficient cars, VW catapulted itself to becoming largest seller of diesel passenger vehicles in the United States. Plaintiff and Class Members were even convinced to pay more for their vehicles than they otherwise would have paid for similar modeled vehicles that did not purport to be "clean" and fuel efficient.

Had Plaintiff and Class Members known the truth, they would not have purchased/leased their vehicles and/or paid as much for them. See *In re Tobacco II Cases*, JCCP 4042, 2001 WL 34136870, at *3 (Cal. Super. Ct. Apr. 11, 2001) (finding that common issues predominated for all class claims brought under Cal. Bus. & Prof. Code §§ 17500, et seq. despite the fact that "a myriad of distinct issues exist as to each class member's exposure to the alleged deceptive marketing [and] reliance thereon" because the class "assert[ed] identically that Defendants, ... by way of deceptive advertising and marketing acts, misled the [] public" and "targeted the putative class uniformly in an alleged class-wide effort to seduce and induce people" to purchase their product).

5. The Warranty Claims.

The breach-of express and implied warranty claims raised by Plaintiff under the Song-Beverly Consumer Warranty Act, California's Commercial Code, and the Magnuson-Moss Warranty Act also satisfy the predominance standard. Here, Plaintiff alleges that in selling its vehicles, VW expressly and impliedly warranted that the VW Clean Diesel Vehicles met federal and state emissions standards, and that the VW

VW FOIA, EPA 06/20/2017 2017-FFP_035356

Clean Diesel Vehicles were in fact non-compliant with regard to federal and state emissions standards. As such, Plaintiff claims that VW breached its express and implied warranties. The main questions are therefore whether the VW Clean Diesel Vehicles' uniform non-compliance with regard to emissions standards, and VW's secret installation and use of the defeat device breached VW's express and implied warranties and whether that breach occurred on a class-wide basis. Consequently, Plaintiffs' express-warranty claims satisfy the predominance standard. (See e.g., *In re MyFord Touch Consumer Litig.*, 46 F. Supp. 3d 936, 983 (N.D. Cal. 2014) (evaluating applicability of both California's Song-Beverly Consumer Warranty and Commercial code claims as well as the Magnuson-Moss Warranty Act claims raised by a class of plaintiffs similar to those at issue here against an auto manufacturer).

6. Damages and/or Restitution can be Computed Uniformly.

Plaintiff's damage model was very well put by Representative Janice Schakowski at the September 8, 2015 congressional hearing – "VW's customers should be able to get their money back, all of it." See Vendler Dec., Exhibit "L." But even if that remedy is not granted, individual damage calculations can be calculated by a single formula based on the make, model and year of the Class Member's vehicle. There are a number of organizations that very closely track car values. Most well known is KBB.com, which publishes the "Kelly Blue Book." The loss in value of VW's vehicles (and any damages from loss in fuel economy) can be established by expert testimony. But even if this were not so, it is well established that the need to perform individual damage calculations "cannot defeat class certification." *Yokoyama*, 594 F.3d at 1094; See also *Blackie v. Barrack*, 524 F.2d 891, 901, 905 (9th Cir. 1975) (holding that differences in individual damage will not defeat class certification).

E. <u>The Class Action Method is Superior.</u>

"[T]he purpose of the superiority requirement is to assure that the class action is the most efficient and effective means of resolving the controversy." *Wolin v. Jaguar Land Rover N. Am.*, LLC, 617 F.3d 1168, 1175 (9th Cir. 2010). Superiority is

VW FOIA, EPA 06/20/2017 2017-FFP_035357

fulfilled "when 'no realistic alternative' to a class action 'exists.'" *Valentino v. Carter-Wallace, Inc.*, 97 F.3d 1227, 1234-35 (9th Cir. 1996)).

Each of the relevant Rule 23(b)(3) factors that guide the superiority inquiry is satisfied here. First, With respect to factors (A) and (C), the reimbursement amount of the premium paid for each VW Diesel Vehicle and the concomitant drop in value of these vehicles is too low, and the factual, legal, and financial burdens of litigating for a lump-sum payment are too high to motivate many Class members to litigate their claims on an individual basis. See *Hanlon v. Chrysler Corp.,* 150 F.3d 1011, 1023 (9th Cir. 1998). (where "the alternative methods of resolution are individual claims for a small amount of consequential damages .... litigation costs would dwarf potential recovery"); *Tait v. BSH Home Appliances Corp.*, 289 F.R.D. 466, 486 (C.D. Cal. 2012) (same).

Many Class Members will not bring individual lawsuits to obtain a lump-sum payment, especially given the difficult and complex issues about (1) how VW hid the implementation of the Defeat Devices from the EPA and CARB, (2) how the EPA and CARB's emission tests are performed, (3) the necessity to engage in overseas discovery (for the punitive damage aspect of the case), and (4) the logistical issues involved in obtaining expert and other technical evidence against a well-funded, global corporation like VW, which has retained experienced and savvy counsel to represent it. See *Keegan v. Am. Honda Motor Co., Inc.*, 284 F.R.D. 504, 549 (C.D. Cal. 2012) ("The funds required to marshal the type of evidence, including expert testimony, that will be necessary to pursue these claims against well-represented corporate defendants would discourage individual class members from filing suit when the expected return is so small.").

Consequently, class certification efficiently streamlines and conserves both individual and judicial resources. See *Hartless v. Clorox Co.,* 273 F.R.D. 630, 639 (S.D. Cal. 2011) ("multiple individual claims could overburden the judiciary"), aff'd in part, 473 F. App'x 716 (9th Cir. 2012).

VW FOIA, EPA 06/20/2017 2017-FFP_035358

Factor (B)—the extent and nature of any similar litigation—also favors certification of this action. Through Plaintiff's counsel's effort in filing the first MDL petition, numerous similar lawsuits filed nationwide will likely ultimately be consolidated. To date, more than 100 federal class-action lawsuits based on essentially the same facts and legal theories at issue here have been filed against VW.[10] Through the MDL process, Plaintiff has requested the MDL Panel to transfer those cases to this Court and to consolidate those actions with this litigation. Additionally, as this Court is aware, Plaintiff has requested a status conference in this case to discuss beginning the international discovery process overseas (given the lengthy nature of going through the Hague Convention's processes and procedures for taking evidence in Germany.

The final superiority factor regarding manageability emphasizes the issue of whether "the complexities of class action treatment outweigh the benefits of considering common issues in one trial ...." *McKenzie v. Fed. Exp. Corp.*, 275 F.R.D. 290, 302 (C.D. Cal. 2011). The question is not "whether this class action will create significant management problems," but rather "whether it will create relatively more management problems than any of the alternatives." *Klay v. Humana, Inc.*, 382 F.3d 1241, 1273 (11th Cir. 2004), abrogated in part on other grounds by *Bridge v. Phoenix Bond & Indem. Co.*, 553 U.S. 639 (2008). A manageability concern "will rarely, if ever, be in itself sufficient to prevent certification of a class." *Id.* at 1272. See also *In re Visa Check/MasterMoney Antitrust Litig.*, 280 F.3d 124, 140 (2d Cir. 2001) ("failure to certify an action under Rule 23(b)(3) on the sole ground that it would be unmanageable is disfavored and 'should be the exception rather than the rule."). Also,

[10] It is expected that VW will claim that it is premature to certify any class and/or that doing so would potentially interfere with the consolidation proceeding. Not so. Apart from the language of Rule 23 requiring certification to be conducted as soon as practicable, this Court's own local rule requires that it be done within 90 days. Moreover, for at least the California sub-classes, it makes total sense to have a California jurist evaluate those no matter in which court these cases eventually end up.

VW FOIA, EPA 06/20/2017 2017-FFP_035359

for Plaintiff's CLRA claim, manageability is not among the statutory factors to be considered. So, if Plaintiff meets the minimum requirements for certification of a class under the CLRA, there is no reason (from a manageability perspective, at least) not to certify the other claims as there will be a class action in any event.

But even if this were not true, Plaintiff does not predict any serious manageability difficulties in maintaining this class action, and certainly none that would justify forcing thousands of individuals to pursue individual actions alone. After all, by its recall, VW is essentially managing its own class.[11]

IV. MORRIS POLICH & PURDY LLP SHOULD BE APPOINTED CLASS COUNSEL

Pending consolidation, Morris Polich & Purdy LLP should be appointed class counsel and Mr. D'Angelo as the named class representative. So it is clear, Plaintiff is not seeking to be named class counsel to the exclusion of any other counsel later being named as such. In fact, Plaintiff welcomes the assistance of other plaintiff counsel post-consolidation. However, the class will not be prejudiced in the meantime by the appointment of MPP as class counsel. Through MPP, Plaintiff was not only among the first to file against VW, but he filed the first MDL petition. MPP has also moved expeditiously to file this motion and to generally move his case forward.

V. CONCLUSION

For the reasons specified above, Plaintiff's Motion for Class Certification should be granted.

[11] Any argument by VW that its recall announcement might obviate the need for a class action is ridiculous. First of all, the recall will not eliminate the harm suffered by the Classes. Fuel economy and performance will certainly drop post recall since the defeat devices were installed precisely to boost these characteristics. Second, the value of these vehicles has plummeted since VW's fraud came to light. Third, VW's recalling these cars does not take away from the fact that VW defrauded its customers in the first instance. Punitive damages have been alleged against VW for this fraud and VW's recall cannot eliminate those.

VW FOIA, EPA 06/20/2017 2017-FFP_035360

Date: October 19, 2015

MORRIS POLICH & PURDY LLP

By: */s/ David J. Vendler*
David J. Vendler
Kevin M. Pollack

Attorney for Plaintiff CHRISTOPHER J. D'ANGELO and all those similarly situated

VW FOIA, EPA 06/20/2017 2017-FFP_035361

BEFORE THE UNITED STATES
JUDICIAL PANEL ON MULTIDISTRICT LITIGATION

IN RE: VOLKSWAGEN "CLEAN DIESEL" MARKETING, SALES PRACTICES, AND PRODUCTS LIABILITY LITIGATION	**MDL NO. 2672**

CERTIFICATE OF SERVICE

In compliance with Rule 4.1(a) of the Rules of Procedure for the United States Judicial Panel on Multidistrict Litigation, I hereby certify that copies of the foregoing document was served on all parties electronically with the Clerk of the JPML by using the CM/ECF and electronically served, via ECF, on all counsel of record or *pro se* parties. I further certify that a copy of the foregoing document was served on the following parties via U.S. Mail:

Defendants	
Volkswagen AG P.O. Box 1849 D-38436 Wolfsburg, Germany	Volkswagen of America Group, Inc. c/o Corporation Service Company 1111 East Main Street Richmond, VA 23219
Volkswagen of America, Inc. 2200 Ferdinand Porsche Drive Herndon, VA 20171	Audi of America, LLC 2200 Ferdinand Porsche Drive Herndon, VA 20171
Audi AG Inglostadt Bayern 85057 Germany	
Plaintiffs' Counsel	
William D. Pettersen Pettersen & Bark 1620 Union Street	

VW FOIA, EPA 06/20/2017 2017-FFP_035362

San Diego, CA 92101 Tel: (619) 702-0123 Fax: (619) 702-0127 *Attorneys for Plaintiffs Mark S. Kornfeld, Tamara Barton, Tracey D. Martinez, on behalf of themselves and all others similarly situated*	
Office of the Clerk – Courtesy Copy	
Office of the Clerk United States District Court Eastern District of Virginia 401 Courthouse Square Alexandria, VA 22314	

Dated: October 26, 2015

Respectfully submitted,

/s/ *Christopher L. Lebsock*

Michael D. Hausfeld
Walter D. Kelley, Jr.
James J. Pizzirusso
HAUSFELD LLP
1700 K Street NW, Suite 650
Washington, DC 20006
Tel: (202) 540-7200
Fax: (202)540-7201
Email: mhausfeld@hausfeld.com
Email: wkelley@hausfeld.com
Email: jpizzirusso@hausfeld.com

Michael P. Lehmann (SBN 77152)
Bonny E. Sweeney (SBN 176174)
Christopher L. Lebsock (SBN 184546)
HAUSFELD LLP
600 Montgomery St., Suite 3200
San Francisco, CA 94111
Tel: (415) 633-1908
Fax: (415) 358-4980
Email: mlehmann@hausfeld.com
Email: bsweeney@hausfeld.com
Email: clebsock@hausfeld.com

Bernard J, DiMuro (VSB No. 18784)
Harvey B. Cohen (VSB No. 06440)
DIMUROGINSBERG, P.C.
1101 King Street, Suite 610

VW FOIA, EPA 06/20/2017 2017-FFP_035363

Alexandria, Virginia 23314
Telephone: (703) 684-4333
Facsimile: (703) 548-3181
Email: bdimuro@dimuro.com
Email: hcohen@dimuro.com

Counsel for Plaintiffs Center for Auto Safety, Maria Bourn, David Watson, Stephen Verner, and Mark Schumacher

Lesley E. Weaver (Cal. Bar No. 191305)
Whitney E. Street (Cal. Bar No. 223870)
BLOCK & LEVITON LLP
520 Third Street, Suite 108
Oakland, CA 94607
Office: (415) 968-8999
Cell: (415) 797-2617
Email: lweaver@blockesq.com
Email: wstreet@blockesq.com

Counsel for Plaintiffs Maria Bourn, David Watson, Stephen Verner, and Mark Schumacher

VW FOIA, EPA 06/20/2017 2017-FFP_035364

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: Morning Consult
Sent: Tue 10/27/2015 12:27:35 PM
Subject: Morning Consult Energy, Presented by America's Natural Gas Alliance: GOP Sen. Ayotte Backs Clean Power Plan; U.S. Oil Imports Rising after Years of Decline

By Dmitry Filipoff

Today's Washington Brief

- Sen. Kelly Ayotte (R-N.H.) came out in support of the Clean Power Plan, putting her at odds with Senate Republican leadership. (The Huffington Post)
- The U.S. Chamber of Commerce and 14 other business groups filed suit against the EPA for its Clean Power Plan. (Washington Times)
- The White House released an overdue report that shows the Environmental Protection Agency has the most major federal rules, as well as the highest costs and benefits, over a 10-year period. (Washington Examiner)

Today's Business Brief

- U.S. oil imports are on the rise after years of decline, according to the Energy Information Administration. The slowdown in U.S. shale oil production has encouraged the purchase of oil from a more diverse range of producers. (The Wall Street Journal)
- Chinese company Yantai Xinchao Industry Co. will acquire oil properties in Texas for $1.3 billion. (Associated Press)
- The Interior Department's proposed stream protection rule could result in the loss of more than 281,000 jobs, according to a study commissioned by the National Mining Association. The study also forecasts that federal and state governments would lose $3.1 billion and $6.4 billion in annual tax revenue from a decline in coal production. (The Hill)

Today's Chart Review

Americans Have Never Been So Sure About Climate Change—Even Republicans
Bloomberg News

Mark Your Calendars (All Times Eastern)

Tuesday
Senate Energy & Natural Resources Committee holds hearing on proposed Stream Protection Rule @ 10 a.m.
Bipartisan Policy Center hosts talk on nuclear waste @ 10 a.m.
American Council on Renewable Energy hosts webinar on renewable energy for Latin America
Brookings Institution holds talk on lessons from energy transitions in Germany, Japan @ 2 p.m.
Bipartisan Congressional Battery Energy Storage Caucus debuts with capital briefing @ 3 p.m.

Wednesday
House Energy and Commerce Committee holds hearing on radioactive waste disposal @ 10:15 a.m.

Thursday
Environmental Law Institute conference on green infrastructure @ 12:30 p.m.
Clean Energy States Alliance holds discussion on benefits of solar storage @ 2 p.m.
Bipartisan Policy Center talk on sustainability and food supply @ 2 p.m.

Friday
Cato Institute holds conference on the 2015 United Nations Climate Change Conference @ 10:30 a.m.

General

Congress and White House reach tentative budget deal
David M. Herszenhorn, The New York Times

After five years of bitter clashes, Republican congressional leaders and President Obama on Monday night appeared to settle their last budget fight by reaching a tentative deal that would modestly increase spending over the next two years, cut some social programs, and raise the federal borrowing limit. The accord, which must be approved by the House and the Senate, would avert a potentially cataclysmic default on the government's debt and dispenses with perhaps the most divisive issue in the capital just before Speaker John A. Boehner is expected to turn over his gavel to Representative Paul D. Ryan of Wisconsin.

GOP Sen. Kelly Ayotte Backs Obama's Climate Change Plan
Kate Sheppard, The Huffington Post

Sen. Kelly Ayotte (R-N.H.) came out in favor of the Obama administration's effort to cut carbon pollution by power plants on Sunday, bucking Senate leadership that has worked to derail the emissions plan. The Obama administration announced final regulations on emissions from both new and existing power plants in August.

White House report shows high cost of EPA rules
John Siciliano, Washington Examiner

The White House released an overdue report on the cost of regulations that shows that the Environmental Protection Agency dominates all other agencies in both benefits and costs, as well as the number of regulations. EPA is number one on costs, ranging from $37.6 billion to $45.4 billion from 2004 to 2014 in 2010 dollars.

Business groups join fight to combat Clean Power Plan
Valerie Richardson, Washington Times

The U.S. Chamber of Commerce and 14 other business groups filed a lawsuit against the Environmental Protection Agency Friday, the day the rule was published, and followed up Monday with a press call with the National Association of Manufacturers and National Federation of Independent Business. The business challenge parallels the lawsuit filed Friday by 24 states, represented primarily by attorneys general, who argue that the EPA has overstepped its authority by attempting a takeover of state power plants.

EPA: Clean Power Plan Extensions Not a 'Heavy Lift'
Andrew Childers and Patrick Ambrosio, Bloomberg News

The Environmental Protection Agency has intentionally set a very low bar for states seeking a two-year extension to submit plans to implement the Clean Power Plan, the agency's top air pollution official said. Janet McCabe, the EPA's acting assistant administrator for air and radiation, told the Environmental Council of States Oct. 21 that receiving the extension is deliberately "not intended to be a heavy lift."

U.S. Index Futures Are Little Changed Before Fed, Apple Earnings
Sofia Horta E Costa, Bloomberg News

U.S. stock-index futures were little changed before the Federal Reserve begins a two-day monetary policy meeting and companies including Apple Inc. report earnings. Standard & Poor's 500 Index E-mini contracts expiring in December fell less than 0.1 percent to 2,060.5 at 9:42 a.m. in London, paring a drop of as much as 0.3 percent.

Oil & Natural Gas

After Years of Decline, U.S. Oil Imports Rise
Nicole Friedman, The Wall Street Journal

U.S. crude imports declined 20% between 2010 and 2014 amid the domestic energy boom but have recently started to rise again. Total crude-oil imports rose for three straight months between April and July, according to the most recently available data from the Energy Information Administration.

Chinese investment company to buy Texas oil fields for $1.3B
The Associated Press

A Chinese investment holding company said it has signed a letter of intent to purchase oil fields in Texas for 8.3 billion yuan ($1.3 billion) through a limited liability partnership. In a disclosure to the Shanghai Stock Exchange, Yantai Xinchao Industry Co. Ltd. said the oil fields in Howard and Borden counties would be bought from Tall City Exploration and Plymouth Petroleum, two Nevada-based companies.

Utilities & Infrastructure

Energy Storage Industry Gaining Momentum
Diane Cardwell, The New York Times

Instead of using “the go-it-alone model” of developing, building and distributing batteries, as he said he did at A123 while chief executive, Vionx is taking a leaner approach. It focuses on engineering, marketing, sales and service, and leaving the rest to well-established partners like United Technologies, Siemens and 3M.

Wind Power Now Cheaper Than Natural Gas for Xcel, CEO Says
Alex Nussbaum and Chris Martin, Bloomberg News

Xcel Energy Inc., the biggest U.S. provider of wind power, expects long-term contracts for the technology to beat the cost of natural gas, another sign of the rapid transformation of the power market. Xcel, the Minneapolis-based utility that serves eight states, is receiving bids for 20-year power-purchase agreements at about $25 a megawatt-hour for wind energy, Chief Executive Officer Ben Fowke said in an interview Friday at Bloomberg News headquarters in New York.

Truckers Again Becoming More Competitive With Rail
Laura Stevens, The Wall Street Journal

Fuel prices are low enough that truckers are again becoming more competitive with rail, executives at Union Pacific Corp. said Thursday. For years, railroads like Union Pacific have been developing their intermodal businesses of moving containers and trailers, allowing them to compete directly with truckers on their home turf.

Renewables

Texas hits new wind power milestone
Jordan Blum, The Houston Chronicle

The Texas electric grid hit a new record for wind power use early Thursday, as the state continues dominating the rest of the nation in wind farm growth. At 12:30 am Thursday, the main Texas grid operator reported that nearly 37 percent of demand was met with wind power.

New York's Green Bank Invests $49M in Solar, Wind and Efficiency
Katherine Tweed, Greentech Media

For the past two years, New York has been building a portfolio that could eventually lure hundreds of millions of private dollars to clean-energy projects through its Green Bank. It began with $165 million in financing that would be matched by private capital, with the goal of scaling up to $1 billion.

Despite Risks, Cuomo Bets on Solar Power to Lift Buffalo
Susanne Craig, The New York Times

On the often cloudy shores of the Buffalo River, where a steel factory once thrived, lies the rising framework of one of New York's most ambitious economic endeavors ever: a giant solar panel factory that the state says will be the largest of its kind in the Western Hemisphere. Gov. Andrew M. Cuomo has committed up to $750 million to the project, the biggest economic development effort he has undertaken in his five years as governor.

Farms flexing solar power
Nicholas Bergin, Lincoln Journal Star

He is one of a growing number of Nebraska farmers, homeowners and businesspeople who have sharpened their pencils, done some math and found small-scale solar arrays will save them money while reducing their carbon footprint. Solar panels have been installed on a growing number of farms and in fields, powering water pumps for livestock and center pivot irrigation systems for row crops, with the benefits of lower installation costs, improved performance, grants and tax breaks.

Coal

Industry study: Mining rule would kill 281k jobs
Timothy Cama, The Hill

The Obama administration's proposal to better protect streams from coal mining would kill 281,000 jobs, a new study concluded. The research, commissioned by the National Mining Association (NMA), said the stream protection rule threatens 40,000 to 78,000 coal mining jobs, on top of the 40,000 already lost since 2011.

Whiplash: Shift in federal coal policies stokes fear in rural areas
Joby Warrick, The Washington Post

As the country's electricity providers prepare to comply with new federal regulations that restrict the use of coal, dozens of small utilities across rural America say they are bracing for soaring costs and possible plant closures. Some, such as the Tampa-based Seminole Electric Cooperative, went deeply into debt to build the coal-fired power plants U.S. officials demanded years ago, and now they are stuck with facilities that can't meet the new standards and can't be easily upgraded or replaced.

Coal mine expansion stalls in lawsuit citing climate change
Matthew Brown, The Associated Press

The U.S. Interior Department should not have approved the expansion of a southeastern Montana coal mine without taking a closer look at its effect on the environment, a federal judge said about a lawsuit arguing the government ignored coal's contributions to climate change. Environmental groups sued the Interior Department after it approved an expansion of the Spring Creek Coal mine in 2012.

Nuclear

Start-Ups Take On Challenge of Nuclear Fusion
Dino Grandoni, The New York Times

A group of start-ups is promising a new and virtually unlimited source of power, one that produces none of the gases scientists say contribute to global warming. The only problem? A way to harness the energy source, nuclear fusion — the reaction that gives birth to sunlight — still needs to be invented.

Edison reaches $400-million settlement with nuclear insurer
Ivan Penn, Los Angeles Times

Southern California Edison has reached a $400-million settlement with its insurer over the shuttered San Onofre nuclear plant that the utility says will help cut customers' costs. Edison said 95% of the money from Nuclear Electric Insurance Limited, or NEIL, "will benefit customers," though it will not come in the form of a refund.

Climate

EU failed to heed emissions warnings in 2013
Jim Brunsden and Christian Oliver, Financial Times

The EU's top environmental official alerted his colleagues that motor manufacturers were gaming European emissions tests more than two years before US authorities uncovered widespread cheating by Volkswagen, according to internal European Commission documents obtained by the Financial Times. Despite the warning sounded by Janez Potocnik, the then EU environment commissioner, Brussels did not take swift action to crack down on the practice but instead left in place an earlier plan that allowed the emissions loopholes exploited by Volkswagen to remain through to 2017.

How Could Volkswagen's Top Engineers Not Have Known?
Dune Lawrence et al., Bloomberg News

An environmental group, the International Council on Clean Transportation, had asked the school's Center for Alternative Fuels, Engines and Emissions to test the tailpipes of diesel cars in the U.S., such as those sold by Volkswagen and BMW. Studies suggested that automakers' diesel cars polluted more on the road than in the lab, and curiously, more in Europe than in the U.S.

A Message from America's Natural Gas Alliance:

We're producing more natural gas, more cleanly than ever before. The natural gas industry has spent years developing innovative technologies that are helping America realize its environmental, economic and energy security goals. Since 2005, natural gas production has increased by more than one third, while methane emissions dropped by 38%. America's Natural Gas. Think About It.

Opinions, Editorials & Perspectives

Did $8 Billion in Government Smart-Grid Investments Make a Difference?
Charlie Chen, Greentech Media

An analysis of the electricity outage data from the Department of Energy shows that outages are on the rise. In fact, the average number of outages doubles every five years, largely because of extreme weather events. Events such as the Northeast blackout (2003), Pacific Northwest storm (2006), Hurricane Irene (2011), Hurricane Sandy (2012), and the East Coast derecho (2012) caused major outages impacting large swaths of the country.

Taming Wind Power With Better Forecasts

Sue Ellen Haupt and William P. Mahoney, IEEE

It's because since the 2000s, scientists have been dramatically improving their ability to forecast the amount of power that utilities will be able to draw from the wind. And these forecasts are getting better all the time, allowing utilities to depend more and more on their wind resources and less on fossil fuels or nuclear power.

Why We Support the ITC Extension and Why You Should Too
Yuri Horwitz, Greentech Media

In the next 12 months, each of us will either take action to extend the federal Investment Tax Credit (ITC), set to drop by 66 percent, or we will not. The planned reduction in the ITC is projected to cut solar installations by half, immediately setting the solar industry back five years and leading to the lowest annual amount of solar installed since 2012.

A Message from America's Natural Gas Alliance:

Abundant, domestic natural gas delivers clear environmental, economic and energy security benefits. Since 2005, natural gas production has increased by more than one third, while methane emissions dropped by 38%. This impressive record has been accomplished through existing regulations and industry innovation. This type of collaborative approach, rather than new rules, will bring greater reductions more quickly - a goal we all share. America's Natural Gas. Think About It.

Research Reports, Issue Briefs & Case Studies

In their own words: 2016 Presidential Candidates on Renewable Energy
League of Conservation Voters

Below is a selection of quotes and coverage of the announced presidential candidates' statements and actions on the renewable energy policies, including the Production Tax Credit for wind energy.

SUBSCRIBE

Morning Consult
P.O. Box 27068
Washington, District of Columbia 20038

You received this email because you are subscribed to Energy from Morning Consult.
Update your email preferences to choose the types of emails you receive.
Unsubscribe from all future emails

To: Bunker, Byron[bunker.byron@epa.gov]
From: Morning Consult
Sent: Tue 10/27/2015 12:27:41 PM
Subject: Morning Consult Energy, Presented by America's Natural Gas Alliance: GOP Sen. Ayotte Backs Clean Power Plan; U.S. Oil Imports Rising after Years of Decline

By Dmitry Filipoff

Today's Washington Brief

- Sen. Kelly Ayotte (R-N.H.) came out in support of the Clean Power Plan, putting her at odds with Senate Republican leadership. (The Huffington Post)

- The U.S. Chamber of Commerce and 14 other business groups filed suit against the EPA for its Clean Power Plan. (Washington Times)

- The White House released an overdue report that shows the Environmental Protection Agency has the most major federal rules, as well as the highest costs and benefits, over a 10-year period. (Washington Examiner)

Today's Business Brief

- U.S. oil imports are on the rise after years of decline, according to the Energy Information Administration. The slowdown in U.S. shale oil production has encouraged the purchase of oil from a more diverse range of producers. (The Wall Street Journal)

- Chinese company Yantai Xinchao Industry Co. will acquire oil properties in Texas for $1.3 billion. (Associated Press)

- The Interior Department's proposed stream protection rule could result in the loss of more than 281,000 jobs, according to a study commissioned by the National Mining Association. The study also forecasts that federal and state governments would lose $3.1 billion and $6.4 billion in annual tax revenue from a decline in coal production. (The Hill)

Today's Chart Review

Americans Have Never Been So Sure About Climate Change—Even Republicans
Bloomberg News

Mark Your Calendars (All Times Eastern)

Tuesday
Senate Energy & Natural Resources Committee holds hearing on proposed Stream Protection Rule @ 10 a.m.
Bipartisan Policy Center hosts talk on nuclear waste @ 10 a.m.
American Council on Renewable Energy hosts webinar on renewable energy for Latin America
Brookings Institution holds talk on lessons from energy transitions in Germany, Japan @ 2 p.m.
Bipartisan Congressional Battery Energy Storage Caucus debuts with capital briefing @ 3 p.m.

Wednesday
House Energy and Commerce Committee holds hearing on radioactive waste disposal @ 10:15 a.m.

Thursday
Environmental Law Institute conference on green infrastructure @ 12:30 p.m.
Clean Energy States Alliance holds discussion on benefits of solar storage @ 2 p.m.
Bipartisan Policy Center talk on sustainability and food supply @ 2 p.m.

Friday
Cato Institute holds conference on the 2015 United Nations Climate Change Conference @ 10:30 a.m.

General

Congress and White House reach tentative budget deal
David M. Herszenhorn, The New York Times

After five years of bitter clashes, Republican congressional leaders and President Obama on Monday night appeared to settle their last budget fight by reaching a tentative deal that would modestly increase spending over the next two years, cut some social programs, and raise the federal borrowing limit. The accord, which must be approved by the House and the Senate, would avert a potentially cataclysmic default on the government's debt and dispenses with perhaps the most divisive issue in the capital just before Speaker John A. Boehner is expected to turn over his gavel to Representative Paul D. Ryan of Wisconsin.

GOP Sen. Kelly Ayotte Backs Obama's Climate Change Plan
Kate Sheppard, The Huffington Post

Sen. Kelly Ayotte (R-N.H.) came out in favor of the Obama administration's effort to cut carbon pollution by power plants on Sunday, bucking Senate leadership that has worked to derail the emissions plan. The Obama administration announced final regulations on emissions from both new and existing power plants in August.

White House report shows high cost of EPA rules
John Siciliano, Washington Examiner

The White House released an overdue report on the cost of regulations that shows that the Environmental Protection Agency dominates all other agencies in both benefits and costs, as well as the number of regulations. EPA is number one on costs, ranging from $37.6 billion to $45.4 billion from 2004 to 2014 in 2010 dollars.

Business groups join fight to combat Clean Power Plan
Valerie Richardson, Washington Times

The U.S. Chamber of Commerce and 14 other business groups filed a lawsuit against the Environmental Protection Agency Friday, the day the rule was published, and followed up Monday with a press call with the National Association of Manufacturers and National Federation of Independent Business. The business challenge parallels the lawsuit filed Friday by 24 states, represented primarily by attorneys general, who argue that the EPA has overstepped its authority by attempting a takeover of state power plants.

EPA: Clean Power Plan Extensions Not a 'Heavy Lift'
Andrew Childers and Patrick Ambrosio, Bloomberg News

The Environmental Protection Agency has intentionally set a very low bar for states seeking a two-year extension to submit plans to implement the Clean Power Plan, the agency's top air pollution official said. Janet McCabe, the EPA's acting assistant administrator for air and radiation, told the Environmental Council of States Oct. 21 that receiving the extension is deliberately "not intended to be a heavy lift."

U.S. Index Futures Are Little Changed Before Fed, Apple Earnings
Sofia Horta E Costa, Bloomberg News

U.S. stock-index futures were little changed before the Federal Reserve begins a two-day monetary policy meeting and companies including Apple Inc. report earnings. Standard & Poor's 500 Index E-mini contracts expiring in December fell less than 0.1 percent to 2,060.5 at 9:42 a.m. in London, paring a drop of as much as 0.3 percent.

Oil & Natural Gas

After Years of Decline, U.S. Oil Imports Rise
Nicole Friedman, The Wall Street Journal

U.S. crude imports declined 20% between 2010 and 2014 amid the domestic energy boom but have recently started to rise again. Total crude-oil imports rose for three straight months between April and July, according to the most recently available data from the Energy Information Administration.

Chinese investment company to buy Texas oil fields for $1.3B
The Associated Press

A Chinese investment holding company said it has signed a letter of intent to purchase oil fields in Texas for 8.3 billion yuan ($1.3 billion) through a limited liability partnership. In a disclosure to the Shanghai Stock Exchange, Yantai Xinchao Industry Co. Ltd. said the oil fields in Howard and Borden counties would be bought from Tall City Exploration and Plymouth Petroleum, two Nevada-based companies.

Utilities & Infrastructure

Energy Storage Industry Gaining Momentum
Diane Cardwell, The New York Times

Instead of using “the go-it-alone model” of developing, building and distributing batteries, as he said he did at A123 while chief executive, Vionx is taking a leaner approach. It focuses on engineering, marketing, sales and service, and leaving the rest to well-established partners like United Technologies, Siemens and 3M.

Wind Power Now Cheaper Than Natural Gas for Xcel, CEO Says
Alex Nussbaum and Chris Martin, Bloomberg News

Xcel Energy Inc., the biggest U.S. provider of wind power, expects long-term contracts for the technology to beat the cost of natural gas, another sign of the rapid transformation of the power market. Xcel, the Minneapolis-based utility that serves eight states, is receiving bids for 20-year power-purchase agreements at about $25 a megawatt-hour for wind energy, Chief Executive Officer Ben Fowke said in an interview Friday at Bloomberg News headquarters in New York.

Truckers Again Becoming More Competitive With Rail
Laura Stevens, The Wall Street Journal

Fuel prices are low enough that truckers are again becoming more competitive with rail, executives at Union Pacific Corp. said Thursday. For years, railroads like Union Pacific have been developing their intermodal businesses of moving containers and trailers, allowing them to compete directly with truckers on their home turf.

Renewables

Texas hits new wind power milestone
Jordan Blum, The Houston Chronicle

The Texas electric grid hit a new record for wind power use early Thursday, as the state continues dominating the rest of the nation in wind farm growth. At 12:30 am Thursday, the main Texas grid operator reported that nearly 37 percent of demand was met with wind power.

New York's Green Bank Invests $49M in Solar, Wind and Efficiency
Katherine Tweed, Greentech Media

For the past two years, New York has been building a portfolio that could eventually lure hundreds of millions of private dollars to clean-energy projects through its Green Bank. It began with $165 million in financing that would be matched by private capital, with the goal of scaling up to $1 billion.

Despite Risks, Cuomo Bets on Solar Power to Lift Buffalo
Susanne Craig, The New York Times

On the often cloudy shores of the Buffalo River, where a steel factory once thrived, lies the rising framework of one of New York's most ambitious economic endeavors ever: a giant solar panel factory that the state says will be the largest of its kind in the Western Hemisphere. Gov. Andrew M. Cuomo has committed up to $750 million to the project, the biggest economic development effort he has undertaken in his five years as governor.

Farms flexing solar power
Nicholas Bergin, Lincoln Journal Star

He is one of a growing number of Nebraska farmers, homeowners and businesspeople who have sharpened their pencils, done some math and found small-scale solar arrays will save them money while reducing their carbon footprint. Solar panels have been installed on a growing number of farms and in fields, powering water pumps for livestock and center pivot irrigation systems for row crops, with the benefits of lower installation costs, improved performance, grants and tax breaks.

Coal

Industry study: Mining rule would kill 281k jobs
Timothy Cama, The Hill

The Obama administration's proposal to better protect streams from coal mining would kill 281,000 jobs, a new study concluded. The research, commissioned by the National Mining Association (NMA), said the stream protection rule threatens 40,000 to 78,000 coal mining jobs, on top of the 40,000 already lost since 2011.

Whiplash: Shift in federal coal policies stokes fear in rural areas
Joby Warrick, The Washington Post

As the country's electricity providers prepare to comply with new federal regulations that restrict the use of coal, dozens of small utilities across rural America say they are bracing for soaring costs and possible plant closures. Some, such as the Tampa-based Seminole Electric Cooperative, went deeply into debt to build the coal-fired power plants U.S. officials demanded years ago, and now they are stuck with facilities that can't meet the new standards and can't be easily upgraded or replaced.

Coal mine expansion stalls in lawsuit citing climate change
Matthew Brown, The Associated Press

The U.S. Interior Department should not have approved the expansion of a southeastern Montana coal mine without taking a closer look at its effect on the environment, a federal judge said about a lawsuit arguing the government ignored coal's contributions to climate change. Environmental groups sued the Interior Department after it approved an expansion of the Spring Creek Coal mine in 2012.

Nuclear

Start-Ups Take On Challenge of Nuclear Fusion
Dino Grandoni, The New York Times

A group of start-ups is promising a new and virtually unlimited source of power, one that produces none of the gases scientists say contribute to global warming. The only problem? A way to harness the energy source, nuclear fusion — the reaction that gives birth to sunlight — still needs to be invented.

Edison reaches $400-million settlement with nuclear insurer
Ivan Penn, Los Angeles Times

Southern California Edison has reached a $400-million settlement with its insurer over the shuttered San Onofre nuclear plant that the utility says will help cut customers' costs. Edison said 95% of the money from Nuclear Electric Insurance Limited, or NEIL, "will benefit customers," though it will not come in the form of a refund.

Climate

EU failed to heed emissions warnings in 2013
Jim Brunsden and Christian Oliver, Financial Times

The EU's top environmental official alerted his colleagues that motor manufacturers were gaming European emissions tests more than two years before US authorities uncovered widespread cheating by Volkswagen, according to internal European Commission documents obtained by the Financial Times. Despite the warning sounded by Janez Potocnik, the then EU environment commissioner, Brussels did not take swift action to crack down on the practice but instead left in place an earlier plan that allowed the emissions loopholes exploited by Volkswagen to remain through to 2017.

How Could Volkswagen's Top Engineers Not Have Known?
Dune Lawrence et al., Bloomberg News

An environmental group, the International Council on Clean Transportation, had asked the school's Center for Alternative Fuels, Engines and Emissions to test the tailpipes of diesel cars in the U.S., such as those sold by Volkswagen and BMW. Studies suggested that automakers' diesel cars polluted more on the road than in the lab, and curiously, more in Europe than in the U.S.

A Message from America's Natural Gas Alliance:

We're producing more natural gas, more cleanly than ever before. The natural gas industry has spent years developing innovative technologies that are helping America realize its environmental, economic and energy security goals. Since 2005, natural gas production has increased by more than one third, while methane emissions dropped by 38%. America's Natural Gas. Think About It.

Opinions, Editorials & Perspectives

Did $8 Billion in Government Smart-Grid Investments Make a Difference?
Charlie Chen, Greentech Media

An analysis of the electricity outage data from the Department of Energy shows that outages are on the rise. In fact, the average number of outages doubles every five years, largely because of extreme weather events. Events such as the Northeast blackout (2003), Pacific Northwest storm (2006), Hurricane Irene (2011), Hurricane Sandy (2012), and the East Coast derecho (2012) caused major outages impacting large swaths of the country.

Taming Wind Power With Better Forecasts

Sue Ellen Haupt and William P. Mahoney, IEEE

It's because since the 2000s, scientists have been dramatically improving their ability to forecast the amount of power that utilities will be able to draw from the wind. And these forecasts are getting better all the time, allowing utilities to depend more and more on their wind resources and less on fossil fuels or nuclear power.

Why We Support the ITC Extension and Why You Should Too
Yuri Horwitz, Greentech Media

In the next 12 months, each of us will either take action to extend the federal Investment Tax Credit (ITC), set to drop by 66 percent, or we will not. The planned reduction in the ITC is projected to cut solar installations by half, immediately setting the solar industry back five years and leading to the lowest annual amount of solar installed since 2012.

A Message from America's Natural Gas Alliance:

Abundant, domestic natural gas delivers clear environmental, economic and energy security benefits. Since 2005, natural gas production has increased by more than one third, while methane emissions dropped by 38%. This impressive record has been accomplished through existing regulations and industry innovation. This type of collaborative approach, rather than new rules, will bring greater reductions more quickly - a goal we all share. America's Natural Gas. Think About It.

Research Reports, Issue Briefs & Case Studies

In their own words: 2016 Presidential Candidates on Renewable Energy
League of Conservation Voters

Below is a selection of quotes and coverage of the announced presidential candidates' statements and actions on the renewable energy policies, including the Production Tax Credit for wind energy.

SUBSCRIBE

Morning Consult
P.O. Box 27068
Washington, District of Columbia 20038

You received this email because you are subscribed to Energy from Morning Consult.
Update your email preferences to choose the types of emails you receive.
Unsubscribe from all future emails

To: Belser, Evan[Belser.Evan@epa.gov]
From: Zaremski, Sara
Sent: Tue 10/27/2015 2:54:29 PM
Subject: For our discussion at noon
VW FOIAs.xlsx

Evan,

I took at first cut at what can be responsive and what I think might be considered privileged as part of the ongoing investigation. I transferred it to excel so I could add a comment column. This does include everything from Becky's email late yesterday. We can discuss and then if we are in agreement, I can share this with the FOIA team for the 3 pm meeting. Byron would also like to make sure the record requests that are entitled to privilege are treated the same as they were for the Hyundai/Kia work.

Sara Zaremski

U.S. EPA - OTAQ

Compliance Division

Center Director, Data Analysis and Information Center

2000 Traverwood Drive

Ann Arbor, MI 48105

phone: (734)214-4362

Cell: (734) 223-0957

email: zaremski.sara@epa.gov

To: Sigelko, Jenny (EEO)[Jenny.Sigelko@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Stout, Alan[stout.alan@epa.gov]
From: Fernandez, Antonio
Sent: Tue 10/27/2015 7:40:38 PM
Subject: RE: Tier 3 phase in questions

See below. Alan helped with the last two. I am including the Compliance Division Certification representative so he is up to speed with these questions in case he gets asked by someone else.

Tony

From: Sigelko, Jenny (EEO) [mailto:Jenny.Sigelko@vw.com]
Sent: Tuesday, October 27, 2015 1:58 PM
To: Fernandez, Antonio <fernandez.antonio@epa.gov>
Subject: Tier 3 phase in questions

Hi Tony,

I have a few questions in 3 general Tier 3 areas.

Interim/Final Tier 3

My first question is regarding 'final' Tier 3 vehicle requirements. In order for a vehicle to be 'final' or 'not Interim', does it have to meet all the requirements of Part 1066 testing procedures? I understand that 86.101 (d) must be met starting in 22MY, but can a vehicle be considered to have 'final' status prior to this by meeting the other Tier 3 requirements? Or, for example, a 19MY vehicle that meets all the other standards of Tier 3, but is not yet tested on fully 1066 compliant test cells considered a Tier 3? As we discussed "final" Tier 3 designation does not need to meet all of the 1066 requirements however at a minimum it will need to use 1066 PM requirements and the new NMOG calculation for E10. Chris Laroo can assist if further information is needed. See http://www.ecfr.gov/cgi-bin/text-idx?SID=7bc71fb487c9d818c7331cdb8c18e753&mc=true&node=se40.19.86_1101&rgn=div8

PM Phase-in

From 86.1811-17 (b)(7)

(iii) Vehicles meeting the Tier 3 PM standards must meet those standards over the useful life as specified in §86.1805. Note that Interim Tier 3 vehicles may have different useful life values for PM emission standards than for other emission standards. This is correct. The new PM standards also require 150k UL for the PM aspect while the other emissions could be 120k during the phase-in depending on what bin was used. My recommendation is to stay with the program goal of getting to a 50 state vehicle that meets the 150k for California and remains at 150k for Federal. This allows one set of tests on one fuel with the same aged parts to fulfill the requirements of both programs.

Can an Interim Tier 3 vehicle be used to satisfy the PM phase-in percentage? Can you tell me which 86.1805 section I should look in? Is the default 86.1805-17? For Tier 3 PM useful life can be 10/120k for vehicles less than 6000#, but must use 85% of the applicable Tier 3 standard? (I understand that these 10/120k vehicles are not LEVIII compliant)

→ An Interim Tier 3 vehicle is one that meet some but not all of the Tier 3 requirements. If it meets the Tier 3 PM standard, it counts toward the PM phase-in percentage. If it doesn't meet the Tier 3 PM standard, then it doesn't count toward meeting the Tier 3 PM percentage. That should all be self-evident;

→ The provisions of 86.1805-17 correspond to the Tier 3 standards in 86.1811-17. If this is a MY 2016 vehicle meeting Tier 3 early, then the section numbering by MY doesn't work so neatly, but nothing else makes sense.

→ The 85% multiplier applies only to the NMOG+NOx fleet-average standard over the FTP; there is no other consequence of selecting the shorter UL. Note that this UL arrangement applies only for LDV and LDT1 (not all vehicles below 6000 lbs GVWR).

Cert carryover in 22MY

Must I redo cert testing in 22MY to demonstrate compliance to 86.101(d) or can I carryover packages certified prior (assuming they have used E10 by 20MY)?

That is my interpretation of

86.101 (b)

(3) For model years 2022 and later, manufacturers must use the test procedures specified in paragraph (d) of this section. Manufacturers may continue to use data based on the test procedures specified in paragraph (c) of this section for an engine family in 2022 and later model years, as long as the engine family is eligible for certification with carryover emission data.

→Carryover based on pre-1065 procedures is ok, as described in 86.101(b)(3).

Thanks very much! Your help is much appreciated.

Jenny

Jenny Sigelko

Volkswagen Group of America

EEO-Auburn Hills MI

Jenny.sigelko@vw.com

248 754 4214

To: Schreiter, Nicole[nicole.schreiter@bmvi.bund.de]
Cc: .WASH VERK-1 Zass, Stephan Klaus[verk-1@wash.auswaertiges-amt.de]
From: Phillips, Anna
Sent: Tue 10/27/2015 9:38:46 PM
Subject: RE: Minister Dobrindt's Letter on Volkswagen to European Ministers of Transport

Thank you, Nicole. I appreciate your help.

Best,

Anna

~~~~~~

Anna Phillips

Program Manager for Europe
U.S. Environmental Protection Agency (EPA)

Office of International & Tribal Affairs

Washington, D.C. 20460

Tel: (+1) 202.564.6419 Fax: (+1) 202.565.2427
E-mail: phillips.anna@epa.gov

http://www2.epa.gov/international-cooperation

~~~~~~

Please consider the environment before printing this message.

From: Schreiter, Nicole [mailto:nicole.schreiter@bmvi.bund.de]
Sent: Tuesday, October 27, 2015 11:55 AM
To: Phillips, Anna <Phillips.Anna@epa.gov>
Cc: .WASH VERK-1 Zass, Stephan Klaus <verk-1@wash.auswaertiges-amt.de>
Subject: Minister Dobrindt's Letter on Volkswagen to European Ministers of Transport

Importance: High

Dear Anna

Please find attached the letter Minister Dobrindt sent to his European colleagues on the Volkswagen matter.

If you need further information please don't hesitate to contact me.

Kind regards

Nicole Schreiter

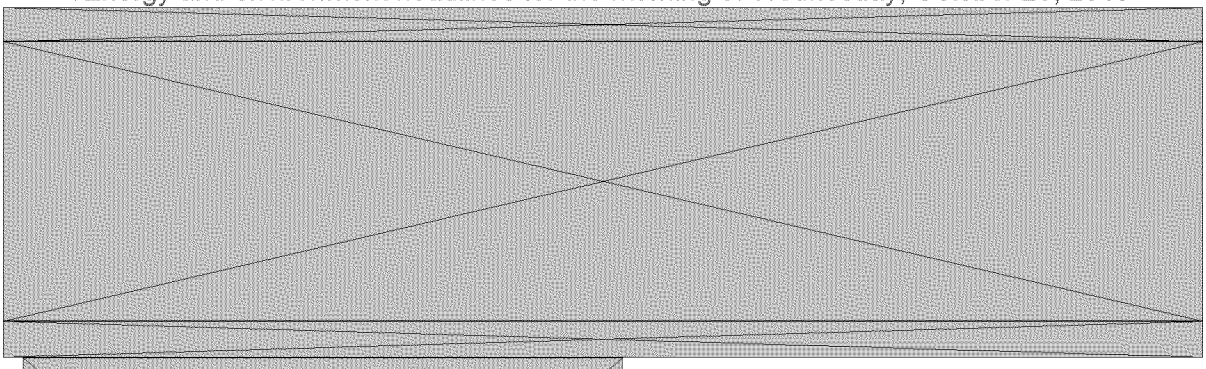
Personal assistant to the Minister

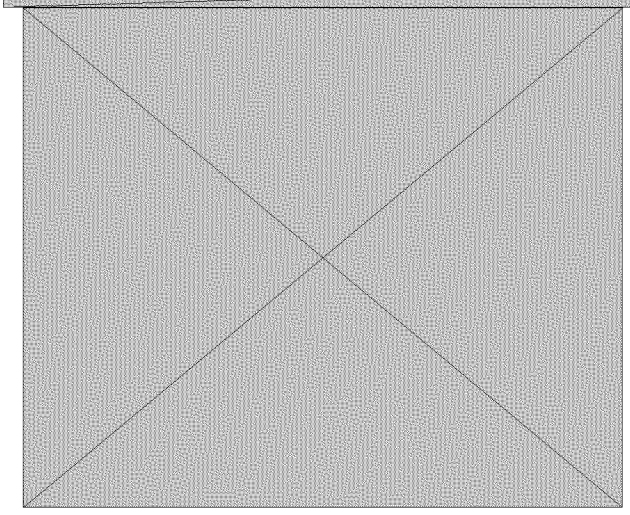
Gesendet von meinem BlackBerry 10-Smartphone.

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Wed 10/28/2015 11:13:28 AM
Subject: Carbon rule wars continue: Senators push to block, greens pledge support

Advertise | Contact

Energy and environment headlines for the morning of Wednesday, October 28, 2015





Carbon rule wars continue: Senators push to block, greens pledge support

By Kevin Rogers

The battle over the Environmental Protection Agency's final Clean Power Plan continued to rage Tuesday, as senators unveiled their resolutions to undo the regulations, and a coalition of environmental groups pledged their legal support to defend the power plant carbon rules.

Senate Majority Leader Mitch McConnell, R-Ky., and his allies unveiled a pair of Congressional Review Act resolutions aimed at blocking the rules for new and existing

power plants, each drawing support from 49 senators.

Sens. Joe Manchin, D-W.Va., and Heidi Heitkamp, D-N.D., who co-sponsored the resolutions against the new and existing rules, were the only Democrats who signed onto the resolutions.

Seven Republicans, including Sens. Kelly Ayotte, R-N.H., Susan Collins, R-Maine, Cory Gardner, R-Colo., Dean Heller, R-Nev., Richard Burr, R-N.C., Mark Kirk, R-Ill., and Rob Portman, R-Ohio, were not party to either resolution.

Ayotte announced her support for the Clean Power Plan on Sunday, becoming the first Republican senator to do so. Representatives for the others did not return requests for comment on the resolutions.

The rules, which seek by 2030 to cut power plant carbon emissions by 32 percent from 2005 levels, have drawn lawsuits from 26 states and dozens of industry groups.

Senators backing the resolutions took the Senate floor Tuesday afternoon to criticize the rules. Sen. Shelley Moore Capito, R-W.Va., the lead sponsor for the existing plants resolution, said the regulations were aimed squarely at coal country.

"This is not a natural disaster. This is not a physical crisis. This is not an uncontrollable event, but a carefully crafted, precise and very mediated assault on a certain part of the country," Capito said. "Policies that help some states and really hurt others."

McConnell painted the rules as an executive overreach from President Barack Obama to make up for a failed attempt at cap-and-trade legislation in 2010 and was driven out of global ambition to act on climate change.

"There's a war on coal in America, and the leader is the president of the United States," McConnell said. "Eastern Kentucky looks like the Dust Bowl in the '30s. No jobs. No opportunities. No future. Not as a result of anything we passed, as the people's elected representatives, but by this sort of arrogant, single-handed, messianic goal to deal with worldwide climate."

The resolutions would require 60 votes in the Senate to pass, and an additional 7 votes to override a likely veto from Obama. Still, McConnell and his allies said the votes could put the Senate on the record.

Earlier in the day, Senate Minority Leader Sen. Harry Reid, D-Nev., said that Republicans were participating in "legislative malpractice" by not working toward their own climate legislation.

"We have a climate change problem that's hurting everybody, with rare exception," Reid said. "It's not even something Republicans still allow us to discuss."

The Sierra Club knocked the resolutions as an empty gesture that couldn't overcome a veto.

"This polluter-backed assault on the Clean Power Plan is another futile political ploy by the coal industry and their allies in Congress to derail common sense standards to protect our most vulnerable communities against carbon pollution," legislative director Melinda Pierce said in a statement.

The Sierra Club also offered legal reinforcement for EPA as one of nine public health and environmental groups who pledged to stand behind the agency as legal challenges move forward. The groups, led by the Environmental Defense Fund, filed a motion to intervene on EPA's behalf in the U.S. Court of Appeals for the District of Columbia Circuit.

"The Organizations are committed to protecting their members and others from the impacts of dangerous air pollution from existing power plants, including climate change and other harms to public health and welfare," the groups wrote.

Quick Links

The House's big day: Budget deal vote, GOP nominating Ryan

House bill revives Ex-Im Bank over conservative opposition

Statoil posts Q3 loss, feels sting of low oil price

German transport minister meets US officials on VW probe

Defense continues to contend ex-coal CEO focused on safety

LA Aqueduct flows after dam built for drought is dismantled

Big effort to better understand bats takes wing in 31 states

Greek company pleads guilty to hiding ship's pollution

Green self-driving cars take center stage at Tokyo auto show

Carbon rule opponents pin hopes on a stay

W.Va. to submit compliance plan for EPA carbon rule, governor says

Pipeline capacity played role in decision to pull out of oil sands project: Shell

Pennsylvania DEP explains drilling rule changes to the public

Cost-cutting has helped Peabody but company may sell assets: CEO

Oil higher on drop in Cushing stocks

Low crude prices help push Anadarko to loss

Nabors hit with 3Q loss as oil activity slows

CB&I hands off nuclear business to Toshiba's Westinghouse

LG to supply new battery for old Tesla

Fracking opponents angered by maneuvering in UK parliament

Upcoming Events

The House's big day: Budget deal vote, GOP nominating Ryan

By Alan Fram

WASHINGTON (AP) — The House is poised to vote on a bipartisan pact charting a two-year budget truce and Republicans are set to nominate Rep. Paul Ryan as the chamber's new speaker, milestones GOP leaders hope will transform their party's recent chaos into calm in time for next year's presidential and congressional campaigns.

Democratic and Republican leaders in the House and Senate were urging lawmakers to back the agreement, which would resolve fights over defense and domestic spending and federal borrowing until early 2017. Expectations were for House passage Wednesday and final Senate approval next week, even as hard-right conservatives and farm-state lawmakers arrayed against the deal.

"That's good news for everybody. It's a step forward," President Barack Obama said of the deal Tuesday in Chicago. "And I hope both parties come together to pass this agreement without delay."

Among those declaring victory was departing Speaker John Boehner, R-Ohio, who was pivotal in crafting what amounts to a valedictory legislative prize for his supporters and a whack at his conservative House nemeses. The quarter-century House veteran serves his final day in Congress on Friday, driven into abrupt retirement by rebellious GOP hardliners who scorned his penchant for compromise with Obama and Democrats.

More

House bill revives Ex-Im Bank over conservative opposition

By Andrew Taylor

WASHINGTON (AP) — A strong coalition of establishment-backed Republicans and House Democrats voted overwhelmingly Tuesday to revive the Export-Import Bank, dealing a defeat to tea party conservatives and Speaker-to-be Paul Ryan.

The House approved the measure 313-118 as 127 Republicans joined with virtually every Democrat to support the bank, whose charter expired June 30. Since then, the bank has been unable to approve new applications to fulfill its mission of helping overseas buyers get financing to purchase U.S. exports like airplanes and heavy equipment. Supporters say the bank helps sustain tens of thousands of manufacturing jobs.

The legislation's fate is uncertain in the Senate.

Proponents of the bank forced a House vote through a rarely used procedure known as a discharge petition. They pushed a vote over the opposition of top House GOP leaders such as Majority Leader Kevin McCarthy of California, Whip Steve Scalise of Louisiana and Financial Services Committee Chairman Jeb Hensarling of Texas.

More

Statoil posts Q3 loss, feels sting of low oil price

By The Associated Press

STOCKHOLM (AP) — Norwegian oil and gas company Statoil posted a loss in the third quarter despite attempts to slash costs amid declining oil prices.

The state-controlled company posted a net loss Wednesday of 2.8 billion kroner ($330 million) in the July-September period, compared with a loss of 4.7 billion kronor in the same quarter last year.

Statoil cited "impairment charges and provisions," but it was also hit by declining revenue, which fell 24 percent to 112 billion kroner.

Low oil prices have put pressure on Statoil's high-cost offshore operations in the North Sea and Barents Sea.

More

German transport minister meets US officials on VW probe

By Michael Biesecker

WASHINGTON (AP) — Germany's top transportation official is pledging to cooperate closely with his American counterparts as the countries investigate Volkswagen's emissions-rigging scandal.

Transport Minister Alexander Dobrindt met in Washington this week with U.S. Transportation Secretary Anthony Foxx and Environmental Protection Agency Administrator Gina McCarthy. Dobrindt said his government will share information gleaned during its review of how the German automaker installed software designed to hide dirty emissions from its "Clean Diesel" cars sold since 2009 during U.S. compliance tests.

Both nations are conducting criminal investigations into VW's trickery, which the company first admitted to U.S. regulators last month. German police and prosecutors raided the company's global headquarters earlier this month seeking material to help clarify who knew about the cheating.

Dobrindt on Tuesday said he had scheduled further discussions with the U.S. officials and that the close partnership between the countries must be preserved.

More

Defense continues to contend ex-coal CEO focused on safety

By The Associated Press

CHARLESTON, W.Va. (AP) — With a key government witness on the stand, a former coal boss' defense team continued to contend his company prioritized safety and disciplined people when they made mistakes.

In Charleston federal court Tuesday, ex-Massey Energy CEO Don Blankenship's attorneys continued questioning former Massey subsidiary president Christopher Blanchard. Blanchard has testified since Thursday under an immunity agreement with the government.

Blankenship is charged with conspiring to break mine safety laws and lying to financial regulators about safety at Upper Big Branch, which exploded in 2010, killing 29 men. Blanchard's subsidiary oversaw the mine.

Blanchard continued to tell defense attorney William Taylor that he did not conspire with

Blankenship to break safety laws

Taylor discussed dozens of citations, memos and other documents to say Massey was concerned about safety under Blankenship's watch.

A message from America's Natural Gas Alliance

Clean is Powerful. Natural gas helps Georgia Power's plant generate electricity with 50% fewer emissions. Think about it.

Learn more at www.thinkaboutit.org.

LA Aqueduct flows after dam built for drought is dismantled

By Brian Melley

OLANCHA, Calif. (AP) — Water in the aqueduct that helped fuel Los Angeles' growth was flowing toward the city Wednesday for the first time in six months after workers removed an earthen and concrete dam that had diverted runoff to the parched Owens Valley.

With little mountain runoff due to a historic drought, water managers made the unprecedented decision to try to meet legal obligations to keep the Owens River flowing, control dust from a dry lake bed and irrigate pastures where cattle graze instead of sending water to the city.

For those in the Owens Valley, who have a history of conflict with the metropolis hundreds of miles to the south, the plugged-up aqueduct brought relief to some and misery to others.

More

Big effort to better understand bats takes wing in 31 states

By Keith Ridler

BOISE, Idaho (AP) — An effort spanning 31 states and 10 Canadian provinces has been working to better understand the ecological role that bats play, and the threats they face from climate change, habitat loss and wind energy development.

The North American Bat Monitoring Program involves acoustic surveys to detect the high-pitched frequencies emitted by the flying mammals as they capture bugs and navigate in the

dark.

"It's long overdue," said Patty Stevens, the U.S. Geological Survey's branch chief for Trust Species and Habitats at the Fort Collins Science Center in Colorado where the program's data will be stored and made available. "It's going to provide a lot of information to natural resource managers."

Researchers say the monitoring program has been spurred by a disease called white-nose syndrome that has killed millions of bats and is spreading.

More

Greek company pleads guilty to hiding ship's pollution

By The Associated Press

CORPUS CHRISTI, Texas (AP) — A ship management company based in Greece has agreed to pay $1 million in penalties after concealing that a ship it owned had dumped pollution into waters off the Texas Gulf Coast.

Chandris (Hellas) Inc. pleaded guilty on Tuesday in Corpus Christi federal court to violations of the Act to Prevent Pollution from Ships.

According to court records, the chief engineer of the M/V Sestrea — an 81,502 ton cargo ship Chandris operated — failed to document that the ship had dumped directly into the sea oily waste that should have been disposed through a separator aboard the vessel or burned in the ship's incinerator.

The ship had made stops in multiple ports in Texas, including Corpus Christi in January.

Chandris was also sentenced to three years of probation.

Green self-driving cars take center stage at Tokyo auto show

By Yuri Kageyama

TOKYO (AP) — Visions of cars that drive themselves without emitting a bit of pollution while entertaining passengers with online movies and social media are what's taking center stage at the Tokyo Motor Show.

Japan, home to the world's top-selling automaker, has a younger generation disinterested in owning or driving cars. The show is about wooing them back. It's also about pushing an

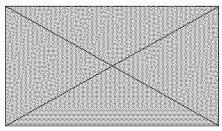
ambitious government-backed plan that paints Japan as a leader in automated driving technology.

Reporters got a preview look at the exhibition Wednesday, ahead of its opening to the public Oct. 30.

Nissan Motor Co. showed a concept vehicle loaded with laser scanners, a 360 degree camera setup, a radar and computer chips so the car can "think" to deliver autonomous driving. The Japanese automaker called it IDS, which stands for "intelligent driving system."

More

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

Carbon rule opponents pin hopes on a stay

States and industry groups fighting the Environmental Protection Agency's Clean Power Plan in court are hoping to get a stay issued to prevent the moves to limit power plant carbon emissions from taking effect during the process of legal challenges, The Hill reports.

More

W.Va. to submit compliance plan for EPA carbon rule, governor says

Bucking Republican congressional leaders and his own state's elected representatives who oppose the Clean Power Plan, West Virginia Gov. Earl Ray Tomblin says he'll submit a compliance plan to the Environmental Protection Agency, the Charleston Gazette-Mail reports.

More

Pipeline capacity played role in decision to pull out of oil sands project: Shell

Royal Dutch Shell pulled out of a major oil sands project in Alberta and took a $2 billion writedown because of low oil prices and questions over pipeline capacity in the province, The Wall Street Journal reports.

Trouble seeing this email? Click here.

More

Pennsylvania DEP explains drilling rule changes to the public

The Pennsylvania Department of Environmental Protection used a hearing Tuesday to explain proposed changes in drilling rules that include more stringent permitting for wells near public places, moving the regulations another step closer to being finalized before a March 2016 deadline, NPR's StateImpact Pennsylvania reports.

More

Cost-cutting has helped Peabody but company may sell assets: CEO

Aggressive cost cutting and potential asset sales are helping Peabody Energy ride out tough times in the coal market, CEO Glenn Kellow told analysts in a call Tuesday, adding that he expects thermal coal demand to drop by 100 million short tons this year, Platts reports.

More

Oil higher on drop in Cushing stocks

American Petroleum Institute data showing a drop in stockpiles at the Cushing hub helped support oil early Wednesday, although analysts told Reuters they expected the rise would only be temporary. U.S. benchmark crude for December delivery gained 40 cents to $43.60 a barrel in electronic trading on the Nymex, while in London Brent rose 38 cents to $47.19.

More

Low crude prices help push Anadarko to loss

Sizeable impairment charges and shrinking revenue hurt Anadarko Petroleum Corp. in the third quarter, as the company posted a $2.24 billion loss, compared to a profit of $1.09 billion a year earlier, MarketWatch reports.

More

Nabors hit with 3Q loss as oil activity slows

Slowing oil drilling and dropping crude prices hit rig services firm Nabors Industries, which says it posted a $296 million loss in the third quarter, FuelFix reports.

More

CB&I hands off nuclear business to Toshiba's Westinghouse

The completion of AP1000 reactor construction work will be down to Westinghouse Electric Co. alone, as its partner in projects in Georgia and South Carolina, CB&I, is selling its

nuclear interests to the Toshiba subsidiary for $229 million, FuelFix reports.

More

LG to supply new battery for old Tesla

Korean firm LG Chem Ltd. is making a battery that Tesla Motors is using in $29,000 upgrades to its discontinued Roadster cars, The Wall Street Journal reports.

More

Fracking opponents angered by maneuvering in UK parliament

Members of parliament can vote but won't get a chance to debate on a move to allow fracking underneath national parks in Britain, a maneuver that's drawing criticism from opposition Labour politicians as well as drilling opponents, The Guardian reports.

More

Upcoming Events

- Oct. 28, Washington: The House Natural Resources Subcommittee on Water, Power and Oceans to hold a hearing on three bills focused on land and water issues, including one from Rep. Steve Womack, R-Ark., to block eminent domain for some projects. 2:30 pm , 1324 Longworth.
- Oct. 28, Washington: The House Natural Resources Subcommittee on Indian, Insular and Alaska Native Affairs to hold a hearing on the Tribal Recognition Act of 2015. Interior Assistant Secretary for Indian Affairs Kevin Washburn to testify. 2:00 pm , 1334 Longworth.
- Oct. 28, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a markup session for the Grassroots Rural and Small Community Water Systems Assistance Act, designed to assist rural water programs comply with federal regulations. 12:00 pm , 2322 Rayburn.
- Oct. 28, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on low-level radioactive waste disposal. Energy Department Principal Deputy Assistant Secretary for Environmental Management Mark Whitney and Nuclear Regulatory Commission Deputy Executive Director Michael Weber to testify. 10:15 am , 2322 Rayburn.
- Oct. 28, Washington: The House Natural Resources Subcommittee on Federal Lands to hold a legislative hearing on the Federal Lands Recreation Enhancement Modernization Act. Leslie Weldon, deputy chief for the National Forest System, and Olivia Ferriter, a deputy assistant secretary for the National Parks Service, to testify. 10:00 am , 1324 Longworth.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

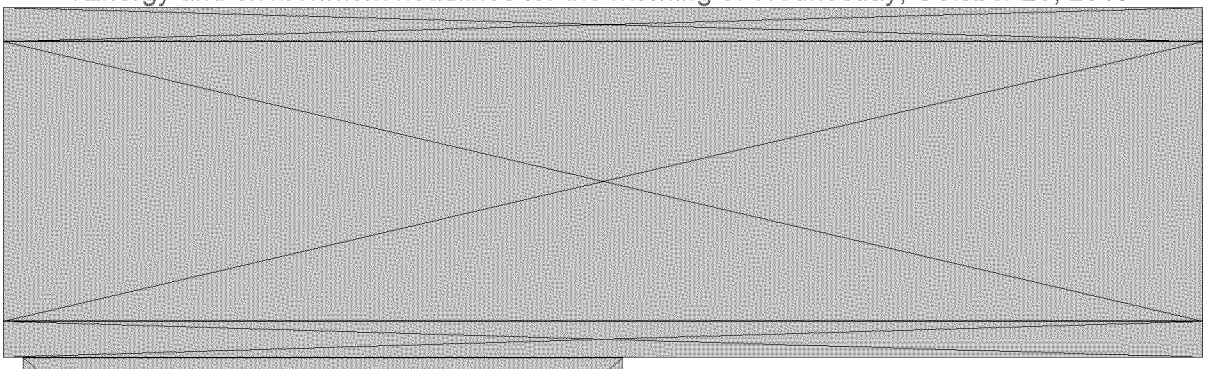
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

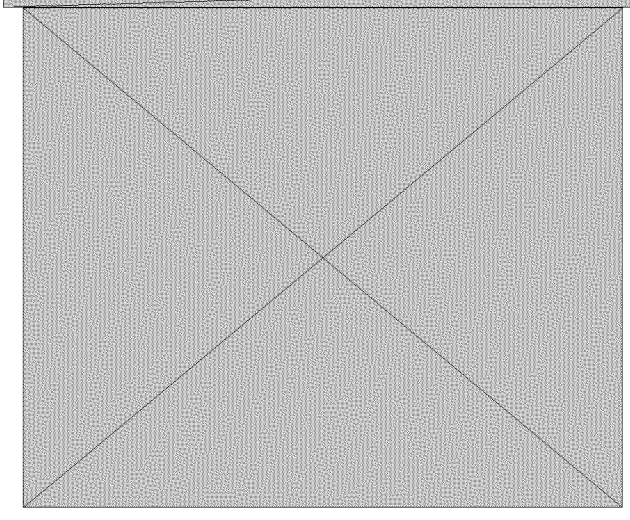
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Wed 10/28/2015 11:13:31 AM
Subject: Carbon rule wars continue: Senators push to block, greens pledge support

Advertise | Contact

Energy and environment headlines for the morning of Wednesday, October 28, 2015





Carbon rule wars continue: Senators push to block, greens pledge support

By Kevin Rogers

The battle over the Environmental Protection Agency's final Clean Power Plan continued to rage Tuesday, as senators unveiled their resolutions to undo the regulations, and a coalition of environmental groups pledged their legal support to defend the power plant carbon rules.

Senate Majority Leader Mitch McConnell, R-Ky., and his allies unveiled a pair of Congressional Review Act resolutions aimed at blocking the rules for new and existing

power plants, each drawing support from 49 senators.

Sens. Joe Manchin, D-W.Va., and Heidi Heitkamp, D-N.D., who co-sponsored the resolutions against the new and existing rules, were the only Democrats who signed onto the resolutions.

Seven Republicans, including Sens. Kelly Ayotte, R-N.H., Susan Collins, R-Maine, Cory Gardner, R-Colo., Dean Heller, R-Nev., Richard Burr, R-N.C., Mark Kirk, R-Ill., and Rob Portman, R-Ohio, were not party to either resolution.

Ayotte announced her support for the Clean Power Plan on Sunday, becoming the first Republican senator to do so. Representatives for the others did not return requests for comment on the resolutions.

The rules, which seek by 2030 to cut power plant carbon emissions by 32 percent from 2005 levels, have drawn lawsuits from 26 states and dozens of industry groups.

Senators backing the resolutions took the Senate floor Tuesday afternoon to criticize the rules. Sen. Shelley Moore Capito, R-W.Va., the lead sponsor for the existing plants resolution, said the regulations were aimed squarely at coal country.

"This is not a natural disaster. This is not a physical crisis. This is not an uncontrollable event, but a carefully crafted, precise and very mediated assault on a certain part of the country," Capito said. "Policies that help some states and really hurt others."

McConnell painted the rules as an executive overreach from President Barack Obama to make up for a failed attempt at cap-and-trade legislation in 2010 and was driven out of global ambition to act on climate change.

"There's a war on coal in America, and the leader is the president of the United States," McConnell said. "Eastern Kentucky looks like the Dust Bowl in the '30s. No jobs. No opportunities. No future. Not as a result of anything we passed, as the people's elected representatives, but by this sort of arrogant, single-handed, messianic goal to deal with worldwide climate."

The resolutions would require 60 votes in the Senate to pass, and an additional 7 votes to override a likely veto from Obama. Still, McConnell and his allies said the votes could put the Senate on the record.

Earlier in the day, Senate Minority Leader Sen. Harry Reid, D-Nev., said that Republicans were participating in "legislative malpractice" by not working toward their own climate legislation.

"We have a climate change problem that's hurting everybody, with rare exception," Reid said. "It's not even something Republicans still allow us to discuss."

The Sierra Club knocked the resolutions as an empty gesture that couldn't overcome a veto.

"This polluter-backed assault on the Clean Power Plan is another futile political ploy by the coal industry and their allies in Congress to derail common sense standards to protect our most vulnerable communities against carbon pollution," legislative director Melinda Pierce said in a statement.

The Sierra Club also offered legal reinforcement for EPA as one of nine public health and environmental groups who pledged to stand behind the agency as legal challenges move forward. The groups, led by the Environmental Defense Fund, filed a motion to intervene on EPA's behalf in the U.S. Court of Appeals for the District of Columbia Circuit.

"The Organizations are committed to protecting their members and others from the impacts of dangerous air pollution from existing power plants, including climate change and other harms to public health and welfare," the groups wrote.

Quick Links

The House's big day: Budget deal vote, GOP nominating Ryan

House bill revives Ex-Im Bank over conservative opposition

Statoil posts Q3 loss, feels sting of low oil price

German transport minister meets US officials on VW probe

Defense continues to contend ex-coal CEO focused on safety

LA Aqueduct flows after dam built for drought is dismantled

Big effort to better understand bats takes wing in 31 states

Greek company pleads guilty to hiding ship's pollution

Green self-driving cars take center stage at Tokyo auto show

Carbon rule opponents pin hopes on a stay

W.Va. to submit compliance plan for EPA carbon rule, governor says

Pipeline capacity played role in decision to pull out of oil sands project: Shell

Pennsylvania DEP explains drilling rule changes to the public

Cost-cutting has helped Peabody but company may sell assets: CEO

Oil higher on drop in Cushing stocks

Low crude prices help push Anadarko to loss

Nabors hit with 3Q loss as oil activity slows

CB&I hands off nuclear business to Toshiba's Westinghouse

LG to supply new battery for old Tesla

Fracking opponents angered by maneuvering in UK parliament

Upcoming Events

The House's big day: Budget deal vote, GOP nominating Ryan

By Alan Fram

WASHINGTON (AP) — The House is poised to vote on a bipartisan pact charting a two-year budget truce and Republicans are set to nominate Rep. Paul Ryan as the chamber's new speaker, milestones GOP leaders hope will transform their party's recent chaos into calm in time for next year's presidential and congressional campaigns.

Democratic and Republican leaders in the House and Senate were urging lawmakers to back the agreement, which would resolve fights over defense and domestic spending and federal borrowing until early 2017. Expectations were for House passage Wednesday and final Senate approval next week, even as hard-right conservatives and farm-state lawmakers arrayed against the deal.

"That's good news for everybody. It's a step forward," President Barack Obama said of the deal Tuesday in Chicago. "And I hope both parties come together to pass this agreement without delay."

Among those declaring victory was departing Speaker John Boehner, R-Ohio, who was pivotal in crafting what amounts to a valedictory legislative prize for his supporters and a whack at his conservative House nemeses. The quarter-century House veteran serves his final day in Congress on Friday, driven into abrupt retirement by rebellious GOP hardliners who scorned his penchant for compromise with Obama and Democrats.

More

House bill revives Ex-Im Bank over conservative opposition

By Andrew Taylor

WASHINGTON (AP) — A strong coalition of establishment-backed Republicans and House Democrats voted overwhelmingly Tuesday to revive the Export-Import Bank, dealing a defeat to tea party conservatives and Speaker-to-be Paul Ryan.

The House approved the measure 313-118 as 127 Republicans joined with virtually every Democrat to support the bank, whose charter expired June 30. Since then, the bank has been unable to approve new applications to fulfill its mission of helping overseas buyers get financing to purchase U.S. exports like airplanes and heavy equipment. Supporters say the bank helps sustain tens of thousands of manufacturing jobs.

The legislation's fate is uncertain in the Senate.

Proponents of the bank forced a House vote through a rarely used procedure known as a discharge petition. They pushed a vote over the opposition of top House GOP leaders such as Majority Leader Kevin McCarthy of California, Whip Steve Scalise of Louisiana and Financial Services Committee Chairman Jeb Hensarling of Texas.

More

Statoil posts Q3 loss, feels sting of low oil price

By The Associated Press

STOCKHOLM (AP) — Norwegian oil and gas company Statoil posted a loss in the third quarter despite attempts to slash costs amid declining oil prices.

The state-controlled company posted a net loss Wednesday of 2.8 billion kroner ($330 million) in the July-September period, compared with a loss of 4.7 billion kronor in the same quarter last year.

Statoil cited "impairment charges and provisions," but it was also hit by declining revenue, which fell 24 percent to 112 billion kroner.

Low oil prices have put pressure on Statoil's high-cost offshore operations in the North Sea and Barents Sea.

More

German transport minister meets US officials on VW probe

By Michael Biesecker

WASHINGTON (AP) — Germany's top transportation official is pledging to cooperate closely with his American counterparts as the countries investigate Volkswagen's emissions-rigging scandal.

Transport Minister Alexander Dobrindt met in Washington this week with U.S. Transportation Secretary Anthony Foxx and Environmental Protection Agency Administrator Gina McCarthy. Dobrindt said his government will share information gleaned during its review of how the German automaker installed software designed to hide dirty emissions from its "Clean Diesel" cars sold since 2009 during U.S. compliance tests.

Both nations are conducting criminal investigations into VW's trickery, which the company first admitted to U.S. regulators last month. German police and prosecutors raided the company's global headquarters earlier this month seeking material to help clarify who knew about the cheating.

Dobrindt on Tuesday said he had scheduled further discussions with the U.S. officials and that the close partnership between the countries must be preserved.

More

Defense continues to contend ex-coal CEO focused on safety

By The Associated Press

CHARLESTON, W.Va. (AP) — With a key government witness on the stand, a former coal boss' defense team continued to contend his company prioritized safety and disciplined people when they made mistakes.

In Charleston federal court Tuesday, ex-Massey Energy CEO Don Blankenship's attorneys continued questioning former Massey subsidiary president Christopher Blanchard. Blanchard has testified since Thursday under an immunity agreement with the government.

Blankenship is charged with conspiring to break mine safety laws and lying to financial regulators about safety at Upper Big Branch, which exploded in 2010, killing 29 men. Blanchard's subsidiary oversaw the mine.

Blanchard continued to tell defense attorney William Taylor that he did not conspire with

Blankenship to break safety laws

Taylor discussed dozens of citations, memos and other documents to say Massey was concerned about safety under Blankenship's watch.

A message from America's Natural Gas Alliance

Clean is Powerful. Natural gas helps Georgia Power's plant generate electricity with 50% fewer emissions. Think about it.

Learn more at www.thinkaboutit.org.

LA Aqueduct flows after dam built for drought is dismantled

By Brian Melley

OLANCHA, Calif. (AP) — Water in the aqueduct that helped fuel Los Angeles' growth was flowing toward the city Wednesday for the first time in six months after workers removed an earthen and concrete dam that had diverted runoff to the parched Owens Valley.

With little mountain runoff due to a historic drought, water managers made the unprecedented decision to try to meet legal obligations to keep the Owens River flowing, control dust from a dry lake bed and irrigate pastures where cattle graze instead of sending water to the city.

For those in the Owens Valley, who have a history of conflict with the metropolis hundreds of miles to the south, the plugged-up aqueduct brought relief to some and misery to others.

More

Big effort to better understand bats takes wing in 31 states

By Keith Ridler

BOISE, Idaho (AP) — An effort spanning 31 states and 10 Canadian provinces has been working to better understand the ecological role that bats play, and the threats they face from climate change, habitat loss and wind energy development.

The North American Bat Monitoring Program involves acoustic surveys to detect the high-pitched frequencies emitted by the flying mammals as they capture bugs and navigate in the

dark.

"It's long overdue," said Patty Stevens, the U.S. Geological Survey's branch chief for Trust Species and Habitats at the Fort Collins Science Center in Colorado where the program's data will be stored and made available. "It's going to provide a lot of information to natural resource managers."

Researchers say the monitoring program has been spurred by a disease called white-nose syndrome that has killed millions of bats and is spreading.

More

Greek company pleads guilty to hiding ship's pollution

By The Associated Press

CORPUS CHRISTI, Texas (AP) — A ship management company based in Greece has agreed to pay $1 million in penalties after concealing that a ship it owned had dumped pollution into waters off the Texas Gulf Coast.

Chandris (Hellas) Inc. pleaded guilty on Tuesday in Corpus Christi federal court to violations of the Act to Prevent Pollution from Ships.

According to court records, the chief engineer of the M/V Sestrea — an 81,502-ton cargo ship Chandris operated — failed to document that the ship had dumped directly into the sea oily waste that should have been disposed through a separator aboard the vessel or burned in the ship's incinerator.

The ship had made stops in multiple ports in Texas, including Corpus Christi in January.

Chandris was also sentenced to three years of probation.

Green self-driving cars take center stage at Tokyo auto show

By Yuri Kageyama

TOKYO (AP) — Visions of cars that drive themselves without emitting a bit of pollution while entertaining passengers with online movies and social media are what's taking center stage at the Tokyo Motor Show.

Japan, home to the world's top-selling automaker, has a younger generation disinterested in owning or driving cars. The show is about wooing them back. It's also about pushing an

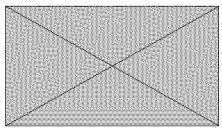
ambitious government-backed plan that paints Japan as a leader in automated driving technology.

Reporters got a preview look at the exhibition Wednesday, ahead of its opening to the public Oct. 30.

Nissan Motor Co. showed a concept vehicle loaded with laser scanners, a 360 degree camera setup, a radar and computer chips so the car can "think" to deliver autonomous driving. The Japanese automaker called it IDS, which stands for "intelligent driving system."

More

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

Carbon rule opponents pin hopes on a stay

States and industry groups fighting the Environmental Protection Agency's Clean Power Plan in court are hoping to get a stay issued to prevent the moves to limit power plant carbon emissions from taking effect during the process of legal challenges, The Hill reports.

More

W.Va. to submit compliance plan for EPA carbon rule, governor says

Bucking Republican congressional leaders and his own state's elected representatives who oppose the Clean Power Plan, West Virginia Gov. Earl Ray Tomblin says he'll submit a compliance plan to the Environmental Protection Agency, the Charleston Gazette-Mail reports.

More

Pipeline capacity played role in decision to pull out of oil sands project: Shell

Royal Dutch Shell pulled out of a major oil sands project in Alberta and took a $2 billion writedown because of low oil prices and questions over pipeline capacity in the province, The Wall Street Journal reports.

Trouble seeing this email? Click here.

More

Pennsylvania DEP explains drilling rule changes to the public

The Pennsylvania Department of Environmental Protection used a hearing Tuesday to explain proposed changes in drilling rules that include more stringent permitting for wells near public places, moving the regulations another step closer to being finalized before a March 2016 deadline, NPR's StateImpact Pennsylvania reports.

More

Cost-cutting has helped Peabody but company may sell assets: CEO

Aggressive cost cutting and potential asset sales are helping Peabody Energy ride out tough times in the coal market, CEO Glenn Kellow told analysts in a call Tuesday, adding that he expects thermal coal demand to drop by 100 million short tons this year, Platts reports.

More

Oil higher on drop in Cushing stocks

American Petroleum Institute data showing a drop in stockpiles at the Cushing hub helped support oil early Wednesday, although analysts told Reuters they expected the rise would only be temporary. U.S. benchmark crude for December delivery gained 40 cents to $43.60 a barrel in electronic trading on the Nymex, while in London Brent rose 38 cents to $47.19.

More

Low crude prices help push Anadarko to loss

Sizeable impairment charges and shrinking revenue hurt Anadarko Petroleum Corp. in the third quarter, as the company posted a $2.24 billion loss, compared to a profit of $1.09 billion a year earlier, MarketWatch reports.

More

Nabors hit with 3Q loss as oil activity slows

Slowing oil drilling and dropping crude prices hit rig services firm Nabors Industries, which says it posted a $296 million loss in the third quarter, FuelFix reports.

More

CB&I hands off nuclear business to Toshiba's Westinghouse

The completion of AP1000 reactor construction work will be down to Westinghouse Electric Co. alone, as its partner in projects in Georgia and South Carolina, CB&I, is selling its

nuclear interests to the Toshiba subsidiary for $229 million, FuelFix reports.

More

LG to supply new battery for old Tesla

Korean firm LG Chem Ltd. is making a battery that Tesla Motors is using in $29,000 upgrades to its discontinued Roadster cars, The Wall Street Journal reports.

More

Fracking opponents angered by maneuvering in UK parliament

Members of parliament can vote but won't get a chance to debate on a move to allow fracking underneath national parks in Britain, a maneuver that's drawing criticism from opposition Labour politicians as well as drilling opponents, The Guardian reports.

More

Upcoming Events

- Oct. 28, Washington: The House Natural Resources Subcommittee on Water, Power and Oceans to hold a hearing on three bills focused on land and water issues, including one from Rep. Steve Womack, R-Ark., to block eminent domain for some projects. 2:30 pm , 1324 Longworth.
- Oct. 28, Washington: The House Natural Resources Subcommittee on Indian, Insular and Alaska Native Affairs to hold a hearing on the Tribal Recognition Act of 2015. Interior Assistant Secretary for Indian Affairs Kevin Washburn to testify. 2:00 pm , 1334 Longworth.
- Oct. 28, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a markup session for the Grassroots Rural and Small Community Water Systems Assistance Act, designed to assist rural water programs comply with federal regulations. 12:00 pm , 2322 Rayburn.
- Oct. 28, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on low-level radioactive waste disposal. Energy Department Principal Deputy Assistant Secretary for Environmental Management Mark Whitney and Nuclear Regulatory Commission Deputy Executive Director Michael Weber to testify. 10:15 am , 2322 Rayburn.
- Oct. 28, Washington: The House Natural Resources Subcommittee on Federal Lands to hold a legislative hearing on the Federal Lands Recreation Enhancement Modernization Act. Leslie Weldon, deputy chief for the National Forest System, and Olivia Ferriter, a deputy assistant secretary for the National Parks Service, to testify. 10:00 am , 1324 Longworth.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

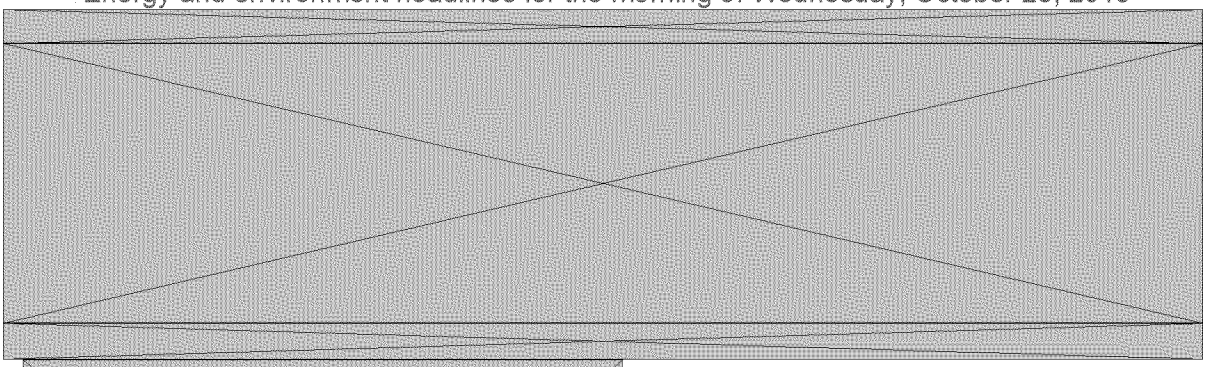
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

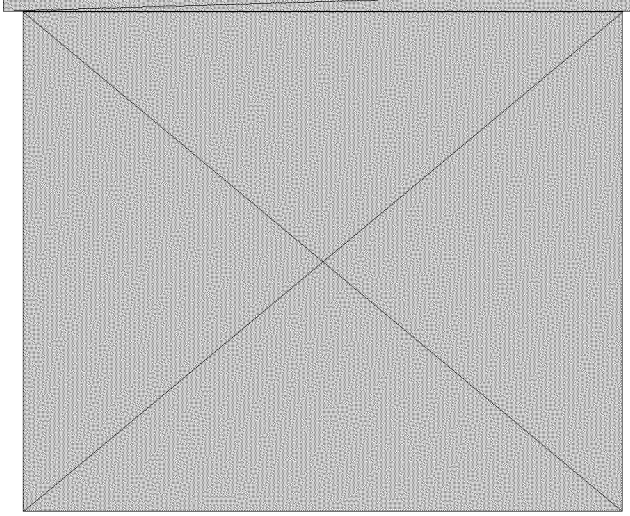
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Wed 10/28/2015 11:13:31 AM
Subject: Carbon rule wars continue: Senators push to block, greens pledge support

Advertise | Contact

Energy and environment headlines for the morning of Wednesday, October 28, 2015





Carbon rule wars continue: Senators push to block, greens pledge support

By Kevin Rogers

The battle over the Environmental Protection Agency's final Clean Power Plan continued to rage Tuesday, as senators unveiled their resolutions to undo the regulations, and a coalition of environmental groups pledged their legal support to defend the power plant carbon rules.

Senate Majority Leader Mitch McConnell, R-Ky., and his allies unveiled a pair of Congressional Review Act resolutions aimed at blocking the rules for new and existing

power plants, each drawing support from 49 senators.

Sens. Joe Manchin, D-W.Va., and Heidi Heitkamp, D-N.D., who co-sponsored the resolutions against the new and existing rules, were the only Democrats who signed onto the resolutions.

Seven Republicans, including Sens. Kelly Ayotte, R-N.H., Susan Collins, R-Maine, Cory Gardner, R-Colo., Dean Heller, R-Nev., Richard Burr, R-N.C., Mark Kirk, R-Ill., and Rob Portman, R-Ohio, were not party to either resolution.

Ayotte announced her support for the Clean Power Plan on Sunday, becoming the first Republican senator to do so. Representatives for the others did not return requests for comment on the resolutions.

The rules, which seek by 2030 to cut power plant carbon emissions by 32 percent from 2005 levels, have drawn lawsuits from 26 states and dozens of industry groups.

Senators backing the resolutions took the Senate floor Tuesday afternoon to criticize the rules. Sen. Shelley Moore Capito, R-W.Va., the lead sponsor for the existing plants resolution, said the regulations were aimed squarely at coal country.

"This is not a natural disaster. This is not a physical crisis. This is not an uncontrollable event, but a carefully crafted, precise and very mediated assault on a certain part of the country," Capito said. "Policies that help some states and really hurt others."

McConnell painted the rules as an executive overreach from President Barack Obama to make up for a failed attempt at cap-and-trade legislation in 2010 and was driven out of global ambition to act on climate change.

"There's a war on coal in America, and the leader is the president of the United States," McConnell said. "Eastern Kentucky looks like the Dust Bowl in the '30s. No jobs. No opportunities. No future. Not as a result of anything we passed, as the people's elected representatives, but by this sort of arrogant, single-handed, messianic goal to deal with worldwide climate."

The resolutions would require 60 votes in the Senate to pass, and an additional 7 votes to override a likely veto from Obama. Still, McConnell and his allies said the votes could put the Senate on the record.

Earlier in the day, Senate Minority Leader Sen. Harry Reid, D-Nev., said that Republicans were participating in "legislative malpractice" by not working toward their own climate legislation.

"We have a climate change problem that's hurting everybody, with rare exception," Reid said. "It's not even something Republicans still allow us to discuss."

The Sierra Club knocked the resolutions as an empty gesture that couldn't overcome a veto.

"This polluter-backed assault on the Clean Power Plan is another futile political ploy by the coal industry and their allies in Congress to derail common sense standards to protect our most vulnerable communities against carbon pollution," legislative director Melinda Pierce said in a statement.

The Sierra Club also offered legal reinforcement for EPA as one of nine public health and environmental groups who pledged to stand behind the agency as legal challenges move forward. The groups, led by the Environmental Defense Fund, filed a motion to intervene on EPA's behalf in the U.S. Court of Appeals for the District of Columbia Circuit.

"The Organizations are committed to protecting their members and others from the impacts of dangerous air pollution from existing power plants, including climate change and other harms to public health and welfare," the groups wrote.

Quick Links

The House's big day: Budget deal vote, GOP nominating Ryan

House bill revives Ex-Im Bank over conservative opposition

Statoil posts Q3 loss, feels sting of low oil price

German transport minister meets US officials on VW probe

Defense continues to contend ex-coal CEO focused on safety

LA Aqueduct flows after dam built for drought is dismantled

Big effort to better understand bats takes wing in 31 states

Greek company pleads guilty to hiding ship's pollution

Green self-driving cars take center stage at Tokyo auto show

Carbon rule opponents pin hopes on a stay

W.Va. to submit compliance plan for EPA carbon rule, governor says

Pipeline capacity played role in decision to pull out of oil sands project: Shell

Pennsylvania DEP explains drilling rule changes to the public

Cost-cutting has helped Peabody but company may sell assets: CEO

Oil higher on drop in Cushing stocks

Low crude prices help push Anadarko to loss

Nabors hit with 3Q loss as oil activity slows

CB&I hands off nuclear business to Toshiba's Westinghouse

LG to supply new battery for old Tesla

Fracking opponents angered by maneuvering in UK parliament

Upcoming Events

The House's big day: Budget deal vote, GOP nominating Ryan

By Alan Fram

WASHINGTON (AP) — The House is poised to vote on a bipartisan pact charting a two-year budget truce and Republicans are set to nominate Rep. Paul Ryan as the chamber's new speaker, milestones GOP leaders hope will transform their party's recent chaos into calm in time for next year's presidential and congressional campaigns.

Democratic and Republican leaders in the House and Senate were urging lawmakers to back the agreement, which would resolve fights over defense and domestic spending and federal borrowing until early 2017. Expectations were for House passage Wednesday and final Senate approval next week, even as hard-right conservatives and farm-state lawmakers arrayed against the deal.

"That's good news for everybody. It's a step forward," President Barack Obama said of the deal Tuesday in Chicago. "And I hope both parties come together to pass this agreement without delay."

Among those declaring victory was departing Speaker John Boehner, R-Ohio, who was pivotal in crafting what amounts to a valedictory legislative prize for his supporters and a whack at his conservative House nemeses. The quarter-century House veteran serves his final day in Congress on Friday, driven into abrupt retirement by rebellious GOP hardliners who scorned his penchant for compromise with Obama and Democrats.

More

House bill revives Ex-Im Bank over conservative opposition

By Andrew Taylor

WASHINGTON (AP) — A strong coalition of establishment-backed Republicans and House Democrats voted overwhelmingly Tuesday to revive the Export-Import Bank, dealing a defeat to tea party conservatives and Speaker-to-be Paul Ryan.

The House approved the measure 313-118 as 127 Republicans joined with virtually every Democrat to support the bank, whose charter expired June 30. Since then, the bank has been unable to approve new applications to fulfill its mission of helping overseas buyers get financing to purchase U.S. exports like airplanes and heavy equipment. Supporters say the bank helps sustain tens of thousands of manufacturing jobs.

The legislation's fate is uncertain in the Senate.

Proponents of the bank forced a House vote through a rarely used procedure known as a discharge petition. They pushed a vote over the opposition of top House GOP leaders such as Majority Leader Kevin McCarthy of California, Whip Steve Scalise of Louisiana and Financial Services Committee Chairman Jeb Hensarling of Texas.

More

Statoil posts Q3 loss, feels sting of low oil price

By The Associated Press

STOCKHOLM (AP) — Norwegian oil and gas company Statoil posted a loss in the third quarter despite attempts to slash costs amid declining oil prices.

The state-controlled company posted a net loss Wednesday of 2.8 billion kroner ($330 million) in the July-September period, compared with a loss of 4.7 billion kronor in the same quarter last year.

Statoil cited "impairment charges and provisions," but it was also hit by declining revenue, which fell 24 percent to 112 billion kroner.

Low oil prices have put pressure on Statoil's high-cost offshore operations in the North Sea and Barents Sea.

More

German transport minister meets US officials on VW probe

By Michael Biesecker

WASHINGTON (AP) — Germany's top transportation official is pledging to cooperate closely with his American counterparts as the countries investigate Volkswagen's emissions-rigging scandal.

Transport Minister Alexander Dobrindt met in Washington this week with U.S. Transportation Secretary Anthony Foxx and Environmental Protection Agency Administrator Gina McCarthy. Dobrindt said his government will share information gleaned during its review of how the German automaker installed software designed to hide dirty emissions from its "Clean Diesel" cars sold since 2009 during U.S. compliance tests.

Both nations are conducting criminal investigations into VW's trickery, which the company first admitted to U.S. regulators last month. German police and prosecutors raided the company's global headquarters earlier this month seeking material to help clarify who knew about the cheating.

Dobrindt on Tuesday said he had scheduled further discussions with the U.S. officials and that the close partnership between the countries must be preserved.

More

Defense continues to contend ex-coal CEO focused on safety

By The Associated Press

CHARLESTON, W.Va. (AP) — With a key government witness on the stand, a former coal boss' defense team continued to contend his company prioritized safety and disciplined people when they made mistakes.

In Charleston federal court Tuesday, ex-Massey Energy CEO Don Blankenship's attorneys continued questioning former Massey subsidiary president Christopher Blanchard. Blanchard has testified since Thursday under an immunity agreement with the government.

Blankenship is charged with conspiring to break mine safety laws and lying to financial regulators about safety at Upper Big Branch, which exploded in 2010, killing 29 men. Blanchard's subsidiary oversaw the mine.

Blanchard continued to tell defense attorney William Taylor that he did not conspire with

Blankenship to break safety laws

Taylor discussed dozens of citations, memos and other documents to say Massey was concerned about safety under Blankenship's watch.

A message from America's Natural Gas Alliance

Clean is Powerful. Natural gas helps Georgia Power's plant generate electricity with 50% fewer emissions. Think about it.

Learn more at www.thinkaboutit.org.

LA Aqueduct flows after dam built for drought is dismantled

By Brian Melley

OLANCHA, Calif. (AP) — Water in the aqueduct that helped fuel Los Angeles' growth was flowing toward the city Wednesday for the first time in six months after workers removed an earthen and concrete dam that had diverted runoff to the parched Owens Valley.

With little mountain runoff due to a historic drought, water managers made the unprecedented decision to try to meet legal obligations to keep the Owens River flowing, control dust from a dry lake bed and irrigate pastures where cattle graze instead of sending water to the city.

For those in the Owens Valley, who have a history of conflict with the metropolis hundreds of miles to the south, the plugged-up aqueduct brought relief to some and misery to others.

More

Big effort to better understand bats takes wing in 31 states

By Keith Ridler

BOISE, Idaho (AP) — An effort spanning 31 states and 10 Canadian provinces has been working to better understand the ecological role that bats play, and the threats they face from climate change, habitat loss and wind energy development.

The North American Bat Monitoring Program involves acoustic surveys to detect the high-pitched frequencies emitted by the flying mammals as they capture bugs and navigate in the

dark.

"It's long overdue," said Patty Stevens, the U.S. Geological Survey's branch chief for Trust Species and Habitats at the Fort Collins Science Center in Colorado where the program's data will be stored and made available. "It's going to provide a lot of information to natural resource managers."

Researchers say the monitoring program has been spurred by a disease called white-nose syndrome that has killed millions of bats and is spreading.

More

Greek company pleads guilty to hiding ship's pollution

By The Associated Press

CORPUS CHRISTI, Texas (AP) — A ship management company based in Greece has agreed to pay $1 million in penalties after concealing that a ship it owned had dumped pollution into waters off the Texas Gulf Coast.

Chandris (Hellas) Inc. pleaded guilty on Tuesday in Corpus Christi federal court to violations of the Act to Prevent Pollution from Ships.

According to court records, the chief engineer of the M/V Sestrea — an 81,502 ton cargo ship Chandris operated — failed to document that the ship had dumped directly into the sea oily waste that should have been disposed through a separator aboard the vessel or burned in the ship's incinerator.

The ship had made stops in multiple ports in Texas, including Corpus Christi in January.

Chandris was also sentenced to three years of probation.

Green self-driving cars take center stage at Tokyo auto show

By Yuri Kageyama

TOKYO (AP) — Visions of cars that drive themselves without emitting a bit of pollution while entertaining passengers with online movies and social media are what's taking center stage at the Tokyo Motor Show.

Japan, home to the world's top-selling automaker, has a younger generation disinterested in owning or driving cars. The show is about wooing them back. It's also about pushing an

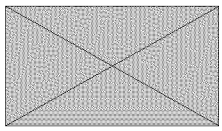
ambitious government-backed plan that paints Japan as a leader in automated driving technology.

Reporters got a preview look at the exhibition Wednesday, ahead of its opening to the public Oct. 30.

Nissan Motor Co. showed a concept vehicle loaded with laser scanners, a 360 degree camera setup, a radar and computer chips so the car can "think" to deliver autonomous driving. The Japanese automaker called it IDS, which stands for "intelligent driving system."

More

Sponsored Links



Week in Review – EPA Publishes Clean Power Plan

24 States File Lawsuits.

Click here to read the brief

Carbon rule opponents pin hopes on a stay

States and industry groups fighting the Environmental Protection Agency's Clean Power Plan in court are hoping to get a stay issued to prevent the moves to limit power plant carbon emissions from taking effect during the process of legal challenges, The Hill reports.

More

W.Va. to submit compliance plan for EPA carbon rule, governor says

Bucking Republican congressional leaders and his own state's elected representatives who oppose the Clean Power Plan, West Virginia Gov. Earl Ray Tomblin says he'll submit a compliance plan to the Environmental Protection Agency, the Charleston Gazette-Mail reports.

More

Pipeline capacity played role in decision to pull out of oil sands project: Shell

Royal Dutch Shell pulled out of a major oil sands project in Alberta and took a $2 billion writedown because of low oil prices and questions over pipeline capacity in the province, The Wall Street Journal reports.

Trouble seeing this email? Click here.

More

Pennsylvania DEP explains drilling rule changes to the public

The Pennsylvania Department of Environmental Protection used a hearing Tuesday to explain proposed changes in drilling rules that include more stringent permitting for wells near public places, moving the regulations another step closer to being finalized before a March 2016 deadline, NPR's StateImpact Pennsylvania reports.

More

Cost-cutting has helped Peabody but company may sell assets: CEO

Aggressive cost cutting and potential asset sales are helping Peabody Energy ride out tough times in the coal market, CEO Glenn Kellow told analysts in a call Tuesday, adding that he expects thermal coal demand to drop by 100 million short tons this year, Platts reports.

More

Oil higher on drop in Cushing stocks

American Petroleum Institute data showing a drop in stockpiles at the Cushing hub helped support oil early Wednesday, although analysts told Reuters they expected the rise would only be temporary. U.S. benchmark crude for December delivery gained 40 cents to $43.60 a barrel in electronic trading on the Nymex, while in London Brent rose 38 cents to $47.19.

More

Low crude prices help push Anadarko to loss

Sizeable impairment charges and shrinking revenue hurt Anadarko Petroleum Corp. in the third quarter, as the company posted a $2.24 billion loss, compared to a profit of $1.09 billion a year earlier, MarketWatch reports.

More

Nabors hit with 3Q loss as oil activity slows

Slowing oil drilling and dropping crude prices hit rig services firm Nabors Industries, which says it posted a $296 million loss in the third quarter, FuelFix reports.

More

CB&I hands off nuclear business to Toshiba's Westinghouse

The completion of AP1000 reactor construction work will be down to Westinghouse Electric Co. alone, as its partner in projects in Georgia and South Carolina, CB&I, is selling its

nuclear interests to the Toshiba subsidiary for $229 million, FuelFix reports.

More

LG to supply new battery for old Tesla

Korean firm LG Chem Ltd. is making a battery that Tesla Motors is using in $29,000 upgrades to its discontinued Roadster cars, The Wall Street Journal reports.

More

Fracking opponents angered by maneuvering in UK parliament

Members of parliament can vote but won't get a chance to debate on a move to allow fracking underneath national parks in Britain, a maneuver that's drawing criticism from opposition Labour politicians as well as drilling opponents, The Guardian reports.

More

Upcoming Events

- Oct. 28, Washington: The House Natural Resources Subcommittee on Water, Power and Oceans to hold a hearing on three bills focused on land and water issues, including one from Rep. Steve Womack, R-Ark., to block eminent domain for some projects. 2:30 pm , 1324 Longworth.
- Oct. 28, Washington: The House Natural Resources Subcommittee on Indian, Insular and Alaska Native Affairs to hold a hearing on the Tribal Recognition Act of 2015. Interior Assistant Secretary for Indian Affairs Kevin Washburn to testify. 2:00 pm , 1334 Longworth.
- Oct. 28, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a markup session for the Grassroots Rural and Small Community Water Systems Assistance Act, designed to assist rural water programs comply with federal regulations. 12:00 pm , 2322 Rayburn.
- Oct. 28, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on low-level radioactive waste disposal. Energy Department Principal Deputy Assistant Secretary for Environmental Management Mark Whitney and Nuclear Regulatory Commission Deputy Executive Director Michael Weber to testify. 10:15 am , 2322 Rayburn.
- Oct. 28, Washington: The House Natural Resources Subcommittee on Federal Lands to hold a legislative hearing on the Federal Lands Recreation Enhancement Modernization Act. Leslie Weldon, deputy chief for the National Forest System, and Olivia Ferriter, a deputy assistant secretary for the National Parks Service, to testify. 10:00 am , 1324 Longworth.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Fernandez, Antonio[fernandez.antonio@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Stout, Alan[stout.alan@epa.gov]
From: Sigelko, Jenny (EEO)
Sent: Wed 10/28/2015 12:17:56 PM
Subject: RE: Tier 3 phase in questions

Thanks Alan, thanks Tony.

From: Fernandez, Antonio [mailto:fernandez.antonio@epa.gov]
Sent: Tuesday, October 27, 2015 3:41 PM
To: Sigelko, Jenny (EEO) <Jenny.Sigelko@vw.com>
Cc: Snyder, Jim <Snyder.Jim@epa.gov>; Stout, Alan <stout.alan@epa.gov>
Subject: RE: Tier 3 phase in questions

See below. Alan helped with the last two. I am including the Compliance Division Certification representative so he is up to speed with these questions in case he gets asked by someone else.

Tony

From: Sigelko, Jenny (EEO) [mailto:Jenny.Sigelko@vw.com]
Sent: Tuesday, October 27, 2015 1:58 PM
To: Fernandez, Antonio <fernandez.antonio@epa.gov>
Subject: Tier 3 phase in questions

Hi Tony,

I have a few questions in 3 general Tier 3 areas.

Interim/Final Tier 3

My first question is regarding 'final' Tier 3 vehicle requirements. In order for a vehicle to be 'final' or 'not Interim', does it have to meet all the requirements of Part 1066 testing procedures? I understand that 86.101 (d) must be met starting in 22MY, but can a vehicle be considered to have 'final' status prior to this by meeting the other Tier 3 requirements? Or, for example, a 19MY vehicle that meets all the other standards of Tier 3, but is not yet tested on fully 1066 compliant test cells considered a Tier 3? As we discussed "final" Tier 3 designation does not need to meet all of the 1066 requirements however at a minimum it will need to use 1066 PM requirements and the new NMOG calculation for E10. Chris Laroo can assist if further information is needed. See http://www.ecfr.gov/cgi-bin/text-idx?SID=7bc71fb487c9d818c7331cdb8c18e753&mc=true&node=se40.19.86_1101&rgn=div8

PM Phase-in

From 86.1811-17 (b)(7)

(iii) Vehicles meeting the Tier 3 PM standards must meet those standards over the useful life as specified in §86.1805. Note that Interim Tier 3 vehicles may have different useful life values for PM emission standards than for other emission standards. This is correct. The new PM standards also require 150k UL for the PM aspect while the other emissions could be 120k during the phase-in depending on what bin was used. My recommendation is to stay with the program goal of getting to a 50 state vehicle that meets the 150k for California and remains at 150k for Federal. This allows one set of tests on one fuel with the same aged parts to fulfill the requirements of both programs.

Can an Interim Tier 3 vehicle be used to satisfy the PM phase-in percentage? Can you tell me which 86.1805 section I should look in? Is the default 86.1805-17? For Tier 3 PM useful life can be 10/120k for vehicles less than 6000#, but must use 85% of the applicable Tier 3 standard? (I understand that these 10/120k vehicles are not LEVIII compliant)

→ An Interim Tier 3 vehicle is one that meet some but not all of the Tier 3 requirements. If it meets the Tier 3 PM standard, it counts toward the PM phase-in percentage. If it doesn't meet the Tier 3 PM standard, then it doesn't count toward meeting the Tier 3 PM percentage. That should all be self-evident;

→ The provisions of 86.1805-17 correspond to the Tier 3 standards in 86.1811-17. If this is a MY 2016 vehicle meeting Tier 3 early, then the section numbering by MY doesn't work so neatly, but nothing else makes sense.

→ The 85% multiplier applies only to the NMOG+NOx fleet-average standard over the FTP; there is no other consequence of selecting the shorter UL. Note that this UL arrangement applies

only for LDV and LDT1 (not all vehicles below 6000 lbs GVWR).

Cert carryover in 22MY

Must I redo cert testing in 22MY to demonstrate compliance to 86.101(d) or can I carryover packages certified prior (assuming they have used E10 by 20MY)?

That is my interpretation of

86.101 (b)

(3) For model years 2022 and later, manufacturers must use the test procedures specified in paragraph (d) of this section. Manufacturers may continue to use data based on the test procedures specified in paragraph (c) of this section for an engine family in 2022 and later model years, as long as the engine family is eligible for certification with carryover emission data.

→Carryover based on pre-1065 procedures is ok, as described in 86.101(b)(3).

Thanks very much! Your help is much appreciated.

Jenny

Jenny Sigelko

Volkswagen Group of America

EEO-Auburn Hills MI

Jenny.sigelko@vw.com

248 754 4214

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Allen, Gregory (EEO)
Sent: Thur 10/29/2015 5:03:00 PM
Subject: MY2016 GVGAV04.0NUA Application Revision

Hello Jim,

This is just a heads up in case you see it on your end – today I uploaded a revision to the running change application GVGAV04.0NUA_APP_C03 to correct a model name.

We submitted this Running Change originally a few months ago, and back then it was for the S8 Plus and the RS7 Plus, and now marketing decided that they will call them S8 Plus and RS7 Performance, so I've made the name change in Section 12.

No new certificate is needed since these aren't new carlines, just wanted to make you aware of this revision.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Rodgers, William (EEO)[William.Rodgers@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]
From: Allen, Gregory (EEO)
Sent: Thur 10/29/2015 6:15:09 PM
Subject: MY2016 Running Change to Add models to GVGAV05.2NLE Testgroup

Hello Jim,

This is just a heads up in case you see it on your end – today I uploaded a running change application for the MY2016 GVGAV05.2NLE test group to add two new models, the Huracan 2WD and the Huracan Spyder 2WD. There was also a new 580hp engine added to the application specifically for these 2WD models.

No new certificate will be required, this is just an updated application to make sure we have the most up-to-date information submitted for this testgroup.

If you have any questions please let me know, thanks Jim.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

To: Shinkman, Susan[Shinkman.Susan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]
From: Giles-AA, Cynthia
Sent: Fri 10/30/2015 11:20:16 AM
Subject: VW private litigation
Volkswagen Drivers' Emissions Suits Frozen For JPML Order - Law360.pdf

Good news re bringing some order to the citizen suits.

Sent from my Windows Phone

From: Shiffman, Cari
Sent: 10/30/2015 6:59 AM
To: Giles-AA, Cynthia
Subject: Re: EPA Lawyers Fortified Obama Carbon Plan, Agency GC Says

Hi Cynthia,

Here is the article.

Thanks,

Cari Shiffman, Special Assistant
U.S. Environmental Protection Agency
Office of Enforcement and Compliance Assurance

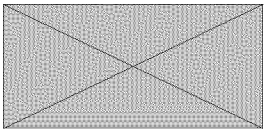
Office: (202) 564-2898 | Mobile: (202) 823-3277

From: Giles-AA, Cynthia
Sent: Friday, October 30, 2015 6:25 AM
To: Shiffman, Cari
Subject: FW: EPA Lawyers Fortified Obama Carbon Plan, Agency GC Says

Can you see if you can get me the VW litigation article? Thanks.

Sent from my Windows Phone

From: Environmental Law360
Sent: 10/30/2015 3:37 AM
To: Giles-AA, Cynthia
Subject: EPA Lawyers Fortified Obama Carbon Plan, Agency GC Says



ENVIRONMENTAL

Friday, October 30, 2015

TOP NEWS

EPA Lawyers Fortified Obama Carbon Plan, Agency GC Says

The U.S. Environmental Protection Agency's general counsel said Thursday the heavy involvement of the EPA attorneys in creating the Obama administration's groundbreaking plan to reduce carbon emissions from power plants gives the rule a great chance to withstand legal challenges.

EPA Tells DC Circ. New Emissions Model Can't Be Reviewed

The U.S. Environmental Protection Agency made a final bid on Wednesday to have the U.S. District Court for the District of Columbia toss challenges to its new computer model used to estimate motor vehicle emissions by Kansas and Nebraska, saying the measure is not subject to judicial review.

Enviros, Citizens Clash With Industry Over PennEast Pipeline

While environmental and citizen groups have continued to protest PennEast Pipeline's proposed $1 billion natural gas pipeline through New Jersey and Pennsylvania, an industry group on Thursday urged the Federal Energy Regulatory Commission to approve the project.

Iowa Homeowners Win Class Cert. In Milling Pollution Suit

An Iowa judge agreed Wednesday to certify a class covering about 4,000 people in a lawsuit accusing Grain Processing Corp. of creating a public nuisance by releasing a stinking haze of smoke with its corn wet milling operations.

Pa. DEP Erred In Pipeline Approval, Enviros Tell 3rd Circ.

An environmental group told the Third Circuit on Thursday that Pennsylvania had improperly granted permits allowing a Williams Partners LP unit's $607 million pipeline expansion to move forward, contending that it failed to apply appropriate state standards.

Senator Wants VW To Return Fuel Efficiency Tax Credits

Sen. Edward Markey, D-Mass., on Thursday urged the National Highway Traffic Safety Administration to re-evaluate whether Volkswagen Group should pay back tax credits it earned for complying with fuel economy standards since the world now knows the automaker cheated emissions tests.

ANALYSIS

LAW FIRMS

Acosta

Alston Hunt

Balch & Bingha

Barran Liebma

Bartimu Fricklet

Bays Lung

Belin McCorr

Bullivar Houser

Chasar Leyner

Clause Miller

Clyde & Co

Cohen & Grigsby

Cooley LLP

Cozen O'Conn

4 Emissions Cases Transportation Attys Need To Know

The transportation industry is waging battles on multiple fronts against climate change regulations by the U.S. Environmental Protection Agency and California that put emissions restrictions on everything from alternative fuel to vehicle tailpipes. Here are four emissions-related cases transportation attorneys should be watching.

Justices Could Set Alaska Natives, Native Cos. At Odds

The U.S. Supreme Court's upcoming review of a National Park Service ban on hovercraft use has stoked fears the case could imperil Alaska Natives' subsistence rights and put them at odds with Native corporations by potentially limiting federal authority over lands rural Natives rely on for hunting and fishing.

POLICY & REGULATION

Republican Lawmakers Float Mine Cleanup Bills, Slam EPA

Republican leaders of the House Committee on Natural Resources touted a package of bills on Thursday to help fix the cleanup process for abandoned mines in the United States, with the committee's head saying the U.S. Environmental Protection Agency's role in the Gold King Mine spill showed the agency wasn't up to the task.

Rail Inspector Shortage Raises Montana's Risks, Audit Says

A shortage of inspectors is one of several oversight gaps jeopardizing rail safety in Montana, a state with elevated railroad-related risks due to the volume of crude oil being drilled and transported, according to a recent state audit.

LITIGATION

Monsanto Tells 9th Circ. GMO Foes Can't Appeal Law's Nixing

Monsanto told the Ninth Circuit on Thursday that a bid by a citizens coalition trying to revive a Maui County, Hawaii, law restricting genetically modified crops should be dismissed for lack of standing since the citizens aren't elected officials or county agents.

Greenpeace Says Contempt Order Warrants Shell Suit Appeal

Greenpeace told the Ninth Circuit on Wednesday that as long as Shell wants to enforce a contempt order issued after the group effectively blocked one of the company's ships in July, it should be allowed to continue its appeal of an injunction even if the underlying case is moot.

Texas Atty Rebuts Claim He Faked BP Oil Spill Plaintiffs

LAW FIRMS

Acosta

Alston Hunt

Balch & Bingha

Barran Liebma

Bartimu Fricklet

Bays Lung

Belin McCorr

Bullivar Houser

Chasar Leyner

Clause Miller

Clyde & Co

Cohen & Grigsby

Cooley LLP

Cozen O'Conn

Crouch & Ramey

Crowe & Dunlev

Texas plaintiffs' lawyer Mikal Watts of Watts Guerra LLP on Thursday pled not guilty to charges he conspired to submit false claims stemming from the Deepwater Horizon oil spill to BP, and in a rebuttal to the indictment that was unsealed, said the blame for the alleged fraud rests outside his legal office.

Volkswagen Drivers' Emissions Suits Frozen For JPML Order

Federal judges in at least 13 states and the capital have paused drivers' emissions fraud suits against Volkswagen this week to await the U.S. Judicial Panel on Multidistrict Litigation's ruling that could centralize the actions for pre-trial proceedings.

LA Metro's Review Of Expansion Project Upheld On Appeal

The Los Angeles County Metropolitan Transportation Authority won an appeal Wednesday in California's Second Appellate District on claims challenging its environmental impact report for a subway expansion project, with the court saying a nearby hotel's allegations that it violated California environmental law were not valid.

Texas Water Agency Wants 5th Circ. Backing In Takings Suit

The city of San Antonio has urged the Fifth Circuit to uphold a district court's denial of water permits to a group of Texas landowners, saying a 2012 Texas Supreme Court ruling affirming groundwater property rights isn't applicable because the landowners missed an application deadline.

Enviros Slam Time-Out Bid In Ill.-Ind. Toll Road Fight

Transportation agencies should not be allowed to pause a lawsuit from three environmental groups as officials revise reports about the impact of a proposed expressway linking interstates in Illinois and Indiana, the environmental groups told an Illinois federal court Wednesday.

Enviros Challenge Permit For Ala. Coal Mine On River

Two environmental groups have sued the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service in Alabama federal court, claiming that the groups didn't take the necessary care to determine if a coal mining permit would affect an Alabama river's ecosystem before approving it.

Policies Cover Tribes' Claims In Superfund Case, Court Told

A group of ironwork companies who want their insurers to help pay for the cleanup of a Superfund site at the Portland Harbor asked an Oregon federal judge Wednesday to reconsider whether the policies of an AIG Inc. subsidiary bar coverage for claims brought by five Native American tribes.

TerraForm Global Hit With Shareholder Suit Over $675M IPO

Investors in TerraForm Global, a clean energy yieldco, lodged a shareholder suit in California state court last week, accusing the company of failing to disclose that its performance would be impacted by the poor results of its sponsor, SunEdison, ahead of its $675 million initial

LAW FIRMS

Acosta

Alston Hunt

Balch & Bingha

Barran Liebma

Bartimu Fricklet

Bays Lung

Belin McCorr

Bullivar Houser

Chasar Leyner

Clause Miller

Clyde & Co

Cohen & Grigsby

Cooley LLP

Cozen O'Conn

Crouch & Ramey

Crowe & Dunlev

public offering.

EXPERT ANALYSIS

Considering The Law On Corporate Environmental Crime

Clear-cut cases of large-scale corporate criminal violation of environmental laws are relatively rare. Because corporate scofflaws would face criminal prosecutions and civil and administrative penalties, along with serious public relations consequences, most sophisticated corporations recognize that deliberately flouting the law in this area just isn't worth it, says Kevin Sali of Kevin Sali LLC.

Wealth Management For Attorneys

As the curtain begins to fall on 2015, it's especially important for attorneys at firms operating on a Dec. 31 year-end to finalize their tax planning strategies. One of the biggest challenges is identifying a financial adviser who understands the unique demands facing attorneys, especially those pursing an equity partnership or who have already attained that status, says Stuart Riemer of Treasury Partners.

LEGAL INDUSTRY

4 Things Associates Hate About Their Jobs

As the junior professional in a law firm, associates are often tasked with projects that can leave them feeling underappreciated and overworked. Here, industry experts and attorneys expound on the common experiences in associate life that can make many attorneys' first jobs a not-so-rosy experience.

The 5 Biggest Mistakes You Can Make As A Lateral

Joining a new firm can seem like the perfect marriage, but attorneys can sully that relationship or blow it up altogether by failing to do their due diligence and making other key missteps. Here, experts share the five worst mistakes you can make as a lateral hire.

Law360's Weekly Verdict: Legal Lions & Lambs

Courtroom lions roared this week as Kline & Specter PC won a Pennsylvania high court reversal of a voided $20 million verdict and King & Spalding LLP took down a smoking death case against R.J. Reynolds Tobacco Co. Our legal lions are led by a onetime Dickstein Shapiro LLP lobbyist and politician who copped to a career-ending banking charge.

Justice Appointments Too Focused On Credentials, Alito Says

With all nine sitting Supreme Court justices holding law degrees from only a few schools, Associate Justice Samuel Alito said Thursday that perhaps the high court appointment process has become too focused on credentials, noting that many great jurists to grace the bench in the past lacked such "educational pedigree."

Fed. Judge Nominee Stalled In Committee Over DOJ Tip

LAW FIRMS

Acosta

Alston Hunt

Balch & Bingha

Barran Liebma

Bartimu Fricklet

Bays Lung

Belin McCorr

Bullivar Houser

Chasar Leyner

Clause Miller

Clyde & Co

Cohen & Grigsb

Cooley LLP

Cozen O'Conn

Crouch & Ramey

Crowe & Dunlev

The Senate Judiciary Committee delayed a scheduled vote Thursday on a nominee to the New Jersey federal bench, citing information handed over by the U.S. Department of Justice, but sent three other nominees to the full Senate for confirmation.

3 Things Law Firms Need To Know About Info-Sharing Bill

Law firms are abuzz about the data-sharing bill passed Tuesday by the U.S. Senate, wondering about how it will affect them and speculating about privacy concerns and its potential to cut down on cyberthreats. Here, Law360 explains three things firms need to know about the bill.

Kilpatrick Townsend Adds 21-Lawyer Dallas Trial Firm

Atlanta-based Kilpatrick Townsend & Stockton LLP on Thursday said that it will crack into the Texas market on Nov. 2, through a merger with 21-lawyer Dallas litigation firm Crouch & Ramey LLP, a move that the firm said came in response to client demand for an in-state presence.

Harvard Law Library Plans To Digitize Case Law Collection

Harvard Law School announced Thursday that it is digitizing its entire collection of U.S. case law, with the help of legal research and analytics platform Ravel Law, and plans to make it available online for free.

JOBS
Search full listings or advertise your job opening

Cullen Law Firm

Dickste Shapirc

George Brother

Glancy Pronga

Gordon & Polscer

Gordon & Rees

Grahan & Dunn

Gray & Associa

Hausfe

Hobbs Straus

Jackso Lewis

Jones Day

Kanner & Whitele

Kaplan Fox

Karbal Cohen

Kelley Uustal

Kemp Smith

Kendall Brill

Kiesel Law

Kilpatri Townse

King & Spaldin

King & Wood Mallesc

Kirklan & Ellis

Kline & Specte

Latham & Watkin

Mayer Brown

McCart & English

Miller Nash

Mintz Levin

Morgan Lewis

Morris Polich

Parson Farnell

Pepper Hamilto

Perkins Coie

Quinn Connor

Remy Moose

Saul Ewing

Schnei Wallace

Schwab William

Shipma & Goodw

Sidley Austin

Sills Cummi

Silverm
Thomps

Silverst
Law
Firm

Simpso
Thache

Skadde

Slaught
and
May

Sonosk
Chamb

Stoel
Rives

Thomps
Hine

Watts
Guerra

Weil
Gotsha

Whatle

Wilson
Sonsini

COMP/

AT&T
Inc.

Americ
Bar
Associa

Americ
Civil
Liberti
Union

Americ
Internat

Group
Inc.

Americ
Petrole
Institute
Inc.

BP
p.l.c.

British
Airways
PLC

Californ
Cable
&
Telecor
Associa

Celane
Corpora

Chevro
Corpora

Cox
Commu
Inc.

Delawa
Riverke
Networ

Facebo

Hallibu
Compa

Insuran
Australi

Los
Angele
County
Metrop
Transp
Authori

Monsar
Compa

Murphy Oil Corpora

Murphy USA Inc.

Oracle Corpora

Owner-Operat Indepe Drivers Associa Inc.

R.J. Reynol Tobacc Co.

Rite Aid Corpora

Riverke Inc.

Royal Dutch Shell PLC

San Antonic Water System

San Diego Gas & Electric Co.

Sierra Club

Southw Resear Institute Inc.

SunEdi
LLC

Tanana
Chiefs
Confere

Volksw

Walgre
Co.

William
Partner
LP

GOVEF
AGENC

Army
Corps
of
Engine

Bureau
of
Land
Manage

Bureau
of
Reclam

Confed
Tribes
of
Siletz
Indians

Confed
Tribes
of the
Umatill
Indian
Reserv

Departr
of
Agricult

Departr
of the

Interior

Environ Protect Agency

Federa Aviatior Adminis

Federa Bureau of Investic

Federa Energy Regula Commi

Fish and Wildlife Service

Illinois Departr of Transp

Library of Congre

Nationa Highwa Traffic Safety Adminis

Nationa Labor Relatio Board

Nationa Oceani and Atmosp Adminis

Nationa Park

Service

Navajo Nation

Securiti and Exchan Commi

Southe Ute Indian Tribe

U.S. Army

U.S. Attorne Office

U.S. Departr of Justice

U.S. Departr of Transp

U.S. House of Repres

U.S. Senate

U.S. Supren Court

Ute Indian Tribe

LAW FIRMS

Gray & Associates

Latham & Watkins

Perkins Coie

Acosta

Alston Hunt

Balch & Bingham

Barran Liebman

Bartimus Frickleton

Bays Lung

Belin McCormick

Bullivant Houser

Chasan Leyner

Clausen Miller

Clyde & Co

Cohen & Grigsby

Cooley LLP

Cozen O'Connor

Crouch & Ramey

Crowe & Dunlevy

Cullen Law Firm

Dickstein Shapiro

George Brothers

Glancy Prongay

Gordon & Polscer

Gordon & Rees

Graham & Dunn

Hausfeld

Hobbs Straus

Jackson Lewis

Jones Day

Kanner & Whiteley

Kaplan Fox

Karbal Cohen

Kelley Uustal

Kemp Smith

Kendall Brill

Kiesel Law

Kilpatrick Townsend

King & Spalding

King & Wood Mallesons

Kirkland & Ellis

Kline & Specter

Mayer Brown

McCarter & English

Miller Nash

Mintz Levin

Morgan Lewis

Morris Polich

Parsons Farnell

Pepper Hamilton

Quinn Connor

Remy Moose

Saul Ewing

Schneider Wallace

Schwabe Williamson

Shipman & Goodwin

Sidley Austin

Sills Cummis

Silverman Thompson

Silverstein Law Firm

Simpson Thacher

Skadden

Slaughter and May

Sonosky Chambers

Stoel Rives

Thompson Hine

Watts Guerra

Weil Gotshal

WhatleyKallas

Wilson Sonsini

COMPANIES
Volkswagen

American Bar Association

Sierra Club

AT&T Inc.

American Civil Liberties Union

American International Group Inc.

American Petroleum Institute Inc.

BP p.l.c.

British Airways PLC

California Cable & Telecommunications Association

Celanese Corporation

Chevron Corporation

Cox Communications Inc.

Delaware Riverkeeper Network

Facebook

Halliburton Company

Insurance Australia

Los Angeles County Metropolitan Transportation Authority

Monsanto Company

Murphy Oil Corporation

Murphy USA Inc.

Oracle Corporation

Owner-Operator Independent Drivers Association Inc.

R.J. Reynolds Tobacco Co.

Rite Aid Corporation

Riverkeeper Inc.

Royal Dutch Shell PLC

San Antonio Water System

San Diego Gas & Electric Co.

Southwest Research Institute Inc.

SunEdison LLC

Tanana Chiefs Conference

Walgreen Co.

Williams Partners LP

GOVERNMENT AGENCIES
Environmental Protection Agency

U.S. Department of Justice

U.S. Supreme Court

Department of the Interior

Federal Bureau of Investigation

Federal Energy Regulatory Commission

National Labor Relations Board

Army Corps of Engineers

Bureau of Land Management

Bureau of Reclamation

Confederated Tribes of Siletz Indians

Confederated Tribes of the Umatilla Indian Reservation

Department of Agriculture

Federal Aviation Administration

Fish and Wildlife Service

Illinois Department of Transportation

Library of Congress

National Highway Traffic Safety Administration

National Oceanic and Atmospheric Administration

National Park Service

Navajo Nation

Securities and Exchange Commission

Southern Ute Indian Tribe

U.S. Army

U.S. Attorney's Office

U.S. Department of Transportation

U.S. House of Representatives

U.S. Senate

Ute Indian Tribe

JOBS
Search full listings or **advertise your job opening**

Not sure if your firm subscribes? Ask your librarian.

We hope you found this message to be useful.
However, if you'd rather not receive future emails of this sort,
you may unsubscribe here.

Please DO NOT reply to this email. For customer support inquiries, please call 1-646-783-7100 or visit our Contact Us page.

Law360 | Portfolio Media, Inc, 860 Broadway, New York, New York 10003

Portfolio Media. Inc. | 860 Broadway, 6th Floor | New York, NY 10003 | www.law360.com
Phone: +1 646 783 7100 | Fax: +1 646 783 7161 | customerservice@law360.com

Volkswagen Drivers' Emissions Suits Frozen For JPML Order

By **Jody Godoy**

Law360, New York (October 29, 2015, 3:45 PM ET) -- Federal judges in at least 13 states and the capital have paused drivers' emissions fraud suits against Volkswagen this week to await the U.S. Judicial Panel on Multidistrict Litigation's ruling that could centralize the actions for pre-trial proceedings.

U.S. District Court judges have the authority to go ahead with proceedings while the JPML mulls the question of centralization, but federal judges in a number of courts have decided to freeze the actions, presumably to prevent rulings that could clash with potential findings in a centralized court.

The stay orders issued this week included one on Wednesday pausing 45 California suits over diesel-burning passenger cars that Volkswagen touted as environmentally friendly but has recently admitted were designed to cheat emissions standards.

U.S. District Judge David O. Carter, who presides in the Central District of California where those cases were filed, said the stay would conserve the court's resources, avoid conflicting rulings and cause minimal prejudice to the parties.

"The purposes of MDL Panel transfers are to further judicial economy and eliminate the potential for conflicting pretrial rulings," Judge Carter said. "Given those aims, the court is concerned that resolving any pending motions would lead to conflicting pretrial rulings and limit the ability of the judge who is ultimately assigned the consolidated litigation to manage the litigation in the way he or she sees fit."

Federal judges in Florida, Louisiana, Missouri, South Carolina, West Virginia, Georgia, Arkansas, Virginia, Wisconsin, New Jersey, Illinois, Tennessee, California and the D.C. also put pending consumer actions against Volkswagen on ice.

Christopher D'Angelo, one of the drivers suing the German automaker in California, had recently asked Judge Carter to **certify his proposed class action**, the type of decision the judge found "better left to the judge who is assigned the cases."

The JPML is set to hear oral arguments on whether or not to consolidate the cases on Dec. 3, according to Judge Carter's order.

D'Angelo was also the first to **ask for consolidation** of the mounting number of emissions fraud suits across the U.S. The driver argued the cases should be brought to Los Angeles for pre-trial

matters because the court has experience with similar cases and because the California Air Resources Board has been at the **forefront of the investigation** into Volkswagen's so-called defeat devices along with the U.S. Environmental Protection Agency.

D'Angelo is represented by David J. Vendler and Kevin M. Pollack of Morris Polich & Purdy LLP.

Volkswagen is represented by John Nadolenco of Mayer Brown LLP.

The case is Christopher D'Angelo v. Volkswagen Group of America Inc. et al., case number2:15-cv-07390, in the U.S. District Court for the Central District of California.

--Editing by Emily Kokoll.

All Content © 2003-2015, Portfolio Media, Inc.

To: Ex. 7
Cc:
From: Good, David
Sent: Fri 10/30/2015 12:52:54 PM
Subject: RE: 2016 Audi S8 and S8 plus Fuel Economy Label Discussion

Ex. 7

Your labeling plan for the 2016 Audi S8 and Audi S8 "plus" sounds fine to me.

Dave

From: Ex. 7
Sent: Friday, October 30, 2015 8:33 AM
To: Good, David
Cc: Ex. 7
Subject: 2016 Audi S8 and S8 plus Fuel Economy Label Discussion

Hi Dave;

To summarize the phone discussion we had yesterday I have the following.

The original 2016 "Audi S8" was labeled in March 2015. Audi later introduced a higher performance engine as this model will be marketed as the "Audi S8 plus" that replaces the original engine in production, with a running change. The recalculated label values when this new engine is sales weighted into the base level result in lower city and highway label values, combined is unchanged. Since the option to relabel is left to the manufacture under the running change and fuel economy calculation regulations it was proposed to begin to use the new values with the introduction of the S8 plus models this fall (November 2015). Please see the email summary of September 14, 2015, attached.

The Audi logistic department has assured me that no new S8 plus models will leave the ports for

dealerships until all the original Audi S8 models have been allocated and are exhaust from the ports. In very limited cases an original Monroney label (containing the fuel economy label) may have to be reprinted due to dealer trading and address changes. That being the case they will reprint the Monroney label with the original S8 values. Under no circumstance can the new "Audi S8 plus" models be printed without the recalculated lower fuel economy label values.

You said that this process would not create any difficulties on your end.

Best regards,

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone:

Fax:

mailto:

Ex. 7

To: 'a.gusarov@autorc.ru'['a.gusarov@autorc.ru']; 'acelas@tin.it'['acelas@tin.it']; 'Adam, Thomas, Dr. (I/EA-524) (Thomas1.Adam@AUDI.DE)'[Thomas1.Adam@AUDI.DE]; 'adolfo.perujo@ec.europa.eu'['adolfo.perujo@ec.europa.eu']; 'aeeda@depollauto.fr'['aeeda@depollauto.fr']; 'aganguli@siam.in'['aganguli@siam.in']; 'alain.e.petit@renault.com'['alain.e.petit@renault.com']; 'alessandro.marotta@jrc.ec.europa.eu'['alessandro.marotta@jrc.ec.europa.eu']; 'alexander.bergmann@avl.com'['alexander.bergmann@avl.com']; 'alin.rosca@rarom.ro'['alin.rosca@rarom.ro']; 'alois.krasenbrink@jrc.it'['alois.krasenbrink@jrc.it']; 'ambujsharma@hotmail.com'['ambujsharma@hotmail.com']; 'amourfi_cn@sina.com'['amourfi_cn@sina.com']; 'anders.roj@volvo.com'['anders.roj@volvo.com']; 'andrea.demaria@fptindustrial.com'[andrea.demaria@fptindustrial.com]; 'Andreas.EA.Eder@bmw.de'['Andreas.EA.Eder@bmw.de']; 'antonio.erario@mit.gov.it'['antonio.erario@mit.gov.it']; 'apetrofs@volvocars.com'['apetrofs@volvocars.com']; 'ARijnders@rdw.nl'['ARijnders@rdw.nl']; 'arjan.dijkhuizen@toyota-europe.com'['arjan.dijkhuizen@toyota-europe.com']; 'arnaud.duvielguerbigny@aegpl.be'['arnaud.duvielguerbigny@aegpl.be']; 'aurelia.buzgan@rarom.ro'['aurelia.buzgan@rarom.ro']; 'b07@mfa.gr'['b07@mfa.gr']; 'beatrice.lopez@utac.com'['beatrice.lopez@utac.com']; 'Kai(EGNT/2) Behlau (kai.behlau@volkswagen.de)'[kai.behlau@volkswagen.de]; 'Markus.Bergmann@AUDI.DE'[Markus.Bergmann@AUDI.DE]; 'bernd.fusshoeller@delphi.com'['bernd.fusshoeller@delphi.com']; 'bertrand.mercier@mpsa.com'['bertrand.mercier@mpsa.com']; 'Bradish.Tracey@epamail.epa.gov'['Bradish.Tracey@epamail.epa.gov']; 'bungo.kawaguchi@toyota-europe.com'['bungo.kawaguchi@toyota-europe.com']; 'Burrows Adrien (adrien.burrows@dft.gsi.gov.uk)'[adrien.burrows@dft.gsi.gov.uk]; 'Carli, Stefan, Dr. (EASZ/2) (Stefan.Carli@volkswagen.de)'[Stefan.Carli@volkswagen.de]; 'Cecile.Favre@aecc.be'['Cecile.Favre@aecc.be']; 'celine.vallaude@utac.com'['celine.vallaude@utac.com']; '??? (cha1052@ts2020.kr)'[cha1052@ts2020.kr]; 'Charmley.William@epamail.epa.gov'['Charmley.William@epamail.epa.gov']; 'chenqs@tsinghua.edu.cn'['chenqs@tsinghua.edu.cn']; 'chosier@ford.com'['chosier@ford.com']; 'christian.bach@empa.ch'['christian.bach@empa.ch']; 'Christian.Gruen@ateel.lu'['Christian.Gruen@ateel.lu']; 'christian.hartmann@maha.de'['christian.hartmann@maha.de']; 'Christian.Vavra@maha.de'['Christian.Vavra@maha.de']; Albus, Christoph[christoph.albus@bmvi.bund.de]; 'Christoph.Lueginger@bmw.de'['Christoph.Lueginger@bmw.de']; 'Christoph.MC.Mayer@bmw.de'['Christoph.MC.Mayer@bmw.de']; 'Christophe.Sierens@honda-eu.com'[Christophe.Sierens@honda-eu.com]; 'cornetti@iol.it'['cornetti@iol.it']; 'covadonga.astorga-llorens@jrc.ec.europa.eu'['covadonga.astorga-llorens@jrc.ec.europa.eu']; 'DIMITRIS VARTHOLOMAIOS (D.VARTHOLOMAIOS@denso.be)'[D.VARTHOLOMAIOS@denso.be]; 'daniel.scherret@de.opel.com'['daniel.scherret@de.opel.com']; 'danitza.fedeli@delphi.com'['danitza.fedeli@delphi.com']; 'detlef.stendel@volkswagen.de'['detlef.stendel@volkswagen.de']; 'didier.pingal@utac.com'['didier.pingal@utac.com']; 'director@araiindia.com'['director@araiindia.com']; 'Dirk.Bosteels@aecc.eu'['Dirk.Bosteels@aecc.eu']; 'dirk.d.baeuchle@daimler.com'['dirk.d.baeuchle@daimler.com']; 'dleveratto@oica.net'['dleveratto@oica.net']; 'donald.nagy@gm.com'['donald.nagy@gm.com']; 'e.bastiaensen@immamotorcycles.org'['e.bastiaensen@immamotorcycles.org']; 'ed.crupi@ec.gc.ca'['ed.crupi@ec.gc.ca']; 'efernandez@appluscorp.com'['efernandez@appluscorp.com']; 'elisa.dumitrescu@unep.org'['elisa.dumitrescu@unep.org']; 'eric.donati@mpsa.com'['eric.donati@mpsa.com']; Ex. 7

Ex. 7

'ernst_peter.weidmann@daimler.com'[ernst_peter.weidmann@daimler.com]; 'erwin.segers@honda-eu.com'['erwin.segers@honda-eu.com']; 'espena@vegvesen.no'['espena@vegvesen.no']; 'euan.macdonald@logos-eu.com'['euan.macdonald@logos-eu.com'];

'eva.iverfeldt@scania.com'['eva.iverfeldt@scania.com']; 'fakmadza@hyundai-europe.com'['fakmadza@hyundai-europe.com']; 'fcagnolati@landi.it'['fcagnolati@landi.it']; 'Felix.Reutimann@bafu.admin.ch'['Felix.Reutimann@bafu.admin.ch']; 'felix.wellmann@daimler.com'['felix.wellmann@daimler.com']; 'ferenc.pekar@ec.europa.eu'['ferenc.pekar@ec.europa.eu']; 'Feucht, Annette (I/EG-341) (Annette.Feucht@AUDI.DE)'[Annette.Feucht@AUDI.DE]; 'fkoehler@tuev-nord.com'[fkoehler@tuev-nord.com]; 'flavioa.mariani@gmail.com'[flavioa.mariani@gmail.com]; 'folko.rohde@volkswagen.de'[folko.rohde@volkswagen.de]; 'gascar@korea.ac.kr'['gascar@korea.ac.kr']; 'georges.verdon@bluewin.ch'['georges.verdon@bluewin.ch']; 'gerben.passier@tno.nl'['gerben.passier@tno.nl']; 'Giorgio.billi@fptindustrial.com'['Giorgio.billi@fptindustrial.com']; 'giorgio.martini@jrc.ec.europa.eu'['giorgio.martini@jrc.ec.europa.eu']; 'giorgio.martini@jrc.it'['giorgio.martini@jrc.it']; 'giovanni.de-santi@ec.europa.eu'['giovanni.de-santi@ec.europa.eu']; 'giovanni.durbano@bafu.admin.ch'['giovanni.durbano@bafu.admin.ch']; 'greg.archer@transportenvironment.org'['greg.archer@transportenvironment.org']; 'guenter.hoermandinger@ec.europa.eu'['guenter.hoermandinger@ec.europa.eu']; Holdik, Hans[Hans.Holdik@bmvi.bund.de]; 'hans-rudolf.hein@bridgestone.eu'['hans-rudolf.hein@bridgestone.eu']; 'hathai@tisi.go.th'['hathai@tisi.go.th']; 'heather.hamje@concawe.org'[heather.hamje@concawe.org]; 'heiko.esser@ateel.lu'['heiko.esser@ateel.lu']; 'Heinz.Berger@astra.admin.ch'['Heinz.Berger@astra.admin.ch']; 'Heinz.Steven@t-online.de'['Heinz.Steven@t-online.de']; 'heinz.steven@o2online.de'[heinz.steven@o2online.de]; 'henk.baarbe@minienm.nl'['henk.baarbe@minienm.nl']; 'henk.j.dekker@tno.nl'['henk.j.dekker@tno.nl']; 'highband@ts2020.kr'['highband@ts2020.kr']; 'hirachan@nrcs.org.za'['hirachan@nrcs.org.za']; 'Werner.Hofegger@avl.com'[Werner.Hofegger@avl.com]; 'hschmidt@tuev-nord.de'['hschmidt@tuev-nord.de']; 'hted@bis.org.in'['hted@bis.org.in']; 'hua.lukarlsson@scania.com'['hua.lukarlsson@scania.com']; 'h-yamada@ntsel.go.jp'['h-yamada@ntsel.go.jp']; 'hypark@katech.re.kr'['hypark@katech.re.kr']; 'ian.hodgson@ec.europa.eu'['ian.hodgson@ec.europa.eu']; 'ian.marshall@aeat.co.uk'['ian.marshall@aeat.co.uk']; 'iddo@sidekickprojects.nl'['iddo@sidekickprojects.nl']; 'ih@acea.be'['ih@acea.be']; 'ikeda@ntceb.be'[ikeda@ntceb.be]; 'ikeda@ntceb.be'['ikeda@ntceb.be']; 'info@federmetano.it'['info@federmetano.it']; 'isabelle.guerin@renault.com'['isabelle.guerin@renault.com']; 'ishii@ntsel.go.jp'['ishii@ntsel.go.jp']; 'j.bozewicz@tdt.pl'['j.bozewicz@tdt.pl']; 'jacek.rostkowski@ec.gc.ca'['jacek.rostkowski@ec.gc.ca']; 'jackson.cleophas@epa.gov'['jackson.cleophas@epa.gov']; 'jacques.dartoy@total.com'['jacques.dartoy@total.com']; 'jacques.marmy@iru.org'['jacques.marmy@iru.org']; 'janghyokko@syu.ac.kr'['janghyokko@syu.ac.kr']; 'jasic@jasic.org'['jasic@jasic.org']; 'javier.lebrato@ngvaeurope.eu'[javier.lebrato@ngvaeurope.eu]; 'jcsarbach@fiev.fr'['jcsarbach@fiev.fr']; 'jean-francois.roy@ec.gc.ca'['jean-francois.roy@ec.gc.ca']; 'jens.huegel@iru.org'['jens.huegel@iru.org']; 'jiaquanli2008@163.com'['jiaquanli2008@163.com']; 'jkubsh@meca.org'['jkubsh@meca.org']; 'jmandel@emamail.org'['jmandel@emamail.org']; 'johan.renders@ec.europa.eu'['johan.renders@ec.europa.eu']; 'jon.andersson@ricardo.com'['jon.andersson@ricardo.com']; 'jon.real@infrastructure.gov.au'['jon.real@infrastructure.gov.au']; 'jps@cambustion.com'['jps@cambustion.com']; 'jseisler@cleanfuelsconsulting.org'['jseisler@cleanfuelsconsulting.org']; 'juhani.laurikko@vtt.fi'['juhani.laurikko@vtt.fi']; 'jwlee@kotsa.or.kr'['jwlee@kotsa.or.kr']; 'ka-koba@shinsa.ntsel.go.jp'['ka-koba@shinsa.ntsel.go.jp']; 'kamal.charafeddine@porsche.de'['kamal.charafeddine@porsche.de']; 'karale.dirspa@araiindia.com'['karale.dirspa@araiindia.com']; 'karsten.strobl@de.gm.com'['karsten.strobl@de.gm.com']; 'katrieng@ts2020.kr'['katrieng@ts2020.kr']; 'kkgandhi@siam.in'['kkgandhi@siam.in']; 'klaus.burger@maha.de'['klaus.burger@maha.de']; 'klaus.land@daimler.com'[klaus.land@daimler.com]; 'Kolesa, Konrad, Dr. (I/EA-52) (Konrad.Kolesa@AUDI.DE)'[Konrad.Kolesa@AUDI.DE]; 'komarov@niiat.ru'['komarov@niiat.ru']; 'kurt.engeljehringer@avl.com'['kurt.engeljehringer@avl.com']; 'Martin Lange

(Martin.Lange@uba.de)'[Martin.Lange@uba.de]; 'laroo.chris@epa.gov'['laroo.chris@epa.gov'];
'Laroo.Chris@epamail.epa.gov'['Laroo.Chris@epamail.epa.gov'];
'laura.bigi@mpsa.com'['laura.bigi@mpsa.com'];
'lennart.erlandsson@avl.com'['lennart.erlandsson@avl.com']; 'les.hill@horiba.com'['les.hill@horiba.com'];
'lianne.noseworthy@ec.gc.ca'['lianne.noseworthy@ec.gc.ca']; 'liuxin@tju.edu.cn'['liuxin@tju.edu.cn'];
'liwl@petrochina.com.cn'['liwl@petrochina.com.cn']; 'lubos.trnka@tuv-sud.cz'['lubos.trnka@tuv-sud.cz'];
'Ljubica.Radic@bmw.de'[Ljubica.Radic@bmw.de]; 'luhongyu@catarc.ac.cn'['luhongyu@catarc.ac.cn'];
'm.seifert@svgw.ch'['m.seifert@svgw.ch']; 'm.vaysblum@autorc.ru'['m.vaysblum@autorc.ru'];
'Maciej.SZYMANSKI@ec.europa.eu'['Maciej.SZYMANSKI@ec.europa.eu'];
'mafh@tsinghua.edu.cn'['mafh@tsinghua.edu.cn'];
'magnus.lindgren@trafikverket.se'['magnus.lindgren@trafikverket.se'];
'manuel.schuster@daimler.com'['manuel.schuster@daimler.com'];
'marc.kwanten@mobilit.fgov.be'['marc.kwanten@mobilit.fgov.be'];
'marc.steen@ec.europa.eu'['marc.steen@ec.europa.eu']; 'maria.spiliopoulou-
kaparia@ec.europa.eu'['maria.spiliopoulou-kaparia@ec.europa.eu'];
'martin.gerstl@de.bosch.com'['martin.gerstl@de.bosch.com'];
'martin.koubek@dot.gov'['martin.koubek@dot.gov'];
'martin.schiess@bafu.admin.ch'['martin.schiess@bafu.admin.ch'];
'martin.sommer@porsche.de'['martin.sommer@porsche.de'];
'massimo.carriero@jrc.it'['massimo.carriero@jrc.it']; 'masui-s559h@mlit.go.jp'[masui-s559h@mlit.go.jp];
'matthias.hartmann@bmw.de'['matthias.hartmann@bmw.de'];
'matthias.maedge@ngvaeurope.eu'['matthias.maedge@ngvaeurope.eu']; 'Naegeli, Matthias (EAMG/1)
(matthias.naegeli@volkswagen.de)'[matthias.naegeli@volkswagen.de];
'Matthias.Tappe@de.bosch.com'['Matthias.Tappe@de.bosch.com'];
'maurizio.parca@bridgestone.eu'['maurizio.parca@bridgestone.eu'];
'mguenthe@ford.com'['mguenthe@ford.com'];
'michael.frank@de.bosch.com'['michael.frank@de.bosch.com'];
'michael.hygrell@volvo.com'['michael.hygrell@volvo.com'];
'michel.loccufier@mobilit.fgov.be'['michel.loccufier@mobilit.fgov.be'];
'mky@chrysler.com'['mky@chrysler.com']; '????? ????' (morita-s263@mlit.go.jp)'[morita-
s263@mlit.go.jp]; 'mskim85@ts2020.kr'[mskim85@ts2020.kr];
'nakhawa.ecl@araiindia.com'['nakhawa.ecl@araiindia.com']; 'nalinee@tisi.go.th'['nalinee@tisi.go.th'];
'Nam.Ed@epamail.epa.gov'['Nam.Ed@epamail.epa.gov']; 'nan@fstyr.dk'['nan@fstyr.dk'];
'narusawa@ntsel.go.jp'['narusawa@ntsel.go.jp']; 'Nico.Schuetze@bmw.de'[Nico.Schuetze@bmw.de];
'niikuni@ntsel.go.jp'['niikuni@ntsel.go.jp']; 'Bear, Nigel (N.) (nbear@ford.com)'[nbear@ford.com];
'nikolaus.steininger@ec.europa.eu'['nikolaus.steininger@ec.europa.eu'];
'nlebigot@ccfa.fr'['nlebigot@ccfa.fr']; 'nls8@chrysler.com'['nls8@chrysler.com'];
'noriyuki_ichikawa@mail.toyota.co.jp'['noriyuki_ichikawa@mail.toyota.co.jp'];
'oberg2@volvocars.com'['oberg2@volvocars.com'];
'olechiw.michael@epa.gov'['olechiw.michael@epa.gov'];
'oliver.eberhardt@bmub.bund.de'[oliver.eberhardt@bmub.bund.de];
'oliver.moersch@daimler.com'['oliver.moersch@daimler.com']; 'p.flanker@denso.nl'['p.flanker@denso.nl'];
'p.laurent@clepa.be'['p.laurent@clepa.be']; 'paibanez@mityc.es'['paibanez@mityc.es'];
'panagiota.dilara@jrc.it'['panagiota.dilara@jrc.it']; 'patrik.soltic@empa.ch'['patrik.soltic@empa.ch'];
'paul.adams@volvo.com'['paul.adams@volvo.com'];
'per.ohlund@transportstyrelsen.se'['per.ohlund@transportstyrelsen.se'];
'p.flanker@denso.nl'[p.flanker@denso.nl]; 'peter.scherm@vdma.org'['peter.scherm@vdma.org'];
'peter.smeds@trafikverket.se'['peter.smeds@trafikverket.se']; 'peter@theicct.org'['peter@theicct.org'];
'pg@acea.be'['pg@acea.be']; 'philip.r.horton@gm.com'['philip.r.horton@gm.com'];
'pierre.bonnel@jrc.it'['pierre.bonnel@jrc.it']; 'pilar.perez@ngvaeurope.eu'['pilar.perez@ngvaeurope.eu'];
'pjhy98@korea.kr'['pjhy98@korea.kr']; 'pollak.ivan@kti.hu'['pollak.ivan@kti.hu'];
'PPRICE40@ford.com'['PPRICE40@ford.com']; 'ptinakon@hotmail.com'['ptinakon@hotmail.com'];
'qinkongjian@catarc.ac.cn'['qinkongjian@catarc.ac.cn']; 'ragnarsson@eaa.be'['ragnarsson@eaa.be'];
'rajendra.petkar@tatatechnologies.com'['rajendra.petkar@tatatechnologies.com'];
'ralph.kellermann@diplo.de'['ralph.kellermann@diplo.de']; 'Bjoern Dr. (EASZ/4) Ramacher
(bjoern.ramacher@volkswagen.de)'[bjoern.ramacher@volkswagen.de];

'ravchoda@immamotorcycles.org'['ravchoda@immamotorcycles.org']; 'Raymond Petrovan (raymond.petrovan@de.opel.com)'[raymond.petrovan@de.opel.com]; 'rdey@ccsglobalgroup.com'['rdey@ccsglobalgroup.com']; 'rene.nulens@toyota-europe.com'['rene.nulens@toyota-europe.com']; 'rjohannsen@tuev-nord.de'['rjohannsen@tuev-nord.de']; 'rlabza@hyundai-europe.com'['rlabza@hyundai-europe.com']; 'rob.cox@ipieca.org'['rob.cox@ipieca.org']; 'rob.cuelenaere@tno.nl'[rob.cuelenaere@tno.nl]; 'robert.thielgen@ateel.lu'['robert.thielgen@ateel.lu']; 'Romain.Hubert@unece.org'['Romain.Hubert@unece.org']; 'romain.lamberty@snch.lu'['romain.lamberty@snch.lu']; 'rsantafe@idiada.com'['rsantafe@idiada.com']; 'rudi.valgaeren@eur.bosal.com'['rudi.valgaeren@eur.bosal.com']; 's.piccolo@federchimica.it'['s.piccolo@federchimica.it']; 'saenzejc@inta.es'['saenzejc@inta.es']; 'saluck@tisi.go.th'['saluck@tisi.go.th']; 'samarendra.tripathy@renault.com'['samarendra.tripathy@renault.com']; 'Sanchez.James@epamail.epa.gov'['Sanchez.James@epamail.epa.gov']; 'Schrodt.Thomas@epamail.epa.gov'['Schrodt.Thomas@epamail.epa.gov']; 'Seiler@vda.de'['Seiler@vda.de']; 'serge.dubuc@t-online.de'['serge.dubuc@t-online.de']; 'shirish.a.shimpi@cummins.com'['shirish.a.shimpi@cummins.com']; 'simlaoz@mfa.gov.tr'['simlaoz@mfa.gov.tr']; 'simon.davies@dft.gsi.gov.uk'['simon.davies@dft.gsi.gov.uk']; 'Simon.Karl@epamail.epa.gov'['Simon.Karl@epamail.epa.gov']; 'singh.ecl@araiindia.com'['singh.ecl@araiindia.com']; 'SOMNUEK JAROONJITSATHIAN (somnuek.j@pttplc.com)'[somnuek.j@pttplc.com]; 'spark@korea.ac.kr'['spark@korea.ac.kr']; 'spetrovic@mas.bg.ac.rs'['spetrovic@mas.bg.ac.rs']; 'srmarathe@araiindia.com'['srmarathe@araiindia.com']; 'Stendel, Detlef (EASZ/1) (detlef.stendel@volkswagen.de)'[detlef.stendel@volkswagen.de]; 'stephan.hartmann@volkswagen.de'['stephan.hartmann@volkswagen.de']; 'sylvie.gingras@bnq.qc.ca'['sylvie.gingras@bnq.qc.ca']; 'Takakazu.Fukuoka@toyota-europe.com'['Takakazu.Fukuoka@toyota-europe.com']; 'Takashi_Fujiwara@n.t.rd.honda.co.jp'[Takashi_Fujiwara@n.t.rd.honda.co.jp]; 'Tatsumori_A_Matsushita@hm.honda.co.jp'[Tatsumori_A_Matsushita@hm.honda.co.jp]; 'tce@jama-e.be'['tce@jama-e.be']; 'technique@ccfa.fr'['technique@ccfa.fr']; 'techsec@clepa.be'['techsec@clepa.be']; 'thachapongt@yahoo.com'['thachapongt@yahoo.com']; 'thaniu@jari.or.jp'['thaniu@jari.or.jp']; 'thomas.58830.johansson@volvocars.com'[thomas.58830.johansson@volvocars.com]; 'thomas.goldbach@gm.com'['thomas.goldbach@gm.com']; 'Thomas Vogel (thomas.vogel@de.opel.com)'[thomas.vogel@de.opel.com]; 'thorsten.leischner@daimler.com'['thorsten.leischner@daimler.com']; 'TKOSMEHL@ford.com'['TKOSMEHL@ford.com']; 'tmayer4@ford.com'['tmayer4@ford.com']; "Yuki Toba' (toba@jasic.org)'[toba@jasic.org]; 'toba@jasic.org'['toba@jasic.org']; 'toni.lehn@delphi.com'['toni.lehn@delphi.com']; 'Toshihisa_Yamaguchi@hm.honda.co.jp'[Toshihisa_Yamaguchi@hm.honda.co.jp]; 'tstoffels@rdw.nl'['tstoffels@rdw.nl']; 'ueda-j2kt@mlit.go.jp'['ueda-j2kt@mlit.go.jp']; 'uhlik.krisztian@kti.hu'['uhlik.krisztian@kti.hu']; 'uklein@ford.com'['uklein@ford.com']; 'ulrich.beutke@mtu-online.com'['ulrich.beutke@mtu-online.com']; 'ulrich.gottwick@de.bosch.com'['ulrich.gottwick@de.bosch.com']; 'uwe.thien@magnasteyr.com'['uwe.thien@magnasteyr.com']; 'volker.rothe@de.opel.com'['volker.rothe@de.opel.com']; "wouter.vandermeulen@daimler.com' (wouter.vandermeulen@daimler.com)'[wouter.vandermeulen@daimler.com]; 'Werner.Hofegger@avl.com'[Werner.Hofegger@avl.com]; 'Werner.Tober@ifa.tuwien.ac.at'['Werner.Tober@ifa.tuwien.ac.at']; 'william.coleman@volkswagen.de'['william.coleman@volkswagen.de']; 'Wim.van.der.Borght@toyota-europe.com'['Wim.van.der.Borght@toyota-europe.com']; 'winfried.hartung@de.gm.com'['winfried.hartung@de.gm.com']; 'woitsch@dekra-automobil.cz'['woitsch@dekra-automobil.cz']; 'wolfgang.schindler@avl.com'['wolfgang.schindler@avl.com']; 'wuxf@craes.org.cn'['wuxf@craes.org.cn']; 'y-katsumata@mail.nissan.co.jp'[y-katsumata@mail.nissan.co.jp]; 'y-katsumata@mail.nissan.co.jp'['y-katsumata@mail.nissan.co.jp']; 'youlinhua@catarc.ac.cn'['youlinhua@catarc.ac.cn']; 'yphou@tongji.edu.cn'['yphou@tongji.edu.cn']; 'yssong@katech.re.kr'['yssong@katech.re.kr']; 'yu.jia@uaes.com'['yu.jia@uaes.com']; 'Covadonga Astorga-Lloren (covadonga.astorga-

llorens@jrc.ec.europa.eu)'[covadonga.astorga-llorens@jrc.ec.europa.eu]; 'Olle' 'Berg (olle.berg@volvocars.com)'[olle.berg@volvocars.com]; 'alexander.bergmann@avl.com'[alexander.bergmann@avl.com]; 'Markus.Bergmann@AUDI.DE'[Markus.Bergmann@AUDI.DE]; 'anoop.bhat@maruti.co.in'[anoop.bhat@maruti.co.in]; 'laura.bigi@mpsa.com'[laura.bigi@mpsa.com]; 'rob.cuelenaere@tno.nl'[rob.cuelenaere@tno.nl]; 'Coleman, William (EAMG/1) (william.coleman@volkswagen.de)'[william.coleman@volkswagen.de]; 'Oliver.eberhardt@bmub.bund.de'[Oliver.eberhardt@bmub.bund.de]; 'Andreas.EA.Eder@bmw.de'[Andreas.EA.Eder@bmw.de]; 'AVL/GRZ'[kurt.engeljehringer@avl.com]; 'Cecile.Favre@aecc.eu'[Cecile.Favre@aecc.eu]; 'Feucht, Annette (I/EG-341) (Annette.Feucht@AUDI.DE)'[Annette.Feucht@AUDI.DE]; 'p.flanker@denso.nl'[p.flanker@denso.nl]; 'Takashi_Fujiwara@n.t.rd.honda.co.jp'[Takashi_Fujiwara@n.t.rd.honda.co.jp]; 'Takakazu.Fukuoka@toyota-europe.com'[Takakazu.Fukuoka@toyota-europe.com]; 'thaniu@jari.or.jp'[thaniu@jari.or.jp]; 'winfried.hartung@de.gm.com'[winfried.hartung@de.gm.com]; 'les.hill@horiba.com'[les.hill@horiba.com]; 'Werner.Hofegger@avl.com'[Werner.Hofegger@avl.com]; Holdik, Hans[Hans.Holdik@bmvi.bund.de]; 'Caroline Hosier (chosier@ford.com)'[chosier@ford.com]; 'thomas.58830.johansson@volvocars.com'[thomas.58830.johansson@volvocars.com]; '??? (cha1052@ts2020.kr)'[cha1052@ts2020.kr]; 'fkoehler@tuev-nord.de'[fkoehler@tuev-nord.de]; 'Christoph.Lueginger@bmw.de'[Christoph.Lueginger@bmw.de]; 'alessandro.marotta@jrc.ec.europa.eu'[alessandro.marotta@jrc.ec.europa.eu]; 'masui-s559h@mlit.go.jp'[masui-s559h@mlit.go.jp]; 'Naegeli, Matthias (EAMG/1) (matthias.naegeli@volkswagen.de)'[matthias.naegeli@volkswagen.de]; 'H. A. Nakhawa (nakhawa.ecl@araiindia.com)'[nakhawa.ecl@araiindia.com]; 'Tetsuya Niikuni (niikuni@ntsel.go.jp)'[niikuni@ntsel.go.jp]; 'Andreas.Obieglo@bmw.de'[Andreas.Obieglo@bmw.de]; 'per.ohlund@transportstyrelsen.se'[per.ohlund@transportstyrelsen.se]; 'katrieng@ts2020.kr'[katrieng@ts2020.kr]; 'Raymond Petrovan (raymond.petrovan@de.opel.com)'[raymond.petrovan@de.opel.com]; 'Ljubica.Radic@bmw.de'[Ljubica.Radic@bmw.de]; 'Iddo Riemersma (iddo@sidekickprojects.nl)'[iddo@sidekickprojects.nl]; 'ARijnders@rdw.nl'[ARijnders@rdw.nl]; 'folko.rohde@volkswagen.de'[folko.rohde@volkswagen.de]; 'Ingo Dr. (EAMG/1) Scholz (ingo.scholz@volkswagen.de)'[ingo.scholz@volkswagen.de]; 'Nico.Schuetze@bmw.de'[Nico.Schuetze@bmw.de]; 'Christophe.Sierens@honda-eu.com'[Christophe.Sierens@honda-eu.com]; 'Nikolaus.Steininger@ec.europa.eu'[Nikolaus.Steininger@ec.europa.eu]; 'Heinz Steven (Heinz.Steven@t-online.de)'[Heinz.Steven@t-online.de]; 'Matthias.Tappe@de.bosch.com'[Matthias.Tappe@de.bosch.com]; 'celine.vallaude@utaceram.com'[celine.vallaude@utaceram.com]; ''wouter.vandermeulen@daimler.com' (wouter.vandermeulen@daimler.com)'[wouter.vandermeulen@daimler.com]; 'DIMITRIS VARTHOLOMAIOS (D.VARTHOLOMAIOS@denso.be)'[D.VARTHOLOMAIOS@denso.be]; 'Thomas Vogel (thomas.vogel@de.opel.com)'[thomas.vogel@de.opel.com]; 'claudia.walawski@daimler.com'[claudia.walawski@daimler.com]; 'ernst_peter.weidmann@daimler.com'[ernst_peter.weidmann@daimler.com]; 'yuanying@craes.org.cn'['yuanying@craes.org.cn']; 'zisis@auth.gr'['zisis@auth.gr']; 'Zhang, Mang@ARB'[Mang.Zhang@arb.ca.gov]; 'Ovidiu Talmaciu'[ovytt@yahoo.com]; 'fakmadza@hyundai-europe.com'[fakmadza@hyundai-europe.com]; 'Covadonga Astorga-Iloren (covadonga.astorga-llorens@jrc.ec.europa.eu)'[covadonga.astorga-llorens@jrc.ec.europa.eu]; 'Olle' 'Berg (olle.berg@volvocars.com)'[olle.berg@volvocars.com]; 'Markus.Bergmann@AUDI.DE'[Markus.Bergmann@AUDI.DE]; 'laura.bigi@mpsa.com'[laura.bigi@mpsa.com]; 'volker.blum@daimler.com'[volker.blum@daimler.com]; 'rob.cuelenaere@tno.nl'[rob.cuelenaere@tno.nl]; 'Coleman, William (EAMG/1) (william.coleman@volkswagen.de)'[william.coleman@volkswagen.de]; 'francois.cuenot@transportenvironment.org'[francois.cuenot@transportenvironment.org]; 'Doberauer, Fredrik (fredrik.doberauer@volvocars.com)'[fredrik.doberauer@volvocars.com]; 'giovanni.durbano@bafu.admin.ch'[giovanni.durbano@bafu.admin.ch]; 'Oliver.eberhardt@bmub.bund.de'[Oliver.eberhardt@bmub.bund.de]; 'Andreas.EA.Eder@bmw.de'[Andreas.EA.Eder@bmw.de]; 'Cecile.Favre@aecc.eu'[Cecile.Favre@aecc.eu]; 'Feucht, Annette (I/EG-341)

(Annette.Feucht@AUDI.DE)'[Annette.Feucht@AUDI.DE];
'Takashi_Fujiwara@n.t.rd.honda.co.jp'[Takashi_Fujiwara@n.t.rd.honda.co.jp];
'Takakazu.Fukuoka@toyota-europe.com'[Takakazu.Fukuoka@toyota-europe.com];
'thaniu@jari.or.jp'[thaniu@jari.or.jp]; 'winfried.hartung@de.gm.com'[winfried.hartung@de.gm.com];
'Caroline Hosier (chosier@ford.com)'[chosier@ford.com]; 'alpha7th@korea.ac.kr'[alpha7th@korea.ac.kr];
'thomas.58830.johansson@volvocars.com'[thomas.58830.johansson@volvocars.com];
'peterlee@ts2020.kr'[peterlee@ts2020.kr]; ??? (jhlee@ts2020.kr)[jhlee@ts2020.kr]; ???
(jongsoon@ts2020.kr)[jongsoon@ts2020.kr];
'Christoph.Lueginger@bmw.de'[Christoph.Lueginger@bmw.de];
'alessandro.marotta@jrc.ec.europa.eu'[alessandro.marotta@jrc.ec.europa.eu];
'gascar@korea.ac.kr'[gascar@korea.ac.kr]; 'Naegeli, Matthias (EAMG/1)
(matthias.naegeli@volkswagen.de)'[matthias.naegeli@volkswagen.de]; 'H. A. Nakhawa
(nakhawa.ecl@araiindia.com)'[nakhawa.ecl@araiindia.com]; 'Tetsuya Niikuni
(niikuni@ntsel.go.jp)'[niikuni@ntsel.go.jp]; 'Andreas.Obieglo@bmw.de'[Andreas.Obieglo@bmw.de];
'per.ohlund@transportstyrelsen.se'[per.ohlund@transportstyrelsen.se];
'spark@korea.ac.kr'[spark@korea.ac.kr]; 'Ljubica.Radic@bmw.de'[Ljubica.Radic@bmw.de]; 'Iddo
Riemersma (iddo@sidekickprojects.nl)'[iddo@sidekickprojects.nl]; 'ARijnders@rdw.nl'[ARijnders@rdw.nl];
'folko.rohde@volkswagen.de'[folko.rohde@volkswagen.de]; 'Helge Schmidt (hschmidt@tuev-
nord.de)'[hschmidt@tuev-nord.de]; 'Nico.Schuetze@bmw.de'[Nico.Schuetze@bmw.de];
'Nikolaus.Steininger@ec.europa.eu'[Nikolaus.Steininger@ec.europa.eu]; 'Heinz Steven (Heinz.Steven@t-
online.de)'[Heinz.Steven@t-online.de]; 'Ovidiu Talmaciu (ovytt@yahoo.com)'[ovytt@yahoo.com];
'celine.vallaude@utaceram.com'[celine.vallaude@utaceram.com]; "wouter.vandermeulen@daimler.com'
(wouter.vandermeulen@daimler.com)'[wouter.vandermeulen@daimler.com]; 'Thomas Vogel
(thomas.vogel@de.opel.com)'[thomas.vogel@de.opel.com];
'claudia.walawski@daimler.com'[claudia.walawski@daimler.com]; 'jasic?? ??'
(yamashita@jasic.org)[yamashita@jasic.org];
'xiaolu.chen@volkswagen.com.cn'[xiaolu.chen@volkswagen.com.cn];
'geyunshan@bit.edu.cn'[geyunshan@bit.edu.cn];
'yangzhengjun@catarc.ac.cn'[yangzhengjun@catarc.ac.cn]; 'yjl@kier.re.kr'[yjl@kier.re.kr];
'matthias.huelswitt@daimler.com'[matthias.huelswitt@daimler.com]
Cc: 'noriyuki_ichikawa@mail.toyota.co.jp'[noriyuki_ichikawa@mail.toyota.co.jp]; 'ka-
koba@shinsa.ntsel.go.jp'[ka-koba@shinsa.ntsel.go.jp]; 'Kolesa, Konrad, Dr. (I/EA-52)
(Konrad.Kolesa@AUDI.DE)'[Konrad.Kolesa@AUDI.DE]; "Yuki Toba' (toba@jasic.org)'[toba@jasic.org];
'serge.dubuc@t-online.de'[serge.dubuc@t-online.de]
From: Redmann, Stephan
Sent: Fri 10/30/2015 4:52:59 PM
Subject: WLTP IWG No. 12 - Minutes & Finalization of GTR Working document
WLTP-12-33e - Minutes WLTP IWG meeting_No 12_151008.pdf

Dear IWG members,

Please apologize that I've disappeared for weeks. Due to other emission related events I was forced to prioritize my working items and my time was completely blocked.

I guess all interested parties are already aware of the fact that the final WLTP IWG meeting in Tokyo was a success. The gtr draft proposals have been adopted and the remaining open items have been closed. In this regard I would like to thank Vize-Chair Kobayashi-san and Co-Technical Secretary Ichikawa-san, who finalized successfully WLTP phase 1B! Special thanks also too all the experts who supported the leading team in Tokyo, especially Murkus Bergmann, who prepared the meeting minutes (see attachment WLTP-12-33e).

The greatest contribution to the success of the meeting has of course already made in advance of the meeting. All proposals were excellent prepared, pre-discussed and drafted. In this regard I would like to thank all involved task force & subgroup leaders and the countless experts who spent so much efforts to improve GTR No. 15. What I appreciate the most is that WLTP IWG worked as a team. Of course experts from different sides have not always the same views, therefore some of the discussions have been hard, but I always recognized that representatives from Governments, NGOs and independent experts discussed in a very fair, open and constructive way. Independent from different viewpoints, the main aim of all experts was to improve the contents of the GTR. Thanks for that, it was really a pleasure to work with all of you!

Another special thank goes to our Drafting Coordinator, Serge Dubuc. Honestly, he had probably the toughest job and definitely one I didn't envy him for. I guess all experts who were involved in the drafting work know what I mean. This is to inform you that Serge Dubuc successfully finalized the GTR draft document until the given deadline of the UN. The draft was provided to the UN Secretariat on October 19th. **The GRPE working document is foreseen to be uploaded to the UN webpage on November 3rd!**

Btw: all other new documents from the Tokyo meeting have been uploaded to the IWG folder on the UN webpage:

https://www2.unece.org/wiki/display/trans/WLTP+12th+session

I'm looking forward to seeing some you again in Geneva in January!

Best regards

Stephan Redmann

(Chair of WLTP IWG)

Federal Ministry of Transport and digital Infrastructure

Division LA27

Automotive Engineering (Environment)

Robert-Schuman-Platz 1

53175 Bonn, GERMANY

Tel.: +49 (0)228-300- 4371

Fax: +49 (0)228-300-807-4371

email: stephan.redmann@bmvi.bund.de

Working Paper No WLTP-12-33e
(12th WLTP IWG meeting)

M I N U T E S

of the 12th WLTP IWG Meeting

Tokyo, Japan 29.09.2015 – 01.10.2015

1. Welcome & organization

Vice Chair Kobayashi-san welcomed the participants for the meeting No 12 in Japan. Ohashi-san from MLIT welcomed the participants and expressed the need for international harmonization and outlined that in Japan the gtr will be incorporated in regional legislation soon.

List of Participants

Appendix: Participants list

2. Adoption of agenda & minutes

Minutes of the 11th IWG meeting (WLTP-11-28e) were adopted without changes.

The presented agenda for the 12th meeting was adopted.

3. Open Issues Table

Update since 11th IWG meeting (WLTP-12-03e) was presented. Ichikawa-san asked for positive and constructive discussions of all participants to close all open issues during the Tokyo meeting.

4. Main part & Cycle issues (Annex 1 & 2) (Wednesday afternoon)

Downscaling / gearshifting (OIL #4-9):

- Progress report by H. Steven (WLTP-12-17e-rev1)
- **Adoption of gtr draft proposals**:

  # 06: definition of n_{min_drive}

VW FOIA, EPA 06/20/2017 2017-FFP_035462

1b_6: Additional requirements from the TF: vehicle classification, downscaling, reporting calculation of average gear

Heinz Steven gave an overview on the latest results of the gear shift task force. The text of the gtr has been amended on several paragraphs for clarity. A definition to determine the full load curve according to R85 and the requirement to measure n_{idle} will be added in the oncoming drafting meeting. The proposal of amendments was **adopted.**

For ICE vehicles with downscaled cycles it was unclear whether to apply the downscaled cycle of vehicle L or H for the interpolation family. Chr. Lueginger proposed the following calculation procedure. For ICE vehicles, tests with vehicle L and H will be driven with the applicable (downscaled) cycle and the interpolation of the cycle energies will be based on the individual downscaled cycles. At the request of the manufacturer the cycle for vehicle L can be used instead of individual downscaled cycles. Theoretically, this methodology is also applied for PEV downscale

- **Adopted**

In conjunction with the above methodology (apply individual downscaled cycles), IWG has made a decision to make the selection of the applicable cycle on the kerb mass - not on the test mass requested by OICA.

Since a definition of "unladen mass" is not in the gtr, all calculations where "unladen mass" is used will be changed to calculations with "mass in running order".

Manual gear shift n_{min_drive}: Chr. Lueginger presents a proposal on n_{min_drive} based on a former proposal by VOLVO that gives a CO_2 benefit for technologies that achieve higher low end torque.

- The current definition of n_{min_drive} in the gtr will be kept. The CPs ask to postpone the decision and to discuss this issue again in phase 2a.

VW FOIA, EPA 06/20/2017 2017-FFP_035463

5. **RLD & dyno setting (Annex 4)** (Wednesday morning)

- Progress report on RLD issues by R. Cuelenaere (WLTP-12-25e).

  Rob Cuelenaere gave an overview on the good progress by outpointing that all open issues of the subgroup Annex 4 were ready for adoption.

  Torquemeter, onboard anemometer, Default road load parameters, road load matrix family, tyre rolling resistance, wind tunnel – chassis dyno .etc.

  Document WLTP 12-26e by A. Feucht on tolerances, margins, precisions was presented by Rob Cuelenaere:

  4.3.1.3.4. Restrict the number of parts for split runs for road load setting to 3

  - Japan does not support the proposal, since several test tracks would have to be closed – Japan: keep the current text and discuss it again in phase 2 in conjunction with ISC (in service conformity).

  The proposal to change atmospheric temperature 278 to 313 K--> 278 to 303 K was rejected. This temperature range was determined based on intensive discussion and political agreement during phase1a.

  If the temperature difference between end and start of the coastdown tests is more than 5 K the correction has to be done separately.

  4.1.1.2. The **green text** in the proposal has to be amended for clarification. If the temperature of all individual coastdown runs is in a range of 5 K the mean temperature can be used for calculation. When 5 K are exceeded the temperature of the individual runs has to be used for calculation. The drafting task force will deal with this issue.

  - **Adopted**

- **Adoption of gtr draft proposals**:

  # 4, 7, 15, 16, 20: Torque meter method (incl. road load curve correction / chassis dyno load setting).

VW FOIA, EPA 06/20/2017 2017-FFP_035464

Rob Cuelenaere presented WLTP 12-05. All approaches and open issues were drafted and ready for adoption (lead FORD). Rob briefly described the open issues and the proposed approach in a table.

Definitions have been updated for consistency in Annex 4 (e.g. Road load replaces total resistance …).

- Changes in Annex 1 and Annex 2 were necessary to update the method for determination of the downscaling factor to account for data coming from the torque meter method.
- Annex 4: Definition of road load coefficients f0, f1, f2

Accuracies were updated

4.4.1. India asked to also incorporate **national** standards in addition to international standards for the calibration of torque meters.

India: 4.3.2. meaning of the two different tolerances for velocity deviation (one from mean and one from reference speed) has to be clarified in the drafting group.

7.3.3.1.: India asked for an additional sentence to be drafted (conditions when the dynamic radius has to be calculated and how to deal with vehicles than cannot reach the speed of 80 km/h) India is asked to draft a text to clarify the provisions for dynamic radius.

- All issues were **adopted**, comments made by India have to be reflected in the drafting meeting

- Draft gtr proposal by TNO (WLTP-12-05e)

13: Onboard-anemometry / wind conditions

- Gtr improvements (e.g. based on SAE) by Ford (WLTP-12-06e)

Rob Anthony (Ford) presented (WLTP-12-06e) via telco. A special focus was on open issue #13:

VW FOIA, EPA 06/20/2017 2017-FFP_035465

Rob Cuelenaere presented several amendments for clarity in numerous paragraphs.

E.g.: Wind conditions were set to max 7m/s, with peaks up to 10 m/s and cross wind with a maximum speed of 4 m/s

Warm up and stabilization has been aligned with the stationary method, additional instrumentation and calibration is included.

Vehicle coastdown procedure: number of tests (at least 10 consecutive runs (5 pairs)) and statistical criteria have been specified.

The position of the anemometer on the bonnet was added.

India pointed out that the referenced ISO in the draft text is from 2006, and asks Rob to confirm if there is a newer version of this standard. Rob points out that the proposal is mainly based on the SAE procedure and offered to search for updated ISO standards for calibration.

- All changes were **Adopted**

17: Road Load Matrix Family

- Gtr draft proposal (WLTP-12-07e)
- Combined progress report by RDW / Daimler (WLTP-12-24e)

André Rijnders gave an overview on the current state of the Default Road Load proposal.

Rob Cuelenaere presented the draft text (WLTP 12-07) on changes of the gtr with respect to the road load matrix issues.

- **Adopted**

18: Wind tunnel method as alternative RLD method

- Chassis dyno prescriptions (WLTP-12-14-rev2e)
- Final GTR draft wind tunnel method (WLTP-12-21e)

VW FOIA, EPA 06/20/2017 2017-FFP_035466

Rob Cuelenaere presented the issues. The wind tunnel method has already been adopted in a former IWG. Additional provisions for the use of dyno rollers have been developed.

Chr. Lueginger gave an overview on Chassis dynamometer descriptions in the gtr and on amendments and changes to current texts. The alignment of the provisions for dynamometers for emission measurement testing (Annex 6) and dynamometers used for determination of forces as an alternative for the use of flat belts were presented.

- All issues were **Adopted**

1b_3: Tyre selection

Gtr draft proposal by Klaus Steininger, if available

Klaus Steininger pointed out that no data has been received by ETRTO or manufacturers and proposed to keep the gtr text as it is. If further information will be available the issue might be reopened again in phase 2.

- For information purposes:

1b_5 - Overview matrix of Annex 4 tolerances by Japan (WLTP-12- 26e)
- Study on Evaluation Criteria of Road Load Tolerance in Korea; (WLTP-12- 29e-rev1) by Korea

K. Cha-Ryung of KATRI presented a road load evaluation based on energy calculation. If the declared road load and the measured road loads lead to differences in energy lower than 15 % the measured road load will be used for certification. Measurements of road load will be performed by Korean authorities.

EU Com supports the general approach of Korea and wants to evaluate it in phase 2.

6. Test procedure and conditions (Annex 6) (Tuesday)

VW FOIA, EPA 06/20/2017 2017-FFP_035467

- **Adoption of gtr draft proposals**:

  # 27: Number of tests

  - Progress report by T. Fujiwara (WLTP-12-15e)

  - Gtr draft proposal (WLTP-12-16e) by T. Fujiwara, incl. proposals for hybrid vehicles and solution for dp values. If not yet agreed on expert level, **decision** by CPs on dp values approach

  Draft gtr text was presented by Fujiwara-san including phase specific values. It was proposed to have **dCO2 values as CP option**.

  - **Adopted**

  Remarks: Korea intends to align dCO2 with Japan.

  India has not discussed the issue but a harmonized dCO2 is preferred.

  # New: Post processing proposal by Chr. Lueginger

  - Starting note (WLTP-12-08-rev1e)
  - GTR draft proposal (WLTP-12-09-rev1e)
  - Excel tool (WLTP-12-10-rev1e)

  Ch. Lueginger presented a starting note on a calculation concept.

  For ICE vehicles the concept was **adopted** by CPs
  For NOVC-HEV, OVC-HEV(CS) and fuel cell vehicles the concept **Option 1** was **adopted**.

  The order of calculations was adopted, excluding EV specific issues.

  The work will be finished within phase 1b, Ch. Lueginger will lead the process.

  For OVC-HEV(CD) and PEV, data post-processing will be determined during phase2.

  For Ki determination RCB correction is not necessary.

  # 29, 41: Speed trace violations / Drive Trace Index

VW FOIA, EPA 06/20/2017 2017-FFP_035468

- Progress report and gtr draft proposal by N. Ichikawa (WLTP-12-27e)

Ichikawa-san presented the outcome of his taskforce on Speed trace violations / Drive Trace Index. Drive trace tolerances will be kept but not shown on the drivers aid screen.

Indexes according to SAE J 2951 will be applied as a reference without criterion (data collection for monitoring).

Further approaches could be considered after the monitoring phase in 2020.

- **Adopted** by CPs

Ki determination – family definition

Proposal: adopt modified provisions of R83

Include (c) in (b) dosage an additive system in type of system

(e) location (temperature +/- 100 °C at 2nd highest reference speed of the applicable WLTC test cycle)

Vehicles are allowed in the family provided they have a test mass, which is up to 250 kg higher or any lower than that of the vehicle used in the test.

- **Adopted**

7. Calculations (Annex 7) (wednesday)

46, 47 Additional pollutants

- Report (WLTP-12-22e), incl. validation results, by C. Astorga

Cova Astorga gave an overview on the laboratory equipment at JRC and the measurement techniques used to measure Ethanol, Acetaldehyde and Formaldehyde. The performance, repeatability and precision of all measurements and therefore instruments used was satisfactory.

- introduction of the presented additional methods adopted, draft text will be provided to add pollutant group, measurement equipment group and IWG consecutively. If text on all or individual methods will be ready and agreed upon during phase 1b it will be incorporated in the gtr.

Further work and remaining draft text will be provided during phase 2.

- **Adopted**

VW FOIA, EPA 06/20/2017 2017-FFP_035469

- **Adoption of gtr draft proposals:**

Calculation formulas for ethanol and aldehydes

Presentation by Thomas Adam (AUDI) was given by Markus Bergmann. Since the acronym OHC implies that all oxygenated hydrocarbons are covered and not only Ethanol, Acetaldehyde and Formaldehyde it was decided to use the acronym EAF.

- The principle is **adopted** by the CPs – draft text to be provided by M. Bergmann and to be introduced in the drafting meeting on Friday.

8. WLTP Subgroup EV (Annex 8) (Monday)

- Progress report (WLTP-12-19e) and **adoption of gtr draft proposals:**

Niikuni-san informed the group that all remaining issues were successfully completed.

02, 55, 56: The interpolation family approach and phase specific calculation family definition was accomplished:

The approach will be used, but there is no interpolation approach for R_{cda} in phase 1b.

Niikuni-san explained how R_{cda} leads to different results in blended mode and electric mode and has no relevant information for the customer, furthermore the linearity of the interpolation line is not given.

- **Adopted**

51: Mode selectable switch

OVC-HEV in CD, NOVC-HEV and OVC-HEV in CS and PEV

Flowcharts for mode selection were presented.

Clarification: The manufacturer has to give evidence about the mode of highest electric consumption, on request of the authorities the electric consumption has to be shown.

- **Adopted**

52: End of PEV range criteria

The downscaling method of the xHigh phase for PEV was introduced. It was decided to have capped speed and distance compensation as a regional

VW FOIA, EPA 06/20/2017 2017-FFP_035470

option. Furthermore, a new method for the compensation of running distance was introduced.

The method of capped speed is now available for **all types of vehicles** with compensation of running distance.

□ **Adopted**

58: PEV shorten test procedure

Depending on the maximum electric range different procedures are mandatory (low range: consecutive cycles, high range: shortened test procedure) In the shortened test procedure the applicable cycle shall be used (e.g. capped speed cycle).

□ **Adopted**

Implementation of capped speed for speed limited vehicles and compensation of running distance is in line with the procedure for ICE vehicles. The EV group asks to incorporate it in Annex 1:

□ **Adopted** by all CPs with the following restrictions or amendments

Japan adopted **as CP option**

India adopted (mid, high and High phase to be included), text will be modified by Heinz Steven accordingly

The definition of max speed shall be as defined in R-86 or as defined by the CP.

- Phase 2 issues:

Classification of EVs and power determination and interpolation of Rcda.

9. GTR Drafting (Thursday)

- Overview

- Progress report by Drafting Coordinator, S. Dubuc (WLTP-12-18e)

VW FOIA, EPA 06/20/2017 2017-FFP_035471

- Current GTR draft (WLTP-12-04e & WLTP-12-04_clean)
- Overview on open drafting issues (WLTP-12-18e)

Serge Dubuc reported on the current discussions, drafting issues and adoptions. Numbers of equations and the respective cross references will be eliminated. He presented the dates for the next draft meetings and gave an overview on milestones of the gtr.

- Definitions
  - Proposal for gtr amendment by SG Drafting (WLTP-12-13e), incl. VPSD definitions (OIL#1b_1)
  - Final review of GTR definitions (WLTP-12-20e)
  - Proposals for PM / PN / Particle matter definitions (WLTP-12-12e)

Bill Coleman presented a review on definitions especially focussing on the differences of particulate matter and particulate matter emissions. Further work has been done e.g. on road load, clarification of the term mode (driver selectable) vs. vehicle coast down mode, all electric range (AER) vs. pure electric range (PER).

The definition of defeat device will be revised in the EU and discussed again in phase 2.

- GTR Part A & Technical Report
  - Status report of review and necessary updates by Technical Sponsors (Japan, EC)

Drafting will be financed by EU-COM and drafting shall be done by Iddo Riemersma.

Mr. Riemersma asked the group to give background information on the background why several proposals have been made and if they were based on strong opinions by CPs or data by latest at end of October. The technical report of phase 1 will be amended by issues of phase 1 b. A formal document (executive summary for the gtr) has to be prepared.

Part I of the gtr has to be prepared by EU-COM.

I. General issues (Thursday)

- Round Robin exercises:
  - Reports on the European and Asian exercise by C. Vallaude and

VW FOIA, EPA 06/20/2017 2017-FFP_035472

Haniu-san (WLTP-12-xyz / -xyz)

The Asian Round Robin Test Interim report was given by Haniu–san. He explained the delay of 1 month was due to an explosion in Tianjin port. The vehicle exchange between Asia and Europe has to be discussed.

Up to now, no issues came up that would lead to a change of the current gtr text.

The European Round Robin Test Interim report was given by Bill Coleman

Bill presented a list of items with inconsistencies in the procedure in the different labs. The list will be updated and refined for the final report to be given by Céline Vallaude.

II. WLTP Phase 2 (Thursday)

Oral report on state of play by Technical Sponsors, e.g. update of mandate document for WP.29 (if available and if time allows)

Ichikawa-san informed the group about a meeting of the EU Commission and MLIT on Monday this week 28.9.2015. The following decisions were made:

The E-Lab Subgroup will continue their work with the issues mentioned in the open issue list for phase 2. For all other issue several task forces will be established. He gave information that OBD may be described in an additional gtr.

The list of phase 2 working items and schedule presented and will be circulated. Ichikawa-san asked for additional input.

III. Meeting schedule (Thursday)

- 13th WLTP IWG Meeting, Geneva, **Switzerland**
  11th January 2016, 14:30 – 17:30, possible extension to January 12th
  - Review of Informal document for amending the WLTP Phase 1B working

VW FOIA, EPA 06/20/2017 2017-FFP_035473

document, only if necessary.

- Information on WLTP Phase 2 organization

IV. **AoB**

Matthias Naegeli presented the measurement tolerances of current transducers in the gtr Annex 6 and 8. Currently there is no measurement equipment on the market that fulfills the requirements of the gtr. It is proposed to align the tolerances in Annex 6 with Annex 8. The proposed tolerances for the measurement of current for conventional vehicles are 1% of reading, 0.3 % full scale.

☐ **Adopted**

Further clarification was given that if a vehicle L is class 3 but a vehicle H is class 2 the two vehicles do not belong to the same interpolation family.

Narusawa-san gave an overview on how the gtr for type 1 tests will be implemented in new regulations with different regional levels and a separate regulation for e.g. Type II tests.

Markus Bergmann

WLTP IWG

VW FOIA, EPA 06/20/2017 2017-FFP_035474

To: richard.thomas@vw.com[richard.thomas@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Good, David
Sent: Fri 10/30/2015 6:18:04 PM
Subject: Re: 2016 FE Guide - Errors in Verify as of 6AM on Oct 27, 2015; Audi A3 etron PHEV errors attached
VW_Group_2016 FE Guide-all rel dates-no-sales-10-27-2015.xlsx

Richard,

Re: 2016 FE Guide - Errors in Verify as of 6AM on Oct 27, 2015; Audi A3 etron PHEV errors attached

Attached are the data in Verify as of 6AM on Oct 27, 2015. The PHEV data is in a separate tab than the data for conventional vehicles. Labels with pea green fill in the first few columns have errors which need to be corrected before I can have the data posted on www.fueleconomy.gov. The errors are as follows:

A3 etron:

PHEV; Errors are highlighted in yellow fill with the correct values shown in the two rows below the cell where the error occurred; Error----CS driving range should be 367 (not 380) per v18 calculator; Error---charge depleting (CD) (fuel = electricity) unrounded adjusted city/hwy energy consumption values should be 41.7/39.1 kw-hr/100 mi (instead of 42/39) to agree with v18 calculator; Error---please revise CD (fuel = electricity) unrounded unadjusted city/hwy/comb MPGe values to 114.96/123.00/118.44 mpge (instead of 0/0/0) to agree with v18 calculator; Warning - number of battery packs exceed 4; please list battery packs, not cells; Error-- combined unadjusted FE more than 0.0001 difference from our calculation of 29.515.; Please revise Verify as needed.

A3 etron Ultra:

PHEV; Errors are highlighted in yellow fill with the correct values shown in the two rows below the cell where the error occurred; Error---CS driving range should be 412 (not 430) per v18 calculator; Error---please revise CD (fuel = electricity) unrounded unadjusted city/hwy/comb MPGe values to 122.52/123.63/123.02 mpge (instead of 0/0/0) to agree with v18 calculator; Error---please revise CD (fuel = electricity) unadjusted hwy mpge from 86.5 to 86.541 to agree with v18 calculator; Error please revise CS (fuel = gasoline) Unadjusted combined CO2 from 164.5 to 165.95 to agree with v18 calculator; Error please revise Battery Charge time (where fuel = electricity) from 2.5 to 3.7 hours; Warning - number of battery packs exceed 4; please list battery packs, not cells; Please revise Verify as needed.

Please make any needed corrections to Verify when you get a chance and let me know when they have been corrected.

Thanks

Dave

2016 Model Year:

EPA Comments	Model Type Information				
EPA commVERIFY co	Model Yr (Mfr Name Division (t	Carline	Verify Mfr Index (Mo	Eng Displ	# Cyl
PHEV; ErroY	[redacted]	[redacted]	[redacted]	1.4	4
PHEV; ErroY	[redacted]	[redacted]	[redacted]	1.4	4
Correct Values:					
Correct Values:					
PHEV; ErroY	[redacted]	[redacted]	[redacted]	1.4	4
PHEV; ErroY	[redacted]	[redacted]	[redacted]	1.4	4
Correct Values:					
Correct Values:					

	Charge Sustaining Information (Gasoline Operation)								
Transmiss	City FE (G	Hwy FE (C	Comb FE	Low'd City	Low'd HW	Low'd Cor	City Unad	Hwy Unad	Comb Una
2016 Audi A3 e-tron (PHEV)									
Auto(AM-S	33	37	35	45.6	52	47.8			
Error occurred; Error---CS driving range should be 367 (not 380) per v18 calculator; Error---charge depleting (CD) (fu									
Auto(AM-S	33	37	35	45.6	52	47.8			
Error occurred; Error---CS driving range should be 367 (not 380) per v18 calculator; Error---charge depleting (CD) (fue									
2016 Audi A3 e-tron ultra (PHEV)									
Auto(AM-S	37	41	39	45.5	59	50.8			
Error occurred; Error---CS driving range should be 412 (not 430) per v18 calculator; Error---please revise CD (fuel = e									
Auto(AM-S	37	41	39	45.5	59	50.8			
Error occurred; Error---CS driving range should be 412 (not 430) per v18 calculator; Error---please revise CD (fu									

										Charge Sustaining Information (Gasoline Operation)		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	City Unrd	Hwy Unrd	Comb Unr
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.7	34.3	35
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.7	34.3	35

										Charge Sustaining Information (Gasoline Operation)		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	City Unrd	Hwy Unrd	Comb Unr
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.8	34.4	35
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.8	34.4

Lockup Tc	Trans Cre	Drive Sys	Drive Des	Primary B	Max Ethar	Max Biodi	Range1 - I	Fuel Usag	Fuel Usag
2016 Audi A3 e-tron (PHEV)									
td of 42/39) to agree with 18 calculator; Error - please revise CD (fuel = electricity) unrounded unadjusted city/h									
(bof 42/39) to agree with 18 calculator; Error - please revise CD (fuel = electricity) unrounded unadjusted city/hw									
							367		
							367		
2016 Audi A3 e-tron ultra (PHEV)									
to agreed with 18 calculator; Error - please revise CD (fuel = electricity) unadjusted hwy mpge from 86.5 to 86.541 t									
to agreed with 18 calculator; Error - please revise CD (fuel = electricity) unadjusted hwy mpge from 86.5 to 86.541 to									
							412		
							412		

	Vehicle Information								
[illegible]	[illegible]	Gas Guzz	Gas Guzz	2Dr Pass	2Dr Lugg	4Dr Pass	4Dr Lugg	Htchbk Pa	Htchbk Lu
	2016 Audi A3 e-tron (PHEV)								
[illegible]	[illegible]	Not exempt	Not exempt						
[illegible]	[illegible]	Not exempt	Not exempt						
	2016 Audi A3 e-tron ultra (PHEV)								
[illegible]	[illegible]	Not exempt	Not exempt						
[illegible]	[illegible]	Not exempt	Not exempt						

Warning - Unadjusted combined MPGe value (114.96/123.00/118.44 mpge (instead of 0/0/0) to agree with v18 calculator; Warning - n

Warning - Unadjusted combined MPGe value (114.96/123.00/118.44 mpge (instead of 0/0/0) to agree with v18 calculator; Warning - nu

Warning - Unadjusted combined MPGe value (agree with v18 calculator); Error - please revise CS (fuel = gasoline) Unadjusted combined CO2 from 164.5 to 165.95

Warning - Unadjusted combined MPGe value (agree with v18 calculator); Error - please revise CS (fuel = gasoline) Unadjusted combined CO2 from 164.5 to 165.95 t

Ann Fuel Cost		Mfr Comm	Charge Depleting Information (Electricity Operation)							
Annual Fu	EPA Calcu	Comment	City2 FE (U	Hwy2 Fue	Comb2 Fu	Low'd City	Low'd Hw	Low'd Cor	City2 Una	
1200	1200	umber of battery packs exceed 4; please list battery packs, not cells; Error--	42	39	40		KW-HR/100Miles		29.2	ore than 0.0
1200	1200	mber of battery packs exceed 4; please list battery packs, not cells; Error--	81	78	80					combined unadjusted FE more than 0.00
									29.2	
									114.96	
1050	1050	to agree with v18 calculator; Error please revise Battery Charge time (where fuel = electricity) from 2.5 to 3.7 hour	composite	93	98	95		KW-HR/100Miles		
1050	1050	o agree with v18 calculator; Error please revise Battery Charge time (where fuel = electricity) from 2.5 to 3.7 hours;	composite	86	87	86				
									122.52	

Charge Depleting Information (Electricity Operation)

Hwy2 UnaComb2 UrCnty2 UnrHwy2 UnrCmb2 Unr Range2 - Fuel2 Usa Fuel2 Usa Fuel2 Unit Fuel2 Unit

2016 Audi A3 e-tron (PHEV)

001 difference from our calculation of 29.515.; Please revise Verify as needed. Electricity KW-HR/10 kilowatt-h

01 difference from our calculation of 29.515.; Please revise Verify as needed. Electricity MPG miles per g

29.9	**29.5**	**41.7**	**39.1**	**40.0**
123	**118.44**	**80.7**	**86.1**	**83**

2016 Audi A3 e-tron ultra (PHEV)

s; Warning - number of battery packs exceed 4; please list battery packs, not cells; Please revise Verify as needed.

Warning - number of battery packs exceed 4; please list battery packs, not cells; Please revise Verify as needed. Electricity MPG miles per g

123.63	**123.02**		**86.541**	

Alternative Fuel			General Information			
Fuel2 AmCity CO2 I	Hwy CO2	Comb CO	Fuel2 EPA	Descripto	Intake Val	Exhaust V	Carline Cl	Carline Cl
								2016 Audi A3 e-tr
100 miles	1200	1200	SIDI; PHEV	2	2	4	Compact C	
1200	1200		SIDI; PHEV	2	2	4	Compact C	
								2016 Audi A3 e-tr
100 miles	1050		SIDI; PHEV	2	2	4	Compact C	
1050			SIDI; PHEV	2	2	4	Compact C	

General Information				General Hybrid Vehicle	Information - Engine, Motor/Generator, Battery Inform			
Car/Truck	Calc Appr	Sales	Release Date (EPA FE Label Datase		Unique La	Label Rec	Relabel	Relabel D
on (PHEV)								
car	Plug-in Hybrid Label	[redacted]	19168		Y	N		
car	Plug-in Hybrid Label	[redacted]	19168		Y	N		
on ultra (PHEV)								
car	Plug-in Hybrid Label	[redacted]	19165		Y	N		
car	Plug-in Hybrid Label	[redacted]	19165		Y	N		

Suppress	Police/Em	Comment	Cyl Deact	Cyl Deact	Var Valve	Var Valve	Var Valve	Var Valve	Energy St
				2016 Audi A3 e-tron (PHEV)					
N	N	Engine Coc	N	Y	Electro/Hy	N			Battery(s)
N	N	Engine Coc	N	Y	Electro/Hy	N			Battery(s)
				2016 Audi A3 e-tron ultra (PHEV)					
N	N	Engine Coc	N	Y	Electro/Hy	N			Battery(s)
N	N	Engine Coc	N	Y	Electro/Hy	N			Battery(s)

evice Desc	Energy St	# Batteries	Battery Ty	Battery Ty	Total Volt	Batt Ener	Batt Spec	Batt Char	Comment	# Capacito
		96	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		96	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		???								
		???								
		96	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		96	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		???								
		???								

General Hybrid Vehicle Information - Engine, Motor/Generator, Battery Information, etc.

Regen Bra	Regen Bra	Regen Bra	Driver Cnt	Fuel Cell I	Usable H2	Fuel Cell (	HEV-EV C	# Drive Mc	Motor Ger
2016 Audi A3 e-tron (PHEV)									
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M
2016 Audi A3 e-tron ultra (PHEV)									
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M

Motor Ger	Rated Mot	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Cell V	Off Board	Camless V	Oil Viscosi
									2016 Audi A3 e-tr
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW
									2016 Audi A3 e-tr
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW

Stop/Start	Stop/Start	Trans in FE	Trans as I	Model Typ	Charge De	Charge De	Charge Su	Charge Su	EPA Calcul
on (PHEV)									
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C	Charge Sustaining 2-cycle		
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C	Charge Sustaining 2-cycle		
on ultra (PHEV)									
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C	Charge Sustaining 2-cycle		
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C	Charge Sustaining 2-cycle		

		FE & GHG Ratings		#1 Smog Rating Test Group	
[illegible] EPA Calculated Gas G	[illegible]	[illegible]	[illegible] GHG Ratin	#1 Smog R	#1 Mfr Sm	#1 EPA Sm	SmartWay
		2016 Audi A3 e-tron (PHEV)					
47		9	10	GVGAV01.		8	
47		9	10	GVGAV01.		8	
		2016 Audi A3 e-tron ultra (PHEV)					
53.4		10	10	GVGAV01.		8	
53.4		10	10	GVGAV01.		8	

CONFIDENTIAL

#2 Smog Rating Test Group				#3 Smog Rating Test Group				#4 Smog Rating Test Group	
[illegible]	[illegible]	[illegible]	[illegible]	#3 Smog R	#3 Mfr Sm	#3 EPA Sm	SmartWay	#4 Smog R	#4 Mfr Sm
									2016 Audi A3 e-tr
									2016 Audi A3 e-tr

Smog Rating Test Group	You Save/You Spend	Adjusted Gasoline CO2			Voluntarily Increased CO2		
[illegible]	You Save$ You Spe	City CO2 R	Hwy CO2 R	Comb CO2	CO2- Volu	CO2- Volu	CO2-Vol In
on (PHEV)							
	3000	0	0	0			
	3000	270	242	257			
on ultra (PHEV)							
	3750	0	0	0			
	3750	240	214	228			

Unadjusted Gasoline CO2			Adjusted Gasoline CO2			PHEV	Battery Charge Time		PHEV Total Range
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	240V Char	120V Char	PHEV Tota
					2016 Audi A3 e-tron (PHEV)				
0	0	0	0	0	0	158	2.5		380
204	171	189.2	270	242	257	158	2.5		380
					2016 Audi A3 e-tron ultra (PHEV)				
0	0	0	0	0	0	138	2.5		430
179	150	164.5	240	214	228	138	3.7		430
							3.7		
		165.95							

PHEV Composite MPGe			Combined Fuel Consumpt (gal/100mi)		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

L

[illegible] rating on Ethanol (EPA Deter

Mr Richard E Thomas Jr
Mr Richarc 10

Mr Richard E Thomas Jr
Mr Richard E Thomas Jr

mined)

EPA comm	VERIFY cc	Model Yr (Mfr Name	Division (t	Carline	Verify Mfr	Index (Mo	Eng Displ	# Cyl
		2016 Volkswage	Audi	A3	VGA	36	1.8	4
		2016 Volkswage	Audi	A3 Cabriol	VGA	37	1.8	4
		2016 Volkswage	Audi	A3 Cabriol	VGA	39	2.0	4
		2016 Volkswage	Audi	A3 quattro	VGA	38	2.0	4
		2016 Volkswage	Audi	A4	VGA	51	2.0	4
		2016 Volkswage	Audi	A4 quattro	VGA	33	2.0	4
		2016 Volkswage	Audi	A4 quattro	VGA	49	2.0	4
		2016 Volkswage	Audi	A5 Cabriol	VGA	35	2.0	4
		2016 Volkswage	Audi	A5 quattro	VGA	34	2.0	4
		2016 Volkswage	Audi	A5 quattro	VGA	50	2.0	4
		2016 Volkswage	Audi	A6	VGA	16	2.0	4
		2016 Volkswage	Audi	A6 quattro	VGA	15	2.0	4
		2016 Volkswage	Audi	A6 quattro	VGA	2	3.0	6
Diesel;		2016 Volkswage	Audi	A6 quattro	VGA	3	3.0	6
		2016 Volkswage	Audi	A7 quattro	VGA	1	3.0	6
Diesel;		2016 Volkswage	Audi	A7 quattro	VGA	4	3.0	6
Diesel;		2016 Volkswage	Audi	A8L	VGA	26	3.0	6
		2016 Volkswage	Audi	A8L	VGA	25	3.0	6
		2016 Volkswage	Audi	A8L	VGA	9	4.0	8
		2016 Volkswage	Audi	A8L	VGA	66	6.3	12
		2016 Volkswage	Audi	allroad qu	VGA	32	2.0	4
		2016 Volkswage	Audi	Q3	VGA	53	2.0	4
		2016 Volkswage	Audi	Q3 quattro	VGA	54	2.0	4
		2016 Volkswage	Audi	Q5	VGA	31	2.0	4
Diesel;		2016 Volkswage	Audi	Q5	VGA	27	3.0	6
		2016 Volkswage	Audi	Q5	VGA	47	3.0	6
Hybrid;		2016 Volkswage	Audi	Q5 Hybrid	VGA	62	2.0	4
		2016 Volkswage	Audi	RS7	VGA	12	4.0	8
		2016 Volkswage	Audi	S3	VGA	55	2.0	4
		2016 Volkswage	Audi	S4	VGA	42	3.0	6
		2016 Volkswage	Audi	S4	VGA	45	3.0	6
		2016 Volkswage	Audi	S5	VGA	43	3.0	6
		2016 Volkswage	Audi	S5	VGA	46	3.0	6
		2016 Volkswage	Audi	S5 Cabriole	VGA	44	3.0	6
		2016 Volkswage	Audi	S6	VGA	14	4.0	8
		2016 Volkswage	Audi	S7	VGA	13	4.0	8
Relabeled. Please include in 2016		2016 Volkswage	Audi	S8	VGA	11	4.0	8
		2016 Volkswage	Audi	SQ5	VGA	48	3.0	6
		2016 Volkswage	Audi	TT Coupe c	VGA	60	2.0	4
		2016 Volkswage	Audi	TT Roadste	VGA	61	2.0	4
		2016 Volkswage	Audi	TTS Coupe	VGA	52	2.0	4
		2016 Volkswage	Bentley	Continenta	VGA	6	4.0	8
		2016 Volkswage	Bentley	Continenta	VGA	28	6.0	12
		2016 Volkswage	Bentley	Continenta	VGA	7	4.0	8

	2016	Volkswage	Bentley	Continenta	VGA	30	6.0	12
	2016	Volkswage	Bentley	Flying Spur	VGA	8	4.0	8
	2016	Volkswage	Bentley	Flying Spur	VGA	29	6.0	12
	2016	Volkswage	Bentley	Mulsanne	VGA	5	6.8	8
	2016	Volkswage	Lamborghi	Aventador	VGA	17	6.5	12
	2016	Volkswage	Lamborghi	Aventador	VGA	18	6.5	12
	2016	Volkswage	Lamborghi	Huracan	VGA	87	5.2	10
Suppressed by EPA from FE2016	2016	Volkswage	Lamborghi	Huracan Sp	VGA	88	5.2	10
	2016	Volkswage	Volkswage	Beetle	VGA	71	1.8	4
	2016	Volkswage	Volkswage	Beetle	VGA	74	1.8	4
	2016	Volkswage	Volkswage	Beetle	VGA	82	2.0	4
	2016	Volkswage	Volkswage	Beetle	VGA	79	2.0	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	72	1.8	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	77	2.0	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	80	2.0	4
	2016	Volkswage	Volkswage	CC	VGA	63	2.0	4
	2016	Volkswage	Volkswage	CC	VGA	64	2.0	4
	2016	Volkswage	Volkswage	CC 4Motio	VGA	68	3.6	6
	2016	Volkswage	Volkswage	Eos	VGA	65	2.0	4
	2016	Volkswage	Volkswage	Golf	VGA	58	1.8	4
	2016	Volkswage	Volkswage	Golf	VGA	59	1.8	4
Relabeled. Please include in the	2016	Volkswage	Volkswage	Golf R	VGA	22	2.0	4
	2016	Volkswage	Volkswage	Golf R	VGA	23	2.0	4
	2016	Volkswage	Volkswage	Golf Sport	VGA	56	1.8	4
	2016	Volkswage	Volkswage	Golf Sport	VGA	57	1.8	4
	2016	Volkswage	Volkswage	GTI	VGA	40	2.0	4
	2016	Volkswage	Volkswage	GTI	VGA	41	2.0	4
	2016	Volkswage	Volkswage	Jetta	VGA	85	1.4	4
	2016	Volkswage	Volkswage	Jetta	VGA	100	1.4	4
	2016	Volkswage	Volkswage	Jetta	VGA	70	1.8	4
	2016	Volkswage	Volkswage	Jetta	VGA	73	1.8	4
	2016	Volkswage	Volkswage	Jetta	VGA	76	2.0	4
	2016	Volkswage	Volkswage	Jetta	VGA	78	2.0	4
Hybrid;	2016	Volkswage	Volkswage	Jetta Hybri	VGA	83	1.4	4
	2016	Volkswage	Volkswage	Passat	VGA	81	1.8	4
	2016	Volkswage	Volkswage	Passat	VGA	67	3.6	6
	2016	Volkswage	Volkswage	Tiguan	VGA	21	2.0	4
	2016	Volkswage	Volkswage	Tiguan 4M	VGA	20	2.0	4
Diesel;	2016	Volkswage	Volkswage	Touareg	VGA	19	3.0	6
	2016	Volkswage	Volkswage	Touareg	VGA	69	3.6	6

Transmiss	City FE (G	Hwy FE (C	Comb FE	Low'd City	Low'd HW	Low'd Cor	City Unad	Hwy Unad	Comb Una
Auto(AM-S	23	33	27				28.9	46.6	34.858
Auto(AM-S	24	35	28				30.5	47	36.2224
Auto(AM-S	23	32	26				29	44.2	34.3094
Auto(AM-S	24	33	27				30	44.6	35.1828
Auto(AV-S	24	31	27				30.3	44.6	35.4089
Auto(S8)	21	30	25				27.1	42.2	32.3011
Manual(M	22	32	26				27.6526	43.9914	33.2017
Auto(S8)	21	29	24				26.4	41	31.4377
Auto(S8)	21	30	25				27.1	42.2	32.3011
Manual(M	22	32	26				27.6526	43.9914	33.2017
Auto(AM-S	24	35	28				31.2269	48.8	37.2657
Auto(S8)	22	32	26				27.8348	45.5	33.7274
Auto(S8)	20	30	24				25.6	41.9	31.0325
Auto(S8)	25	38	30				31.1687	52.7	38.1901
Auto(S8)	20	30	24				25.6	41.9	31.0325
Auto(S8)	25	38	30				31.1687	52.7	38.1901
Auto(S8)	24	36	28				29.9399	51.4	36.8664
Auto(S8)	19	29	22				23.5657	39.6	28.8162
Auto(S8)	18	29	22				22.278	39.1	27.6266
Auto(S8)	14	22	17				17.2	28.6	20.9595
Auto(S8)	21	28	24				26.7	39.2	31.1732
Auto(S6)	20	29	23				24.8499	40	29.9555
Auto(S6)	20	28	23				24.8	38.5	29.5284
Auto(S8)	20	28	23				24.8	38.6	29.5548
Auto(S8)	24	31	27				29.1832	44.1	34.4228
Auto(S8)	18	26	21				22.8446	35.5	27.2096
Auto(S8)	24	30	26				30.4	39.9	34.048
Auto(S8)	15	25	18				17.8763	33.1799	22.5584
Auto(AM-S	23	31	26				28.5	41.5	33.1767
Auto(AM-S	18	28	21				22.4	35.8	26.9372
Manual(M	17	26	20				20	33.4	24.4063
Auto(AM-S	18	28	21				22.4	35.8	26.9372
Manual(M	17	26	20				20	33.4	24.4063
Auto(AM-S	18	26	21				22.1	34.7	26.4165
Auto(AM-S	18	27	21				21.9777	36.8	26.843
Auto(AM-S	17	27	21				21.7499	37.3	26.7724
Auto(S8)	16	26	20				19.8464	35.1318	24.6781
Auto(S8)	17	24	19				20.8	32.9	24.9252
Auto(AM-S	23	30	26				28.8051	41.9128	33.5228
Auto(AM-S	23	30	26				28.8051	41.9128	33.5228
Auto(AM-S	23	27	25				28.2	38	31.9024
Auto(S8)	15	25	19				19.1	33.5	23.6806
Auto(S8)	12	21	15				15.4	28.3	19.3741
Auto(S8)	14	24	17				17.3	31.8	21.7662

vided) [600.314-08 states label values must not change for entire model year, except for 600.507(a) and 600.314-0

Auto(S8)	12	20	15	14.4	26.7	18.1658
Auto(S8)	14	24	17	17.3	31.8	21.7662
Auto(S8)	12	20	15	14.4	26.7	18.1658
Auto(S8)	11	18	13	13.6993	24.8	17.1546
Auto(AM-S	11	18	13	12.6	25.2	16.2581
Auto(AM-S	10	17	12	11.7313	21.9881	14.8481
Auto(AM-S	14	21	17	17.3	27	20.6362
Auto(AM-S	14	20	16	17	26.4	20.2436
Auto(S6)	25	34	28	31.4714	47.6267	37.1407
Manual(M	25	34	28	31.76	47.8	37.4089
Auto(AM-S	24	31	27	30.4602	44.2	35.4141
Manual(M	23	31	26	28.5453	43.3257	33.7222
Auto(S6)	25	34	28	31.4714	47.6267	37.1407
Auto(AM-S	23	31	26	29.1428	43.2697	34.1618
Manual(M	23	31	26	28.5453	43.3257	33.7222
Auto(AM-S	22	31	25	26.9721	42.4615	32.2692
Manual(M	21	32	25	25.7082	43.8369	31.5863
Auto(S6)	17	25	20	20.5	33.5	24.8373
Auto(AM-S	22	30	25	27.5	41.5	32.4219
Auto(S6)	25	36	29	32.5	51.1	38.8661
Manual(M	25	37	30	32.6	52.5	39.3042
Auto(AM-S	23	30	25	28.1	40.6	32.6193
Manual(M	22	31	25	26.5	39.7	31.1626
Auto(S6)	25	35	29	32.7	49.4	38.567
Manual(M	25	36	29	31.7	50.5	38.0792
Auto(AM-S	25	33	28	30.7	45.3	35.9078
Manual(M	25	34	28	30	46.4	35.674
Auto(S6)	28	39	32	36.4	58.1	43.7538
Manual(M	28	40	33	37.3	59.4	44.8007
Auto(S6)	25	36	29	32.6424	51.503	39.083
Manual(M	25	37	29	32.2552	52.1	38.9275
Auto(AM-S	24	33	27	30.639	47.1	36.3569
Manual(M	23	33	27	28.8819	46.678	34.8632
Auto(AM-S	42	48	44	57.5	65.3	60.7663
Auto(S6)	25	38	29	32.1277	53.336	39.1294
Auto(AM-S	20	28	23	23.9	37.3	28.5088
Auto(S6)	21	26	23	25.9873	36.0386	29.7169
Auto(S6)	20	26	23	25.7782	36.0407	29.5668
Auto(S8)	21	29	24	25.3	41	30.5673
Auto(S8)	17	23	19	21.3	31.6	24.9612

vided), [600.314-08 states label values must not change for entire model year, except for 600.507(a) and 600.314-0

[illegible]	City Unrd	Hwy Unrd	Comb Unr	Guzzler?	Air Aspir I	Air Aspira	Trans	Trans Des	Trans, Otl	# Gears
	23.4556	33.3421	27.0673		TC	Turbochar	AMS	Automated Manual- Selectable		6
	24.3444	34.5845	28.0867		TC	Turbochar	AMS	Automated Manual- Selectable		6
	23.312	31.5429	26.4136		TC	Turbochar	AMS	Automated Manual- Selectable		6
	24.0818	32.6198	27.297		TC	Turbochar	AMS	Automated Manual- Selectable		6
	23.7847	30.8933	26.532		TC	Turbochar	SCV	Selectable Continuously Variable		8
	21.3584	30.0427	24.5522		TC	Turbochar	SA	Semi-Automatic		8
	22.2613	32.093	25.8209		TC	Turbochar	M	Manual		6
	20.8442	29.2228	23.9319		TC	Turbochar	SA	Semi-Automatic		8
	21.3584	30.0427	24.5522		TC	Turbochar	SA	Semi-Automatic		8
	22.2613	32.093	25.8209		TC	Turbochar	M	Manual		6
	24.3335	34.5182	28.059		TC	Turbochar	AMS	Automated Manual- Selectable		7
	21.8708	32.2876	25.5853		TC	Turbochar	SA	Semi-Automatic		8
	20.2543	29.8379	23.6763		SC	Supercha	SA	Semi-Automatic		8
	25.2158	37.5811	29.5982		TC	Turbochar	SA	Semi-Automatic		8
	20.2543	29.8379	23.6763		SC	Supercha	SA	Semi-Automatic		8
	25.2158	37.5811	29.5982		TC	Turbochar	SA	Semi-Automatic		8
	23.8727	36.3252	28.2271		TC	Turbochar	SA	Semi-Automatic		8
	18.6853	29.3211	22.3303		SC	Supercha	SA	Semi-Automatic		8
	17.9485	28.5015	21.5369		TC	Turbochar	SA	Semi-Automatic		8
	13.8358	21.9706	16.602	G	NA	Naturally A	SA	Semi-Automatic		8
	21.0646	27.9892	23.7037		TC	Turbochar	SA	Semi-Automatic		8
	19.6619	28.538	22.8617		TC	Turbochar	SA	Semi-Automatic		6
	19.7028	28.0105	22.7375		TC	Turbochar	SA	Semi-Automatic		6
	19.6619	27.5771	22.5781		TC	Turbochar	SA	Semi-Automatic		8
	23.6286	31.3636	26.5783		TC	Turbochar	SA	Semi-Automatic		8
	17.8443	25.5746	20.6536		SC	Supercha	SA	Semi-Automatic		8
	24.0075	29.7936	26.3065		TC	Turbochar	SA	Semi-Automatic		8
	14.521	25.1577	17.9329		TC	Turbochar	SA	Semi-Automatic		8
	23.1833	30.7065	26.056		TC	Turbochar	AMS	Automated Manual- Selectable		6
	18.117	27.558	21.419		SC	Supercha	AMS	Automated Manual- Selectable		7
	17.0438	26.023	20.1767		SC	Supercha	M	Manual		6
	18.117	27.558	21.419		SC	Supercha	AMS	Automated Manual- Selectable		7
	17.0438	26.023	20.1767		SC	Supercha	M	Manual		6
	17.6699	25.953	20.6333		SC	Supercha	AMS	Automated Manual- Selectable		7
	17.7328	26.6352	20.8721		TC	Turbochar	AMS	Automated Manual- Selectable		7
	17.4937	26.7312	20.715		TC	Turbochar	AMS	Automated Manual- Selectable		7
	16.1859	26.2858	19.9672		TC	Turbochar	SA	Semi-Automatic		8
	16.7285	23.6581	19.2682		SC	Supercha	SA	Semi-Automatic		8
	23.3039	30.3915	26.0363		TC	Turbochar	AMS	Automated Manual- Selectable		6
	23.3039	30.3915	26.0363		TC	Turbochar	AMS	Automated Manual- Selectable		6
	22.8034	27.3644	24.6524		TC	Turbochar	AMS	Automated Manual- Selectable		6
	15.2087	25.3816	18.5553		TC	Turbochar	SA	Semi-Automatic		8
	12.4737	21.0866	15.2827	G	TC	Turbochar	SA	Semi-Automatic		8
	13.819	23.8488	17.0447	G	TC	Turbochar	SA	Semi-Automatic		8

8(e)(4) reasons]. Please revise release date to the effective date when vehicles were relabeled;

12.0228	20.0478	14.6643	G	TC	Turbochar¡SA	Semi-Automatic 8
13.819	23.8488	17.0447	G	TC	Turbochar¡SA	Semi-Automatic 8
12.0228	20.0478	14.6643	G	TC	Turbochar¡SA	Semi-Automatic 8
11.1823	17.9616	13.4701	G	TC	Turbochar¡SA	Semi-Automatic 8
10.6055	18.4729	13.1199	G	NA	Naturally ASAMS	Automated Manual- Selectable7
9.9676	16.7	12.1766	G	NA	Naturally ASAMS	Automated Manual- Selectable7
14.318	20.6311	16.6044	G	NA	Naturally ASAMS	Automated Manual- Selectable7
13.9274	19.9987	16.1311	G	NA	Naturally ASAMS	Automated Manual- Selectable7
24.5488	33.7087	27.9689		TC	Turbochar¡SA	Semi-Automatic 6
24.7637	33.8438	28.164		TC	Turbochar¡M	Manual 5
23.83	31.405	26.7315		TC	Turbochar¡AMS	Automated Manual- Selectable6
23.0368	30.5347	25.8985		TC	Turbochar¡M	Manual 6
24.5488	33.7087	27.9689		TC	Turbochar¡SA	Semi-Automatic 6
22.8175	30.7926	25.8277		TC	Turbochar¡AMS	Automated Manual- Selectable6
23.0368	30.5347	25.8985		TC	Turbochar¡M	Manual 6
21.8736	31.0153	25.2185		TC	Turbochar¡AMS	Automated Manual- Selectable6
20.7831	31.7504	24.6082		TC	Turbochar¡M	Manual 6
16.9415	25.219	19.8774		NA	Naturally ASA	Semi-Automatic 6
21.7634	30.1121	24.8658		TC	Turbochar¡AMS	Automated Manual- Selectable6
25.264	36.0643	29.1989		TC	Turbochar¡SA	Semi-Automatic 6
25.3353	37.0021	29.5244		TC	Turbochar¡M	Manual 5
22.6857	29.0622	25.5705		TC	Turbochar¡AMS	Automated Manual- Selectable6
21.6528	30.5249	24.911		TC	Turbochar¡M	Manual 6
25.4066	34.9222	28.9572		TC	Turbochar¡SA	Semi-Automatic 6
24.6921	35.6616	28.6591		TC	Turbochar¡M	Manual 5
24.6434	32.6158	27.6891		TC	Turbochar¡AMS	Automated Manual- Selectable6
24.9095	34.2917	28.407		TC	Turbochar¡M	Manual 6
27.8072	39.2595	32.009		TC	Turbochar¡SA	Semi-Automatic 6
28.4148	40.0257	32.681		TC	Turbochar¡M	Manual 5
25.3353	36.3325	29.3303		TC	Turbochar¡SA	Semi-Automatic 6
25.1212	36.7344	29.2878		TC	Turbochar¡M	Manual 5
23.902	33.3709	27.4007		TC	Turbochar¡AMS	Automated Manual- Selectable6
23.1336	32.7327	26.6506		TC	Turbochar¡M	Manual 6
41.5773	48.2766	44.3466		TC	Turbochar¡AMS	Automated Manual- Selectable7
24.9783	37.5368	29.4054		TC	Turbochar¡SA	Semi-Automatic 6
19.7174	27.8048	22.6868		NA	Naturally ASAMS	Automated Manual- Selectable6
20.5496	25.7855	22.6161		TC	Turbochar¡SA	Semi-Automatic 6
20.3859	25.8136	22.5164		TC	Turbochar¡SA	Semi-Automatic 6
20.799	28.6879	23.7363		TC	Turbochar¡SA	Semi-Automatic 8
17.0411	22.7325	19.2048		NA	Naturally ASA	Semi-Automatic 8

8(e)(4) reasons] Please revise release date to the effective date when vehicles were relabeled.

Lockup Tc	Trans Cre	Drive Sys	Drive Des	Primary B	Max Ethar	Max Biodi	Range1 - I	Fuel Usag	Fuel Usag
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
MT with pad	dles)	F	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		422	GP	Gasoline (F
N	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		406	GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		422	GP	Gasoline (F
N	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV06.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		406	GP	Gasoline (F
Y	N	F	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		455	GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAT02.(	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
N	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
N	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV04.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV06.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F

Y	N	A	All Wheel IGVGAV06.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV04.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV06.	15		GP	Gasoline (F
Y	N	R	2-Wheel DGVGAV06.	15		GP	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV06.	15		GPR	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV06.	15		GPR	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV05.	15		GP	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV05.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
N	N	F	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV03.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV02.	15		GP	Gasoline (F
N	N	A	All Wheel IGVGAV02.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV01.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV01.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV01.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV03.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAT03.0NU2		5	DU	Diesel, ultr
Y	N	A	All Wheel IGVGAT03.(	15		G	Gasoline (F

Fuel Unit	Gas Guzz	Gas Guzz	2Dr Pass	2Dr Lugg	4Dr Pass	4Dr Lugg	Htchbk Pa	Htchbk Lu
MPG (Unleaded Recommended)	Not exempt				86	12		
MPG (Unleaded Recommended)	Not exempt	79	10					
MPG (Unleaded Recommended)	Not exempt	79	10					
MPG (Unleaded Recommended)	Not exempt				86	10		
MPG (Unleaded Recommended)	Not exempt				91	12		
MPG (Unleaded Recommended)	Not exempt				91	12		
MPG (Unleaded Recommended)	Not exempt				91	12		
MPG (Unleaded Recommended)	Not exempt	81	10					
MPG (Unleaded Recommended)	Not exempt	84	12					
MPG (Unleaded Recommended)	Not exempt	84	12					
MPG (Unleaded Recommended)	Not exempt				98	16		
MPG (Unleaded Recommended)	Not exempt				98	16		
MPG (Unleaded Recommended)	Not exempt				98	16		
MPG (Unleaded Recommended)	Not exempt				98	16		
MPG (Unleaded Recommended)	Not exempt						94	25
MPG (Unleaded Recommended)	Not exempt						94	25
MPG (Unleaded Recommended)	Not exempt				107	15		
MPG (Unleaded Recommended)	Not exempt				107	15		
MPG (Unleaded Recommended)	Not exempt				107	15		
MPG (Unleaded Recommended)	Not exempt				107	15		
MPG (Unleaded Recommended)	Not exempt				90	28		
MPG (Unleaded Recommended)	Not exempt						84	17
MPG (Unleaded Recommended)	Not exempt						84	17
MPG (Unleaded Recommended)	Truck							
MPG (Unleaded Recommended)	Truck							
MPG (Unleaded Recommended)	Truck							
MPG (Unleaded Recommended)	Truck							
MPG (Unleaded Recommended)	Not exempt						94	25
MPG (Unleaded Recommended)	Not exempt				86	10		
MPG (Unleaded Recommended)	Not exempt				90	13		
MPG (Unleaded Recommended)	Not exempt				90	13		
MPG (Unleaded Recommended)	Not exempt	84	13					
MPG (Unleaded Recommended)	Not exempt	84	13					
MPG (Unleaded Recommended)	Not exempt	81	10					
MPG (Unleaded Recommended)	Not exempt				98	16		
MPG (Unleaded Recommended)	Not exempt						94	25
MPG (Unleaded Recommended)	Not exempt				100	15		
MPG (Unleaded Recommended)	Truck							
MPG (Unleaded Recommended)	Not exempt	74	13					
MPG (Unleaded Recommended)	Not exempt							
MPG (Unleaded Recommended)	Not exempt	74	13					
MPG (Unleaded Recommended)	Not exempt	89	11					
MPG (Unleaded Recommended)	Not exempt	89	11					
MPG (Unleaded Recommended)	Not exempt	86	7					

Unleaded Recommended)	MPG	miles per gN	Not exempt	86	7		
Unleaded Recommended)	MPG	miles per gN	Not exempt	102	13		
Unleaded Recommended)	MPG	miles per gN	Not exempt	102	13		
Unleaded Recommended)	MPG	miles per gN	Not exempt			101	11
Unleaded Required)	MPG	miles per gN	Not exempt				
Unleaded Required)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt	81	7		
Unleaded Recommended)	MPG	miles per gN	Not exempt	81	7		
Unleaded Recommended)	MPG	miles per gN	Not exempt	81	7		
Unleaded Recommended)	MPG	miles per gN	Not exempt	94	13		
Unleaded Recommended)	MPG	miles per gN	Not exempt	94	13		
Unleaded Recommended)	MPG	miles per gN	Not exempt	94	13		
Unleaded Recommended)	MPG	miles per gN	Not exempt	77	11		
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	30
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	30
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt				
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			94	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			102	16
Unleaded Recommended)	MPG	miles per gN	Not exempt			102	16
Unleaded Recommended)	MPG	miles per gT	Truck				
Unleaded Recommended)	MPG	miles per gT	Truck				
ulfur (15 ppm maximum)	MPG	miles per gT	Truck				
Unleaded Recommended)	MPG	miles per gT	Truck				

Annual Fu	EPA Calcu	Comment	City2 FE (H	Hwy2 Fue	Comb2 Fu	Low'd City	Low'd Hw	Low'd Cor	City2 Una
1650	1650	fuel costs corrected							
1600	1600	fuel costs corrected							
1750	1750	fuel cost corrections							
1650	1650	fuel cost corrections							
1850	1850								
2000	2000		15	22	18				19.5
1900	1900								
2050	2050		15	21	17				19
2000	2000		15	22	18				19.5
1900	1900								
1750	1750								
1900	1900	CO2 unrounded and rounded values corrected, typo. further CO2 corrections							
2050	2050								
1700	1700	release date change,added configuration after EPA confirmatory testing, corrected unadj unr							
2050	2050								
1700	1700	added configuration after EPA confirmatory testing to base level, corrected unadj unrnd com							
1800	1800								
2250	2250								
2250	2250	engine code correction, data sub used							
2900	2900								
2050	2050		15	21	17				19.2
2150	2150								
2150	2150								
2150	2150		14	19	16				17.4
1850	1850	corrected fuel economy rating							
2350	2350								
1900	1900								
2750	2750	50/50 weighting of best and worse (D&S) testing							
1900	1900								
2350	2350								
2500	2500								
2350	2350								
2500	2500								
2350	2350								
2350	2350	corrected typo adj unrounded city CO2 value.							
2350	2350								
2500	2500	voluntary relabeled with addition of 605 HP engine and configuration for the S8 Plus model (S							
2600	2600								
1750	1750	fuel costs correction							
1750	1750	fuel cost correction							
2000	2000								
2600	2600	engine configuration changed to 520 HP = #6, release date changed							
3300	3300	changed to a gasoline fueled label from flex fueled concept. 15% ethanol max							
2900	2900								

3300	3300	this is corrected to drop flex fueled concept for 2016; 15% ethanol max
2900	2900	
3300	3300	this is corrected to drop flex fueled concept for 2016, 15% ethanol max
3800	3800	Vehicle model equipped with cylinder deactivation with a switch. Active and inactive tests av
3800	3800	
4100	4100	corrected ETW with RLHP for SV
2900	2900	release date change
3100	3100	release date change
1600	1600	
1600	1600	5 YR FUEL SAVINGS CORRECTED
1650	1650	release date changed to 8/28, corrected typo rounded CO2 value, corrected unrounded CO2 c
1750	1750	
1600	1600	
1750	1750	release date changed
1750	1750	
2000	2000	
2000	2000	
2250	2250	recommended fuel correction
2000	2000	
1550	1550	fuel costs corrected
1500	1500	
2000	2000	new ETW for automatic
2000	2000	
1550	1550	
1550	1550	
1600	1600	fuel cost correction, 5 year cost correction, add equivalent engine codes data substitution use
1600	1600	fuel cost correction, add equivalent engine codes, data substitution used
1400	1400	
1350	1350	
1550	1550	gal/100 miles corrected
1550	1550	
1650	1650	combined typo unadjusted MPG value corrected, adjusted unrounded CO2 value corrected
1650	1650	adjusted unrounded CO2 values corrected
1100	1100	
1550	1550	release date change to Sept 21st
1950	1950	recommended fuel change correction, release date now Sept 21st
2150	2150	
2150	2150	
2100	2100	
2350	2350	

Hwy2 Unit	Comb2 Unit	Cnty2 Unit	Hwy2 Unit	Comb2 Unit	Range2 -	Fuel2 Usa	Fuel2 Usa	Fuel2 Unit	Fuel2 Unit
30.8	23.356	15.3563	21.9111	17.7451	304	E	Ethanol (E8	MPG	miles per g
30	22.7545	15.0024	21.384	17.3296	287	E	Ethanol (E8	MPG	miles per g
30.8	23.356	15.3563	21.9111	17.7451	304	E	Ethanol (E8	MPG	miles per g

nd combined CO2 value

bined CO2

28.8	22.5882	15.1507	20.5603	17.1855	287	E	Ethanol (E8	MPG	miles per g
27.1	20.7407	13.7947	19.3602	15.8444	317	E	Ethanol (E8	MPG	miles per g

OP wk45) no new carline.

eraged together at 50/50. Data substitution for engine code with lesser HP.

[redacted]

ity value

d

Alternative Fuel									
Fuel2 AltmCity	CO2 I	Hwy CO2	Comb CO	Fuel2 EPA	Descripto	Intake Val	Exhaust V	Carline Cl	Carline Cl
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
2150	400	281	347	2150	SIDI; FFV;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
2300	410	288	355	2300	SIDI; FFV;	2	2	3	Subcompa
2150	400	281	347	2150	SIDI; FFV;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
						2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
						2	2	5	Midsize Ca
						2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
2300	406	300	358	2300	SIDI; FFV;	2	2	7	Small Stati
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
2450	450	320	392	2450	SIDI; FFV;	2	2	31	Small SUV 4WD
						2	2	31	Small SUV 4WD
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
					SIDI; Unde	2	2	5	Midsize Ca
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	1	Two Seate
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
						2	2	4	Compact C
					SIDI;	2	2	3	Subcompa

	2	2	3	Subcompa
SIDI;	2	2	5	Midsize Ca
	2	2	5	Midsize Ca
	1	1	5	Midsize Ca
	2	2	1	Two Seate
	2	2	1	Two Seate
SIDI & PFI;	2	2	1	Two Seate
SIDI & PFI;	2	2	1	Two Seate
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	3	Subcompa
SIDI;	2	2	3	Subcompa
SIDI;	2	2	3	Subcompa
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	3	Subcompa
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI; Unde	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	7	Small Stati
SIDI;	2	2	7	Small Stati
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	5	Midsize Ca
SIDI;	2	2	5	Midsize Ca
SIDI;	2	2	30	Small SUV 2WD
SIDI;	2	2	31	Small SUV 4WD
	2	2	33	Standard SUV 4W
SIDI;	2	2	33	Standard SUV 4W

MC Car/Truck	Calc Appr	Sales Release Date (g	EPA FE Label Dataset ID	Unique La	Label Rec	Relabel	Relabel Da
car	Vehicle Specific 5-cycle label	6/22/2015	18159	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18160	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18162	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18161	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18128	N	N		
car	Derived 5-cycle label	6/22/2015	18103	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18121	N	N		
car	Derived 5-cycle label	6/22/2015	18105	N	N		
car	Derived 5-cycle label	6/22/2015	18104	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18122	N	N		
car	Vehicle Specific 5-cycle label	3/23/2015	17682	N	N		
car	Derived 5-cycle label	3/23/2015	17714	N	N		
car	Derived 5-cycle label	1/8/2015	17475	N	N		
car	Vehicle Specific 5-cycle label	3/30/2015	17658	N	N		
car	Derived 5-cycle label	1/8/2015	17474	N	N		
car	Vehicle Specific 5-cycle label	3/30/2015	17659	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18062	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18055	N	N		
car	Vehicle Specific 5-cycle label	6/8/2015	17744	N	N		
car	Vehicle Specific 5-cycle label	7/13/2015	18361	N	N		
car	Derived 5-cycle label	6/22/2015	18102	N	N		
car	Derived 5-cycle label	6/22/2015	18130	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18131	N	N		
	Derived 5-cycle label	6/22/2015	18101	N	N		
	Vehicle Specific 5-cycle label	6/22/2015	18088	N	N		
	Vehicle Specific 5-cycle label	6/22/2015	18118	N	N		
	Vehicle Specific 5-cycle label	6/22/2015	18216	N	N		
car	Vehicle Specific 5-cycle label	6/8/2015	17565	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18132	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18113	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18116	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18114	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18117	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18115	N	N		
car	Vehicle Specific 5-cycle label	3/23/2015	17715	N	N		
car	Vehicle Specific 5-cycle label	3/23/2015	17657	N	N		
car	Vehicle Specific 5-cycle label	10/7/2015	19049	N	Re	Relabel - la	
	Vehicle Specific 5-cycle label	6/22/2015	18120	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18213	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18212	N	N		
car	Vehicle Specific 5-cycle label	6/22/2015	18129	N	N		
car	Vehicle Specific 5-cycle label	5/25/2015	17559	N	N		
car	Vehicle Specific 5-cycle label	7/20/2015	18239	N	N		
car	Vehicle Specific 5-cycle label	5/25/2015	17560	N	N		

el economy label values can Previous values were XX MPG city, XX MPG highway, and XX MPG combined.

car	Vehicle Specific 5-cycle label	7/20/2015	18241	[redacted]	N	N
car	Vehicle Specific 5-cycle label	5/25/2015	17561	[redacted]	N	N
car	Vehicle Specific 5-cycle label	6/15/2015	18240	[redacted]	N	N
car	Derived 5-cycle label	1/14/2015	17486	[redacted]	N	N
car	Vehicle Specific 5-cycle label	5/1/2015	17766	[redacted]	N	N
car	Vehicle Specific 5-cycle label	5/1/2015	17787	[redacted]	N	N
car	Vehicle Specific 5-cycle label	9/14/2015	18710	[redacted]	N	N
car	Vehicle Specific 5-cycle label	9/14/2016	18711	[redacted]	N	N
car	Derived 5-cycle label	7/20/2015	18391	[redacted]	N	N
car	Derived 5-cycle label	7/20/2015	18461	[redacted]	N	N
car	Derived 5-cycle label	9/2/2015	18981	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18398	[redacted]	N	N
car	Derived 5-cycle label	7/20/2015	18392	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/27/2015	18576	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18399	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18217	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18218	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18370	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18307	[redacted]	N	N
car	Derived 5-cycle label	7/13/2015	18183	[redacted]	N	N
car	Derived 5-cycle label	7/13/2015	18185	[redacted]	N	N
car	Vehicle Specific 5-cycle label	10/27/2015	19097	[redacted]	N	Y
car	Vehicle Specific 5-cycle label	6/22/2015	18134	[redacted]	N	N
car	Derived 5-cycle label	7/13/2015	18176	[redacted]	N	N
car	Derived 5-cycle label	7/13/2015	18179	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18365	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18366	[redacted]	N	N
car	Derived 5-cycle label	8/17/2015	18665	[redacted]	N	N
car	Derived 5-cycle label	10/26/2015	18905	[redacted]	N	N
car	Derived 5-cycle label	7/20/2015	18462	[redacted]	N	N
car	Derived 5-cycle label	7/30/2015	18714	[redacted]	N	N
car	Derived 5-cycle label	7/20/2015	18570	[redacted]	N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18464	[redacted]	N	N
car	Vehicle Specific 5-cycle label	8/17/2015	18676	[redacted]	N	N
car	Derived 5-cycle label	9/21/2015	19016	[redacted]	N	N
car	Vehicle Specific 5-cycle label	9/21/2015	19015	[redacted]	N	N
	Derived 5-cycle label	7/13/2015	18215	[redacted]	N	N
	Derived 5-cycle label	7/13/2015	18214	[redacted]	N	N
D	Vehicle Specific 5-cycle label	7/13/2015	17922	[redacted]	N	N
D	Derived 5-cycle label	7/27/2015	18591	[redacted]	N	N

el economy label values on Previous vehicle were XX MPG city, XX MPG highway, and XX MPG combined.

ons

ons

Suppress	Police/Em	Comment	Cyl Deact	Cyl Deact	Var Valve	Var Valve	Var Valve	Var Valve	Energy St
N	N	1.8L Engin	N		Y	CONTINUC	N		
N	N	1.8L Engin	N		Y	CONTINUC	N		
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	Electro/Hy	Y	Audi Valve System	
N	N	Engine Coc	N		Y	Electro/Hy	Y	Audi Valve System	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	N			N		N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	N			N		N		
N	N	N			N		N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	12 to 6 cyli	Y	Intake and	N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			N		N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALV	Battery(s)
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	CONTINUC	Y	Audi Valve System - Exhaust	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	INLET AND	N		
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	

al value decreased

N	N	Engine Coc	N	Y	INLET AND	N
N	N	Engine Coc	Y	Deactivatic	Y	Continuou Y Multi-lobe Int/Exh cam desig
N	N	Engine Coc	N	Y	INLET AND	N
N	N	Engine cod	Y	Cylinder d	Y	Variation c N
N	N	Engine Coc	Y	ELECTRON	Y	HYDRAULI(N
N	N	Engine Coc	Y	ELECTRON	Y	HYDRAULI(N
N	N	ENGINE CC	Y	Soft COD. !	Y	INLET AND Y Fixed 1: One Setting of Valve
Y	N	ENGINE CC	Y	Soft COD. !	Y	INLET AND Y Fixed 1: One Setting of Valve
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	N		Y	position of	N
N	N	N		Y	position of	N
N	N	N		Y	position of	N
N	N	N		Y	CONTINUC	N
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	Engine Coc	N	Y	CONTINUC	Y Audi Valve System - Exhaust
N	N	Engine Coc	N	Y	CONTINUC	Y Audi Valve System - Exhaust
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	2.0L Engin	N	Y	CONTINUC	Y Audi Valve System
N	N	2.0L Engin	N	Y	CONTINUC	Y Audi Valve System
N	N	Engine Coc	N	Y	MECHANI(	N
N	N	Engine Coc	N	Y	MECHANI(	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	N		Y	MECANICA	N Battery(s)
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine cod	N	Y	Electronic	N
N	N	N		Y	position of	N
N	N	N		Y	position of	N
N	N	Engine Coc	N	N		N
N	N	N		Y	INTAKE / E	N

evice Desc	# Batteries	Battery Ty	Battery Ty	Total Volt	Batt Ener	Batt Spec	Batt Char	Comment	# Capacit
Energy St									
R / EXHAUST									
R / EXHAUST									
R / EXHAUST									
R / EXHAUST									
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib
tolled and hydraulically adjusted.											
R / EXHAUST											
R / EXHAUST											
	1	Lithium Ion		266	5	37	On-Board				
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib
valves only											
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib
ECHANICAL-HYDRAULIC											
alves to a	valve lift	e flow to	all valves	designed,	n the fuel	injection	and ignit	ion for a	ctivation	s are des	crib

ECHANICAL-HYDRAULIC
alves to vary valve lift or timing (all valves designed to be controlled and hydraulically adjusted)
ECHANICAL-HYDRAULIC
aust valves on a single camshaft. No change in valve overlaps.
ONTINUOUSLY VVT
ONTINUOUSLY VVT
ECHANICAL-HYDRAULIC
ECHANICAL-HYDRAULIC
AMS
AMS
AMS
AMS
AMS
AMS
AMS
controlled and hydraulically adjusted
controlled and hydraulically adjusted
controlled and hydraulically adjusted

valves only
valves only

AND OUTLET CAMS
AND OUTLET CAMS
AMS
AMS
AMS
AMS
ND OUTLET CAMS 1 Lithium Ion 220 1100 27 On-Board
AMS

controlled and hydraulically adjusted
controlled and hydraulically adjusted

LICALLY AND CONTROLLED ELECTRONICALLY

Regen Bra	Regen Bra	Regen Bra	Driver Cnt	Fuel Cell I	Usable H2	Fuel Cell (	HEV-EV C	# Drive M	Motor Ger

esd above.rd gear or higher, ECT greater than 40C, engine speed 930 to 3500 RPM, vehicle speed greater than 25 km

[redacted]

Electrical RBRAKE PECFront WheY 1Other

Motor Ger	Rated Mot	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Cell V	Off Board	Camless V	Oil Viscosi
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
		40		GDI	Spark Ignit	N	N	N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignit	N		N	5W40
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				MFI	Multipoint	N		N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW

		MFI	Multipoint	N	N	5W30 VW
h		GDI	Spark Ignition Direct Injection		N	5W30 VW
		MFI	Multipoint	N	N	5W30 VW
		MFI	Multipoint/sequential fuel injection		N	0W40 / VW
		MFI	Multipoint/sequential fuel injection		N	5W30 VW
		MFI	Multipoint/sequential fuel injection		N	5W30 VW
		GDPI	Spark Ignition direct & ported injection		N	5W30 VW
		GDPI	Spark Ignition direct & ported injection		N	5W30 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W-40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 / VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignit	N	N	5W40
		GDI	Spark Ignit	N	N	5W40
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
3 PHASE PI	15	GDI	Spark Ignit	N	N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		CRDI	Common Rail Direct Diesel Injection		N	5W30 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW

Stop/Start	Stop/Start	Trans in FE	Trans as I	Model Typ	Charge De	Charge De	Charge Su	Charge Su	EPA Calcul
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AV-S	Auto(AV-S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Manual(M	Manual(M6)						
Y	Yes	Auto(AM-S	Auto(AM-S7)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y50700	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S6)	Auto(S6)						
N	No	Auto(S6)	Auto(S6)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(AM-S	Auto(AM-S	TT Coupe quattro					
N	No	Auto(AM-S	Auto(AM-S	TT Coupe quattro					
N	No	Auto(AM-S	Auto(AM-S6)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N50700	No	Auto(S8)	Auto(S8)						

N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	
Y	Yes	Auto(AM-S	Auto(AM-S7)	
Y	Yes	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
Y	Yes	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Auto(S6)	Auto(S6)	Tiguan front
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	

EPA Calcu	EPA Calculated Gas G	[redacted]	GHG Ratin	#1 Smog R	#1 Mfr Sm	#1 EPA Sm	SmartWay
34.9		6	6	GVGAV02.	9		
36.2		7	7	GVGAV02.	9		
34.3		6	6	GVGAV02.	9		
35.2		6	6	GVGAV02.	9		
35.4		6	6	GVGAV02.	5		
32.3		6	6	GVGAJ02.(	5		
33.1		6	6	GVGAV02.	5		
31.4		5	5	GVGAJ02.(	5		
32.3		6	6	GVGAJ02.(	5		
33.1		6	6	GVGAV02.	5		
37.3		7	7	GVGAV02.	6		
33.7		6	6	GVGAV02.	6		
31		5	5	GVGAV03.	5		
38.2		7	6	GVGAJ03.(	5		
31		5	5	GVGAV03.	5		
38.2		7	6	GVGAJ03.(	5		
36.9		7	6	GVGAJ03.(	5		
28.8		5	5	GVGAV03.	5		
27.6		5	5	GVGAV04.	5		
21.1		3	3	GVGAV06.	5		
31.2		5	5	GVGAJ02.(	5		
30		5	5	GVGAV02.	5		
29.5		5	5	GVGAV02.	5		
29.6		5	5	GVGAJ02.(	5		
34.3		6	5	GVGAJ03.(	5		
27.2		5	5	GVGAJ03.(	5		
34		6	6	GVGAT02.(	5		
22.6		4	4	GVGAV04.	5		
33.2		6	6	GVGAV02.	5		
26.9		5	5	GVGAJ03.(	5		
23.5		4	4	GVGAJ03.(	5		
26.9		5	5	GVGAJ03.(	5		
23.5		4	4	GVGAJ03.(	5		
26.4		5	5	GVGAJ03.(	5		
26.8		5	5	GVGAV04.	5		
26.8		5	5	GVGAV04.	5		
24.7		4	4	GVGAV04.	5		
24.9		4	4	GVGAJ03.(	5		
33.5		6	6	GVGAV02.	9		
33.5		6	6	GVGAV02.	9		
31.9		6	6	GVGAV02.	5		
23.7		4	4	GVGAV04.	5		
19.5		2	2	GVGAV06.	5		
21.9		3	3	GVGAV04.	5		

18.3	[redacted]	2	2 GVGAV06.	5
21.9		3	3 GVGAV04.	5
18.3		2	2 GVGAV06.	5
17.3		1	1 GVGAV06.	5
16.4		1	1 GVGAV06.	5
15		1	1 GVGAV06.	5
20.8		3	3 GVGAV05.	5
20.4		3	3 GVGAV05.	5
37.1		7	7 GVGAV02.	7
37.4		7	7 GVGAV02.	7
35.4		6	6 GVGAV02.	7
33.7		6	6 GVGAV02.	7
37.1		7	7 GVGAV02.	7
34.2		6	6 GVGAV02.	7
33.7		6	6 GVGAV02.	7
32.2		6	6 GVGAV02.	7
31.6		6	6 GVGAV02.	7
24.8		4	4 GVGAV03.	5
32.4		6	6 GVGAV02.	5
38.9		7	7 GVGAV02.	9
39.3		7	7 GVGAV02.	9
32.6		6	6 GVGAV02.	5
31.2		6	6 GVGAV02.	5
38.6		7	7 GVGAV02.	9
38.1		7	7 GVGAV02.	9
35.9		7	7 GVGAV02.	9
35.8		7	7 GVGAV02.	9
43.8		8	8 GVGAV01.	5
44.8		8	8 GVGAV01.	5
39.4		7	7 GVGAV02.	7
38.9		7	7 GVGAV02.	7
36.4		6	6 GVGAV02.	7
34.9		6	6 GVGAV02.	7
60.8		9	9 GVGAV01.	7
39.1		7	7 GVGAV02.	7
28.5		5	5 GVGAV03.	5
29.7		5	5 GVGAJ02.(	5
29.6		5	5 GVGAJ02.(	5
30.6		5	4 GVGAT03.(	5
25		4	4 GVGAT03.(	5

| | | |

GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAJ02.C	5
GVGAJ02.C	5

GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5

[illegible]	You Save $	You Spend $	City CO2	Hwy CO2	Comb CO2	CO2- Volu	CO2- Volu	CO2-Vol In
	750		379	267	328			
	1000		362	256	314			
	250		379	280	334			
	750		366	271	323			
		250	371	303	341			
		1000	415	295	361			
		500	397	276	343			
		1250	424	303	370			
		1000	415	295	361			
		500	397	276	343			
	250		357	252	310			
		500	398	269	340			
		1250	436	296	373			
	500		403	270	343			
		1250	436	296	373			
	500		403	270	343			
	0		426	280	360			
		2250	473	303	397			
		2250	492	310	410			
		5500	640	403	534			
		1250	420	317	373			
		1750	451	313	389			
		1750	446	316	387			
		1750	452	322	393			
		250	430	328	385			
		2750	496	347	429			
		500	369	298	337			
		4750	614	355	497			
		500	381	289	340			
		2750	488	321	413			
		3500	519	341	439			
		2750	488	321	413			
		3500	519	341	439			
		2750	500	341	428			
		2750	497	332	423			
		2750	505	331	427			
		3500	546	336	452			
		4000	528	373	458			
	250		373	290	336			
	250		373	290	336			
		1000	386	323	358			
		4000	580	347	475			
		7500	710	421	580			
		5500	638	370	517			

	7500	736	443	604
	5500	638	370	517
	7500	736	443	604
	10000	791	491	656
	10000	836	481	676
	11500	887	532	727
	5500	617	429	532
	6500	634	442	547
1000		360	263	316
1000		358	261	314
750		374	282	333
250		385	292	343
1000		360	263	316
250		383	288	340
250		385	292	343
	1000	403	283	349
	1000	426	279	360
	2250	523	351	446
	1000	405	292	354
1250		352	247	305
1500		350	240	300
	1000	388	298	347
	1000	406	289	354
1250		348	253	305
1250		358	248	309
1000		358	271	319
1000		355	258	311
2000		321	228	279
2250		311	221	271
1250		350	245	302
1250		353	241	303
750		370	265	323
750		383	273	333
3500		212	184	200
1250		355	236	302
	750	449	319	390
	1750	431	344	392
	1750	435	344	394
	1500	502	356	437
	2750	520	391	462

[illegible]	[illegible]	[illegible]	[illegible]	240V Char	120V Char	PHEV Tota
309	191	255.9	378.7	267.1	328.5	
289	188	243.6	362.1	255.5	314.1	
305	200	257.8	378.6	280.1	334.3	
294	198	250.8	366	271	323.2	
292	199	250.2	371.2	303.3	340.6	
327	210	274.4	415	295	361	
320.1	202	267	396.8	276.4	342.5	
335	216	281.4	424.4	303.1	369.8	
327	210	274.4	415	295	361	
320.1	202	267	396.8	276.4	342.5	
278.5	178	233.3	357.1	251.9	309.8	
312.5	191	257.8	397.9	269.4	340.1	
345	211	284.7	436.2	296.4	373.3	
326.3	193.3	266.4	402.7	270.5	343.2	
345	211	284.7	436.2	296.4	373.3	
326.3	193.3	266.4	402.7	270.5	343.2	
339	198	275.6	425.6	280.1	360.1	
376.5	225	308.3	473.4	302.9	396.7	
396	226	319.5	492.3	309.7	410.1	
515	310	422.8	640.3	403.3	533.6	
331	226	283.8	419.7	316.6	373.3	
357.5	223	297	451	312.5	388.7	
357	230	299.9	445.6	315.7	387.1	
358	230	300.4	451.6	321.9	393.2	
348	231	295.4	430.5	328.5	384.6	
390	251	327.4	496	347	429	
380	223	309.4	369	298	337	
499.5	269.5	396	613.8	354.8	497.3	
311	214	267.4	381.4	289.2	339.9	
396	248	329.4	488	321	412.8	
443	266	363.4	519	341	438.9	
396	248	329.4	488	321	412.8	
443	266	363.4	519	341	438.9	
401	256	335.8	500	341	428.4	
403.5	241	330.4	496.9	331.8	422.6	
407.5	238	331.2	505.4	331.1	427	
446.1	251.6	358.6	546	336.3	451.6	
427	269	355.9	528	372.7	458.1	
307.9	216.6	266.8	373.4	289.6	335.6	
307.9	216.6	266.8	373.4	289.6	335.6	
314	233	277.6	385.7	323.4	357.7	
462	263	372.4	580	347	475.2	
576	314	458.1	709.5	420.8	579.6	
511	278	406.2	638.3	369.6	517.4	

617	333	489.2	736.3	442.9	604.3
511	278	406.2	638.3	369.6	517.4
617	333	489.2	736.3	442.9	604.3
645.5	355.5	515	791	490.9	656
705	353	546.6	836	481	676.2
756.1	403.3	597.3	887.1	532.1	727.4
512	328	429.2	616.6	428.8	532.1
521	336	437.8	633.8	441.8	547.4
280.8	185.9	238.1	360.4	262.6	316.4
278.4	185	236.4	357.6	261.3	314.3
292.5	200	250.9	374.2	281.5	332.5
309.3	204.2	262	384.6	292.2	343
280.8	185.9	238.1	360.4	262.6	316.4
299.7	204.7	257	382.8	287.9	340
309.3	204.2	262	384.6	292.2	343
327.3	207.8	273.5	402.7	282.8	348.8
346.5	203.1	282	426	279.1	359.9
434	265	358	523	351	445.6
321	213	272.4	404.7	291.7	353.9
274	174	229	352.4	246.5	304.7
272	169	225.6	350.1	239.8	300.5
315	218	271.4	388	297.7	347.4
334	223	284	406.3	289.2	353.6
270	179	229	347.7	253.3	305.2
279	175	232.2	358.3	247.9	308.6
288	195	246.2	358	270.7	318.7
294	191	247.7	354.6	257.9	311.1
245	154	204.1	320.6	227.7	278.8
237	149	197.4	311.3	221.2	270.8
271.8	172.5	227.1	349.8	244.5	302.4
274.4	170	227.4	352.9	241.2	302.6
288.6	188	243.3	369.7	265.4	322.8
305.8	189.6	253.5	382.9	272.9	333.4
155	136	146.4	212.1	184.3	199.6
276.4	166.4	226.9	355.3	236.3	301.8
372	238	311.7	449	319	390.5
340.8	246.4	298.3	431.3	344	392
343.8	246.3	299.9	434.9	343.9	393.9
401	248	332.2	502.3	356.5	436.7
416	281	355.2	520.1	390.6	461.8

[illegible]	DISTANCE	Comb Vol Higher	Final Label	EPA_FUEL	EPA_GHG	EPA_AMT
N		3.7	3.7			
N		3.6	3.6			
N		3.8	3.8			
N		3.7	3.7			
N		3.7	3.7			
N		4	4			
N		3.8	3.8			
N		4.2	4.2			
N		4	4			
N		3.8	3.8			
Y		3.6	3.6			
Y		3.8	3.8			
N		4.2	4.2			
N		3.3	3.3			
N		4.2	4.2			
N		3.3	3.3			
N		3.6	3.6			
N		4.5	4.5			
N		4.5	4.5			
N		5.9	5.9			
N		4.2	4.2			
N		4.3	4.3			
N		4.3	4.3			
N		4.3	4.3			
N		3.7	3.7			
N		4.8	4.8			
N		3.8	3.8			
N		5.6	5.6			
N		3.8	3.8			
N		4.8	4.8			
N		5	5			
N		4.8	4.8			
N		5	5			
N		4.8	4.8			
N		4.8	4.8			
N		4.8	4.8			
N		5	5			
N		5.3	5.3			
N		3.8	3.8			
N		3.8	3.8			
N		4	4			
N		5.3	5.3			
N		6.7	6.7			
N		5.9	5.9			

N	6.7	6.7
N	5.9	5.9
N	6.7	6.7
N	7.7	7.7
N	7.7	7.7
N	8.3	8.3
N	5.9	5.9
N	6.2	6.2
N	3.6	3.6
N	3.6	3.6
N	3.7	3.7
N	3.8	3.8
N	3.6	3.6
N	3.8	3.8
N	3.8	3.8
N	4	4
N	4	4
N	5	5
N	4	4
N	3.4	3.4
N	3.3	3.3
N	4	4
N	4	4
N	3.4	3.4
N	3.4	3.4
N	3.6	3.6
N	3.6	3.6
Y	3.1	3.1
Y	3	3
N	3.4	3.4
N	3.4	3.4
N	3.7	3.7
N	3.7	3.7
N	2.3	2.3
N	3.4	3.4
N	4.3	4.3
N	4.3	4.3
N	4.3	4.3
N	4.2	4.2
N	5.3	5.3

EPA_UNR	EPA_UNR	EPA_UNR	EPA_ADJ_	EPA_PHEV	Label Subr	GHG 1-10 rating on Ethanol (EPA Deter
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richarc	6
					Mr Richard E Thomas Jr	
					Mr Richarc	6
					Mr Richarc	6
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richarc	6
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richarc	5
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	
					Mr Richard E Thomas Jr	

Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
[redacted]
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr

mined)

To: Pidgeon, Bill[pidgeon.bill@epa.gov]; Snyder, Jim[Snyder.Jim@epa.gov]
From: Glas, Tobias
Sent: Fri 10/30/2015 8:42:33 PM
Subject: IUVP Waver CY 2015
IUVP Waver request2.pdf

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AVWXT03.6U76

Emission Standard: BIN 5 / LEV II ULEV

Vehicles in test group: Audi Q7 / VW Touareg

Sales US: Ex. 4 - CBI

Sales Procurement state: MI

Vehicles tested: 2 HM car tested

Number of mailing campaigns: 2

Letters per campaign: 1st: 10 / 2nd: 29

Incentive: $250

Response: We received 4 return cards but none with 90 K mi (75%)

Comment: We will test the car with the highest mileage available.

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AVWXV02.5253

Emission Standard: BIN 5

Vehicles in test group: VW Beetle / Beetle Convertible

Sales US: **Ex. 4 - CBI**

Sales Procurement state: MI

Vehicles tested: 2 HM car tested

Number of mailing campaigns: 2

Letters per campaign: 1st: 10 / 2nd: 39

Incentive: $250

Response: We received 14 return cards but none with 90 K mi (75%)

Comment: We will test the car with the highest mileage available.

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AVWXV02.5257

Emission Standard: BIN 3 / LEV II SULEV

Vehicles in test group: VW Beetle / Beetle Convertible

Sales US: Ex. 4 - CBI

Sales Procurement state: California

Vehicles tested: 2 HM cars tested

Number of mailing campaigns: 3

Letters per campaign: 1st: 10 / 2nd: 10 / 3rd: 25

Incentive: $250

Response: We received 13 return cards but none with 105 K mi (75%)

Comment: We will test the car with the highest mileage available.

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AADXV02.03PA

Emission Standard: BIN 3 / LEV II SULEV

Vehicles in test group: Audi A3 / VW Jetta / VW GTI

Sales US: **Ex. 4 - CBI**

Sales Procurement state: California

Vehicles tested: 2 HM cars tested

Number of mailing campaigns: 3

Letters per campaign: 1st: 20 / 2nd: 20 / 3rd: 71

Incentive: $250

Response: We received 20 return cards but none with 105 K mi (75%)

Comment: We will test the car with the highest mileage available.

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AVWXV02.5U35

Emission Standard: BIN 5

Vehicles in test group: VW Golf / VW Jetta / VW Jetta Sportwagen

Sales US: **Ex. 4 - CBI**

Sales Procurement state: Michigan

Vehicles tested: 2 HM cars tested

Number of mailing campaigns: 2

Letters per campaign: 1st: 20 / 2nd: 20

Incentive: $250

Response: We received 6 return cards but none with 90 K mi (75%)

Comment: We will test the car with the highest mileage available.

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AVWXV02.03PA

Emission Standard: BIN 3 / SULEV

Vehicles in test group: VW Passat / VW Passat Wagon / VW CC

Sales US: Ex. 4 - CBI

Sales Procurement state: CA

Vehicles tested: 2 HM cars tested

Number of mailing campaigns: 2

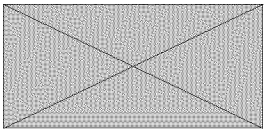
Letters per campaign: 1st: 20 / 2nd: 20

Incentive: $250

Response: We received 5 return cards but none with 105 K mi (75%)

Comment: We will test the car with the highest mileage available.

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: Environmental Law360
Sent: Mon 11/2/2015 8:32:10 AM
Subject: Robins Kaplan Says Atty Bungled Judge's VW Counsel Order



ENVIRONMENTAL

Monday, November 2, 2015

TOP NEWS

Robins Kaplan Says Atty Bungled Judge's VW Counsel Order

Robins Kaplan LLP and five other law firms complained to a Virginia federal judge on Friday that an attorney temporarily leading representation for drivers in cases over Volkswagen's diesel emissions deception wasn't listening when the judge said attorneys in the 20 cases should confer on co-lead counsel, because instead he chose his own two co-counsel.

Clinton, Enviros Urge DOJ To Probe Exxon Climate Work

Environmental and civil rights groups on Friday urged the U.S. Department of Justice to investigate whether Exxon Mobil Corp. deliberately covered up its climate change knowledge, while Democratic presidential candidate Hillary Clinton joined a list of politicians calling for probe of the energy giant.

Enviros Ask FERC For Comprehensive Study Of 4 Pipelines

About 30 environmental groups sent a letter to the Federal Energy Regulatory Commission on Friday asking that a cumulative environmental impact study be done on four proposed natural gas pipelines to run through Virginia and West Virginia.

EPA Will Reconsider Approval Of Ky. Selenium Standards

The federal government, the state of Kentucky and industry groups said Friday they've settled a suit brought by environmentalists seeking to overturn the state's new water quality standards for selenium, in which the EPA will redo its review of the state's standards for the coal-mining byproduct.

Resort Owner Says Its Law Firm Betrayed It In Enviro Suit

A California resort and golf course owner has said that Wood Smith Henning & Berman LLP, the firm hired by an insurer to defend it against environmental claims, should be disqualified for allegedly betraying the company's interests to help the insurer, according to documents made available Friday.

ANALYSIS

LAW FIRMS

Ahmad Zavitsan

Allen & Overy

Anderso Kill

Baker Botts

Baker Donelso

Baker Sterchi

Barrett Law Group

Booth LLP

Bressler Amery

Brooks Pierce

Burns Charest

Clifford Chance

Cohen

3 Kinds Of Legal Battles Being Fueled By Low Oil Prices

With no end to the oil price slump in sight, oil and gas companies are increasingly scaling back their drilling and production activities, and the fallout will result in more courtroom battles between industry players desperate to maintain their piece of a shrinking financial pie. Here are three litigation hot spots attorneys will be watching closely as the oil price drought continues.

POLICY & REGULATION

Enviro Groups Press Lawmakers On TPP Support

A throng of environmental and consumer advocacy groups presented members of the U.S. Congress on Thursday with their ideal vision for the Trans-Pacific Partnership, imploring the lawmakers to oppose the 12-nation accord if those lofty standards are not met once the text of the agreement is published.

LITIGATION

VW Says Buyback Over Emissions Scam Would Cost Billions

Volkswagen urged a Missouri federal judge on Thursday not to impose a buyback program requested by a man leading one of many proposed class actions over the company's use of software to cheat emissions tests, claiming that it could wind up costing the company "many billions of dollars."

Enviros Say 10th Circ. Can't Hear Navajo Co. On Mine Permit

Environmental groups urged the Tenth Circuit Thursday to reject tribe-owned Navajo Transitional Energy Co. LLC's bid to nix a ruling vacating the company's permit to expand a New Mexico coal mine, arguing the appeals court lacked jurisdiction and a recent agency finding didn't moot the lower court decision.

Ind. Court Kicks $90M Project Dispute Back For Further Work

An Indiana utility company can't yet pass on to its ratepayers about $90 million in costs for new emission controls on its coal-fired power plants, the state appeals court said Thursday, remanding the decision to the Indiana Utility Regulatory Commission for further consideration.

Int'l Paper Looks To Reopen Cleanup Suit After Mediation Fails

International Paper Co. and a Georgia-Pacific LLC unit on Friday asked a New Jersey federal judge to reopen a case that was administratively closed in July when the companies agreed to try mediation that has since failed with the consumer packaging company they sued over Superfund cleanup as part of a decades-old spinoff deal.

LAW FIRMS

Ahmad Zavitsan

Allen & Overy

Anderso Kill

Baker Botts

Baker Donelso

Baker Sterchi

Barrett Law Group

Booth LLP

Bressler Amery

Brooks Pierce

Burns Charest

Clifford Chance

Cohen Milstein

Concept Law Group PA

Cooper & Kirk

Covingtc &

Wind Energy Group Tells 7th Circ. Not To Hurt Contracts

A wind industry group told the Seventh Circuit in a Thursday amicus brief to reject any suggestion that utilities can use market rule changes to skirt the terms of power-purchase agreements, regardless of the outcome of a contractual dispute between Duke Energy and an Indiana wind farm.

TerraForm Global Faces Another Suit Over $675M IPO

Clean energy yieldco TerraForm Global Inc. and its sponsor SunEdison Inc. misled investors in TerraForm's $675 million initial public offering by hiding bad financial news about SunEdison that would devastate the yieldco, a shareholder claimed in California federal court on Thursday, days after a similar case was lodged in state court.

DEALS

RWE, Others Team Up For $2.3 Billion UK Wind Farm

Germany power company RWE Innogy announced on Friday that it will be partnering with the U.K.'s Green Investment Bank, Siemens Financial Services and Macquarie Capital to fund a £1.5 billion ($2.3 billion), 336-megawatt offshore wind farm off the coast of the U.K.

EXPERT ANALYSIS

The 40-Year Legacy Of Energy Efficiency Legislation

Forty years after its passage, the Energy Policy and Conservation Act remains a cornerstone of energy policy and will retain its relevance given the role energy efficiency will play in both the Clean Power Plan's implementation and at the forthcoming United Nations Climate Change Conference in Paris, say Scott Blake Harris and John Hodges of Harris Wiltshire & Grannis LLP.

In Congress: Default Averted, A Return To The 'Typical'

After last week's historic events on Capitol Hill, this week in Congress will be more typical, say Richard Hertling and Kaitlyn McClure of Covington & Burling LLP. Expect consideration of everything from the controversial Waters of the United States rule and the transportation bill to cross-border data protection and testimony by Fed Chairwoman Janet Yellen.

LEGAL INDUSTRY

How To Make The Managing Partner Notice You

Whether you're a young associate, a new lateral hire or someone who's been around the office a few years, getting your managing partner to notice you for the right reasons can be as important as servicing your clients when it comes to advancing your career. Here, experts share tips for getting on the boss's radar.

LAW FIRMS

Ahmad Zavitsan

Allen & Overy

Anderso Kill

Baker Botts

Baker Donelso

Baker Sterchi

Barrett Law Group

Booth LLP

Bressler Amery

Brooks Pierce

Burns Charest

Clifford Chance

Cohen Milstein

Concept Law Group PA

Cooper & Kirk

Covingtc &

3 No-Nos When Dealing With A Judge

Courtrooms can heat up as both sides fight to prove their cases. But lawyers must take pains to avoid losing their cool in front of a judge and blurting out something that should have remained unsaid. Here are three things that can tank a judge's opinion of a lawyer, based on real stories of attorneys who have seen a chill descend on courtrooms after certain phrases come up.

Foley, Eversheds Talks Signal More Trans-Atlantic Tie-Ups

The spread of the Swiss verein model and growing convergence between U.S. and United Kingdom firms will encourage more cross-Atlantic merger talks like the one rumored to be in the works at Eversheds LLP and Foley & Lardner LLP, experts said.

The GC's Weekly Cheat Sheet

From an information-sharing bill that might protect companies from cyberthreats to a bid to get Congress to crack down on so-called patent trolls, here's a roundup of corporate legal and legislative developments from the past week that all general counsels need to know.

In Case You Missed It: Hottest Firms And Stories On Law360

For those who missed out, here's a look back at the law firms, stories and expert analyses that generated the most buzz on Law360 last week.

JOBS
Search full listings or **advertise your job opening**

Burling

Crowell & Moring

Cuneo Gilbert

Day Pitney

Dinsmor & Shohl

Drinker Biddle

Earthjus

Evershe LLP

Foley & Lardner

George Brothers

Gibson Dunn

Greenba Rowe

Gruber Hurst

Hagens Berman

Harris Wiltshire

Herzfeld & Rubin

Hoover Hull

K&L Gates

Kessler Topaz

King & Spalding

Kubicki Draper

Lewis Brisbois

Linklater

Lockridg Grindal

McGuire

Meyers Fozi

Morris Manning

Nelson Mullins

Norton Rose Fulbrigh

RatnerP

Reed Smith

Robins Kaplan

Rothwel Figg

Schiff Hardin

Scott & Scott

Taft Stettiniu

Thomps & Knight

Vinson & Elkins

Walswo

Wilson Sonsini

Winstea PC

Winston & Strawn

Wood Smith

COMPA

Actavis PLC

Amazon Inc.

America Bar Associat

Apple Inc.

Center for Biologic Diversity Inc.

Citigrou Inc.

Claro Group LLC

Deutsch Bank AG

Dow Chemic Co.

Duke Energy Corpora

EQT Corpora

Edge Internati Inc.

Electrol AB

Etsy Inc.

Exxon Mobil Corpora

Faceboc

Fireman

Fund Insuranc Co.

General Electric Compan

Georgia-Pacific LLC

Google Inc.

Home Depot, Inc.

Internati Paper Co.

JPMorga Chase & Co.

Kroger Co.

Los Angeles Times

NASDA(OMX Group Inc.

Natural Resourc Defense Council

RWE AG

Siemens AG

Sierra Club

Stryker Corpora

SunEdis LLC

Vectren Corp

Volkswa

GOVER AGENC

Army Corps of Enginee

Departm of Energy

Departm of Health and Human Service

Environ Protecti Agency

Export-Import Bank of the United States

Federal Aviation Admini

Federal Energy Regulat Commis

Federal Reserve System

Federal Trade Commis

Fish and Wildlife Service

General Services Administ

National Highway Traffic Safety Administ

National Labor Relation Board

Navajo Nation

Securitie and Exchang Commis

U.S. Departm of Justice

U.S. Departm of Transpo

U.S. House of Represe

U.S. Patent and Tradema Office

U.S. Senate

U.S. Supreme Court

United Nations

LAW FIRMS

Reed Smith

Hoover Hull

Winston & Strawn

Ahmad Zavitsanos

Allen & Overy

Anderson Kill

Baker Botts

Baker Donelson

Baker Sterchi

Barrett Law Group

Booth LLP

Bressler Amery

Brooks Pierce

Burns Charest

Clifford Chance

Cohen Milstein

Concept Law Group PA

Cooper & Kirk

Covington & Burling

Crowell & Moring

Cuneo Gilbert

Day Pitney

Dinsmore & Shohl

Drinker Biddle

Earthjustice

Eversheds LLP

Foley & Lardner

George Brothers

Gibson Dunn

Greenbaum Rowe

Gruber Hurst

Hagens Berman

Harris Wiltshire

Herzfeld & Rubin

K&L Gates

Kessler Topaz

King & Spalding

Kubicki Draper

Lewis Brisbois

Linklaters

Lockridge Grindal

McGuireWoods

Meyers Fozi

Morris Manning

Nelson Mullins

Norton Rose Fulbright

RatnerPrestia

Robins Kaplan

Rothwell Figg

Schiff Hardin

Scott & Scott

Taft Stettinius

Thompson & Knight

Vinson & Elkins

Walsworth

Wilson Sonsini

Winstead PC

Wood Smith

COMPANIES
Sierra Club

Center for Biological Diversity Inc.

Natural Resources Defense Council

Volkswagen

Actavis PLC

Amazon.com Inc.

American Bar Association

Apple Inc.

Citigroup Inc.

Claro Group LLC

Deutsche Bank AG

Dow Chemical Co.

Duke Energy Corporation

EQT Corporation

Edge International Inc.

Electrolux AB

Etsy Inc.

Exxon Mobil Corporation

Facebook

Fireman's Fund Insurance Co.

General Electric Company

Georgia-Pacific LLC

Google Inc.

Home Depot, Inc.

International Paper Co.

JPMorgan Chase & Co.

Kroger Co.

Los Angeles Times

NASDAQ OMX Group Inc.

RWE AG

Siemens AG

Stryker Corporation

SunEdison LLC

Vectren Corp

GOVERNMENT AGENCIES
Environmental Protection Agency

U.S. Department of Justice

Department of Energy

Federal Trade Commission

U.S. Patent and Trademark Office

Army Corps of Engineers

Department of Health and Human Services

Export-Import Bank of the United States

Federal Aviation Administration

Federal Energy Regulatory Commission

Federal Reserve System

Fish and Wildlife Service

General Services Administration

National Highway Traffic Safety Administration

National Labor Relations Board

Navajo Nation

Securities and Exchange Commission

U.S. Department of Transportation

U.S. House of Representatives

U.S. Senate

U.S. Supreme Court

United Nations

JOBS

Search full listings or **advertise your job opening**

Not sure if your firm subscribes? Ask your librarian.

We hope you found this message to be useful.
However, if you'd rather not receive future emails of this sort,
you may unsubscribe here.

Please DO NOT reply to this email. For customer support inquiries, please call 1-646-783-7100 or visit our Contact Us page.

Law360 | Portfolio Media, Inc, 860 Broadway, New York, New York 10003

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: Cohen, Janet
Sent: Mon 11/2/2015 7:53:16 PM
Subject: FW: FW: VW Clips 11/02/15

From: Urrutia, Katiana
Sent: Monday, November 02, 2015 2:49 PM
To: Allen, Laura <Allen.Laura@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Senn, John <Senn.John@epa.gov>; Millett, John <Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Hull, George <Hull.George@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Grantham, Nancy <Grantham.Nancy@epa.gov>; StClair, Christie <StClair.Christie@epa.gov>; Davis, Jay <Davis.Jay@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Cohen, Janet <cohen.janet@epa.gov>; Brooks, Phillip <Brooks.Phillip@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Purchia, Liz <Purchia.Liz@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Kaul, Meetu <Kaul.Meetu@epa.gov>; Cook, Leila <cook.leila@epa.gov>
Cc: Allen, Hiatt <Allen.Hiatt@epa.gov>
Subject: FW: VW Clips 11/02/15

Forbes:

http://www.forbes.com/sites/lianeyvkoff/2015/11/02/dieselgate-woes-grow-for-vw/

EPA Accuses VW Of Using Defeat Devices On Porsche, More Audi Models

Liane Yvkoff

NOV 2, 2015 @ 02:17 PM 54 VIEWS

Volkswagen's still untallied bill for its emissions violations just got bigger.

Today the Environmental Protections Agency and the California Air Resources Board notified the German auto manufacturer that it has identified emissions defeat devices installed in more

vehicles throughout the Volkswagen Auto Group brand. The EPA and CARB says that VW, Audi and Porsche light duty diesel vehicles equipped with its 3.0 liter engines for model years 2014 through 2016 are also equipped with the defeat devices that throttle down nitrogen oxide (NOx) during emission testing. Volkswagen AG already was notified of violations found in VW and Audi vehicles equipped with its 2.0-liter diesel engine. The addition of the 3.0-liter diesel engine adds approximately 10,000 vehicles to the number of affected vehicles.

The expansion of the scandal from mainly VW to Audi and Porsche casts a dark shadow on these jewels of the VW AG crown. This could tarnish the reputation of these luxury manufacturers and potentially slow growth, even if only a small percentage of the vehicles are equipped with compromised diesel emissions systems.

"Audi, which has been on a roll in terms of sales, reputation and image of late, now is being drawn deeper into the quagmire," says Michelle Krebs, senior analyst for Autotrader. "Previously, only the low-volume A3 was under scrutiny, but now Audi's core models are under fire from regulators as well."

Volkswagen will be required to fix these vehicle's emissions systems, which on the road emit up to nine times EPA's standard. CARB has set a November 20 deadline for the manufacturer to deliver a draft of recall plans.

Affected 2.0 liter diesel models include:

Jetta (MY 2009 – 2015)

Jetta Sportwagen (MY 2009-2014)

Beetle (MY 2012 – 2015)

Beetle Convertible (MY 2012-2015)

Audi A3 (MY 2010 – 2015)

Golf (MY 2010 – 2015)

Golf Sportwagen (MY 2015)

Passat (MY 2012-2015)

Affected 3.0 liter diesel models include:

Volkswagen Touareg (MY 2014)

Porsche Cayenne (MY 2015)

Audi A6 Quattro (MY 2016)

Audi A7 Quattro (MY 2016)

Audi A8 (MY 2016)

Audi Q5 (MY 2016)

MLive (Michigan) (update)

http://www.mlive.com/auto/index.ssf/2015/11/epa_says_volkswagen_also_used.html

EPA says Volkswagen also rigged 3-liter diesels in Audi, Porsche and VW cars

David Muller

DETROIT, MI - A major scandal for Volkswagen and its use of emissions tricking-software on a 2.0-liter engine in 11 million cars is likely to be expanded to another engine and thousands more vehicles.

On Monday the U.S. Environmental Protection Agency issued a new Notice of Violation for VW, Porsche and Audi models with a 3.0-liter diesel engine.

The EPA and the California Air Resources Board said the 2014 VW Touareg, the 2015 Porsche Cayenne, and the 2016 Audi A6 Quattro, A7 Quattro, A8, A8L, and Q5 with diesel engines all have software that causes the vehicles to pass lab emissions tests but, in regular driving, emit up to nine times the EPA's standard.

The latest notice from the EPA covers about 10,000 diesel vehicles sold in the U.S., and an unknown amount not yet sold.

"VW has once again failed its obligation to comply with the law that protects clean air for all Americans," Cynthia Giles, assistant administrator for the EPA's enforcement and compliance assurance, said in a statement. She added that the EPA and state and federal partners will continue to investigate.

A spokesperson for VW could not immediately be reached for comment Monday afternoon.

In September, the EPA and the CARB issued a similar notice for 482,000 VW cars with a 2.0-liter diesel engine, and VW admitted responsibility, touching off the largest scandal in the German automaker's 78-year history.

The EPA and the CARB uncovered the defeat device software in the Volkswagen cars after independent analysis at West Virginia University raised questions about the cars' emissions levels.

The Volkswagen cars would meet emissions standards tests in a laboratory or testing station, but in normal operation, they emit nitrogen oxides at up to 40 times the standard, according to the EPA.

Last month, Volkswagen of American CEO Michael Horn told lawmakers on Capitol Hill that the software in question was developed in Germany, totally out of his "jurisdiction." He said the decision to develop such software appeared to be limited to a rogue group of engineers.

Volkswagen has had its corporate offices in Germany raided, and faces several investigations and lawsuits.

The company's former CEO, Martin Winterkorn, stepped down from the helm of Volkswagen AG last month and has since named Porsche brand chief Matthias Mueller as his replacement.

"The official expansion of this problem from the Volkswagen brand, and a single Audi model, on to multiple Audi models and at least one Porsche, casts a darker shadow on the VW Group," said Karl Brauer, senior analyst for Kelley Blue Book. "It also makes any past claims of 'a limited number of people' involved in the deception appear even more outrageous. Volkswagen would do well to immediately and completely disclose all people and products involved in this deception, no matter how far-reaching. Repairing the automaker's brand and regaining trust should be VW Group's highest priority at this point, but it can't begin until full and voluntary disclosure is achieved."

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Tue 11/3/2015 12:11:15 PM
Subject: Request to suspend Keystone permit review may delay decision past 2016 election

Advertise | Contact

Energy and environment headlines for the morning of Tuesday, November 3, 2015

Request to suspend Keystone permit review may delay decision past 2016 election

By Kevin Rogers

The seven-year saga of the Keystone XL pipeline could drag on a bit longer now that TransCanada has asked the State Department to suspend its permit application, a delay that could extend past next year's presidential elections and into the next administration.

Environmentalists celebrated the news Monday evening about the long-stalled project, which has become one of the most visible battlegrounds for the nation's climate and energy debates.

But backers of the pipeline, which would carry Alberta's oil sands to Gulf Coast refineries, placed the blame squarely on the Obama administration.

President and CEO Russ Girling, in a letter to Secretary of State John Kerry, requested the suspension to allow the company to win approval of its preferred route through Nebraska. It filed with the Nebraska Public Service Commission in October, and the company expects that the process could take as long as a year.

"I note that when the status of the Nebraska pipeline route was challenged last year, the State Department found it appropriate to suspend its review until that dispute was resolved," Girling wrote. "We feel under the current circumstances a similar suspension would be appropriate."

The company is seeking a new route after legal challenges were filed against a 2013 route approval.

State Department spokesperson Pooja Jhunjhunwala said the department had received the letter and was reviewing it. In the meantime, she said, the permit review is ongoing.

TransCanada's move comes the same day that White House Press Secretary Josh Earnest told reporters that Obama plans to make a decision "before the end of his administration," noting that the decision could possibly come as early as this year.

Obama has consistently downplayed the potential economic impact of the pipeline and earlier this year used a rare veto to reject legislation to approve the project. He has also said he would only back the project "if it does not significantly exacerbate the problem of carbon pollution."

If TransCanada's request is approved, the suspension could potentially keep the project in limbo and out of Obama's hands. In that case, it would fall to his successor to make a final call.

Democratic candidates, including former Secretary of State Hillary Clinton, have vowed to block the project in the name of climate action. Most Republicans candidates across the board tout the project as a job creator, though businessman Donald Trump said last week said he would need a "better deal" from TransCanada to approve the project.

Environmental groups called TransCanada's suspension request a less-than-transparent ploy to pass the project on toward a potential Republican administration.

"This is nothing more than another desperate and cynical attempt by TransCanada to build their dirty pipeline someday if they get a climate denier in the White House in 2017," League of Conservation Voters Senior Vice President of Government Affairs Tiernan Sittenfeld said in a statement.

350.org founder Bill McKibben said TransCanada had admitted defeat on the project, and

was fighting in vain for a new "head official." He urged Obama to act decisively and finally reject the pipeline.

"Clearly TransCanada has lost and they recognize that," he said. "No matter what route TransCanada comes back with, the ultimate problem all along with Keystone XL has been that it's a climate disaster — that it fails the President's own climate test."

Pipeline supporters in the Senate slammed the Obama administration for its delays, saying they would have a "chilling effect" on future energy infrastructure projects.

"TransCanada had been given every reason to believe its application would be denied by the current administration, despite the protracted review period and multiple favorable findings," Sen. John Hoeven, R-N.D., said.

Hoeven earlier this year sponsored the Senate bill to approve the project. His Democratic counterpart, Sen. Heidi Heitkamp, D-N.D., accused the administration of allowing an infrastructure project to get caught up in heated climate debate.

"Year after year we have waited on this Administration to make a decision on the construction of the Keystone XL pipeline, and in that time have witnessed the conflation of a basic infrastructure expansion project into the foremost emotional and overly politicized issue as it relates to our country's energy policy," she said in a statement.

Senate Energy and Natural Resources Chairman Sen. Lisa Murkowski, R-Alaska, derided Obama for "arbitrary delays" that would drive other companies to "simply give up" on investing in the U.S.

But some liberals in the chamber sounded a celebratory note. In a statement, Sen. Brian Schatz, D-Hawaii, said he was pleased that the company had moved to suspend the "disastrous" project.

"If we are going to create a better future for our children, we must move away from fossil fuels like tar sands oil and toward renewable energy," he said.

Quick Links

Climate change features as Obama mocks Republicans on Broadway

BMW enjoys luxury car boost, CEO defends diesel

Whiskey fungus nuisance case against Diageo can move ahead

Amnesty: Shell cleanups of oil spills in Nigeria a cover-up

EPA hands RFS off to the White House

Democrats doubt GOP leadership will advance bill targeting water rule

Nuke closures push Entergy to loss

Moody's, U.S. comptroller warn about oil company credit

Oil down on supply worries

RFS favors corn ethanol over greener biofuels, analysis concludes

Weather helps Dominion overcome low energy prices

Virginia non-profit may deal coal with carbon credits

Goldman raises renewable investment goal to $150 billion

Beverly Hills caught as California imposes fines for water use

Statoil gets OK for Scottish offshore wind farm

Upcoming Events

Climate change features as Obama mocks Republicans on Broadway

By Josh Lederman

NEW YORK (AP) — Appearing on Broadway for one night only: Barack Obama, in a solo comedy act roasting the Republican Party.

The president left a crowd of more than 1,300 in stiches on Monday night at the Richard Rodgers Theatre, home to the hit musical "Hamilton" about Founding Father Alexander Hamilton. The cast staged a special performance for a Democratic National Committee fundraiser, with Obama as the encore.

Tweaking Republicans who question climate change, Obama likened it to having 99 out of 100 doctors tell someone they have diabetes and having that person brush it off as a conspiracy.

"All 99 of those doctors got together — with Obama — to try to prevent me from having bacon and doughnuts," Obama said to laughter in the ornate Times Square theater. "It'd be

funny — except this is about climate change. This was an analogy."

More

BMW enjoys luxury car boost, CEO defends diesel

By David McHugh

FRANKFURT, Germany (AP) — Automaker BMW beat expectations with a 20 percent increase in third quarter net profit from a year earlier, as the luxury automaker maintained rich profit margins despite slowing demand in China.

The company said Tuesday that demand in China appeared to be "stabilizing" after a slowdown in the economy, which is expected to keep a lid on profit increases for the rest of this year.

CEO Harald Krueger defended diesel engines as crucial to meeting carbon dioxide emissions goals in Europe. Diesels have come under a shadow recently because of the scandal over diesels built by competitor Volkswagen with engine software that enabled them to cheat on U.S. emissions tests.

"Without diesel it is not possible to meet the EU's ambitious goals for CO2 emissions," Krueger said in a conference call with journalists.

More

Whiskey fungus nuisance case against Diageo can move ahead

By The Associated Press

LOUISVILLE, Ky. (AP) — Some Kentucky residents who claim a whiskey warehouse is causing black fungus to grow on their homes have received a court's permission to press their lawsuit against liquor giant Diageo.

Diageo Americas Supply distills and ages whiskey at warehouses in Louisville, resulting in tons of ethanol emissions.

The lawsuit filed by Louisville residents claims those emissions are a nuisance because they cause a growth called whiskey fungus to form on nearby properties. Whiskey fungus thrives in ethanol-rich environments.

The plaintiffs want an injunction that would require Diageo to curb its ethanol emissions.

More

Amnesty: Shell cleanups of oil spills in Nigeria a cover-up

By The Associated Press

LAGOS, Nigeria (AP) — Amnesty International says oil giant Shell's claims of cleaning up spills that have destroyed the livelihoods of hundreds of thousands of Nigerians are "false."

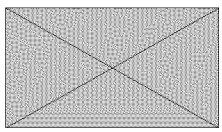
A report issued Tuesday quotes one contractor as saying his clean-up was "a cover-up."

Shell Nigeria rejects the findings and says it is "committed to cleaning up all spills" including in Ogoniland, where community protests forced Shell out in 1993.

The report says one Ogoniland area still is blighted though Shell said it was cleaned up 40 years ago and again after a 2011 U.N. investigation found massive contamination.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA

Power plant rule challenge to be decided after Paris.

Click here to read the brief

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

EPA hands RFS off to the White House

The White House Office of Management and Budget is giving the three years' worth of

ethanol blending mandates in the Renewable Fuel Standard a final review, having received the plan from the Environmental Protection Agency, The Hill reports.

More

Democrats doubt GOP leadership will advance bill targeting water rule

Senate Democrats doubt Majority Leader Mitch McConnell on Tuesday will round up the 60 votes needed to advance legislation sponsored by Sen. John Barrasso, R-Wyo., that would force the Environmental Protection Agency to rewrite its Clean Water Rule, Roll Call reports.

More

Nuke closures push Entergy to loss

Impairments stemming from the shutdowns of two nuclear power plants pushed Entergy Corp. to a $723 million loss in the third quarter, and even without the charges the company's profit came to less than analysts had predicted, The Wall Street Journal reports.

More

Moody's, U.S. comptroller warn about oil company credit

Losses and defaults from oil sector loans are set to rise, according to warnings from U.S. Comptroller of the Currency Thomas Curry and Moody's Investors Service, which predicts a four-year high for defaults next October, FuelFix reports.

More

Oil down on supply worries

News of increasing Russian production, a rise in U.S. stockpiles and weakening demand outlook from China helped push oil prices down early Tuesday. U.S. benchmark crude lost 2 cents to $46.12 per barrel in electronic trading on the Nymex, while in London Brent fell 21 cents to $48.58, Reuters reports.

More

RFS favors corn ethanol over greener biofuels, analysis concludes

An analysis commissioned by the Environmental Working Group says the blending mandates set in the Renewable Fuel Standard favor corn-based ethanol over more advanced biofuels, which have been struggling to gain a foothold in the market despite being more environmentally friendly, FuelFix reports.

More

Weather helps Dominion overcome low energy prices

Third quarter profit increased 12 percent for Dominion Resources Inc. as weather and moves like selling a third of the company's solar portfolio to SunEdison boosted its balance sheet despite continued low energy prices, The Wall Street Journal reports.

More

Virginia non-profit may deal coal with carbon credits

The head of the Virginia Conservation Legacy Fund says its subsidiary, ERP Compliant Fuels, is "focused" on closing a deal within weeks on a shipment of Central Appalachian coal from West Virginia that has carbon credits attached, Platts reports.

More

Goldman raises renewable investment goal to $150 billion

Having earlier said it would invest $40 billion in clean energy by 2012, Goldman Sachs now says it intends to nearly quadruple that and pour $150 billion into solar and wind power, energy efficiency projects and grid upgrades by 2025, Fortune reports.

More

Beverly Hills caught as California imposes fines for water use

Beverly Hills, the Indio Water Authority, the Coachella Valley Water District and the City of Redlands were fined by state officials last week for failing to meet water conservation targets, The New York Times reports.

More

Statoil gets OK for Scottish offshore wind farm

Hywind, a pilot project of five wind turbines off the northeastern coast of Scotland to be operated by Norway's Statoil, has gotten government approval and construction could begin early in 2016, BBC News reports.

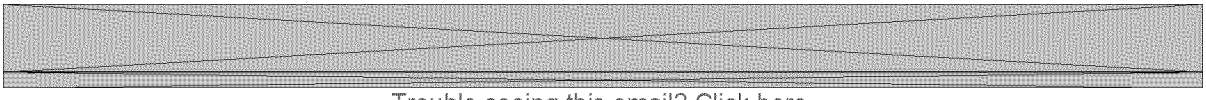
More

Upcoming Events

- Nov. 3, Washington: The John Hopkins School of Advanced International Studies to hold a forum on the expansion of U.S. oil companies globally. Andrew Cheon, an assistant professor of international political economy at SAIS to speak. 4:30 pm , 1717 Massachusetts Avenue NW.
- Nov. 3, Washington: The House Energy and Commerce Subcommittee on Energy and

Power to markup a pair of Congressional Review Act resolutions from Chairman Ed Whitfield, R-Ky., that would overturn the Environmental Protection Agency's Clean Power Plan. 1:00 pm , 2322 Rayburn.

- Nov. 3, Washington: The House Science, Space and Technology subcommittees on Environment and Oversight to hold a hearing on the Renewable Fuel Standard. 10:00 am , 2318 Rayburn.
- Nov. 3, Washington: The Senate to begin debate on a bill from Sen. John Barrasso, R-Wyo., that would send the Environmental Protection Agency's Clean Water Rule back to the agency to start over with new instructions. 10:00 am , U.S. Capitol Building
- Nov. 3, Washington: UNFCCC Executive Secretary Christiana Figueres to speak on the United Nations Paris Conference at an event hosted by The Christian Science Monitor. 9:00 am , St. Regis Hotel.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

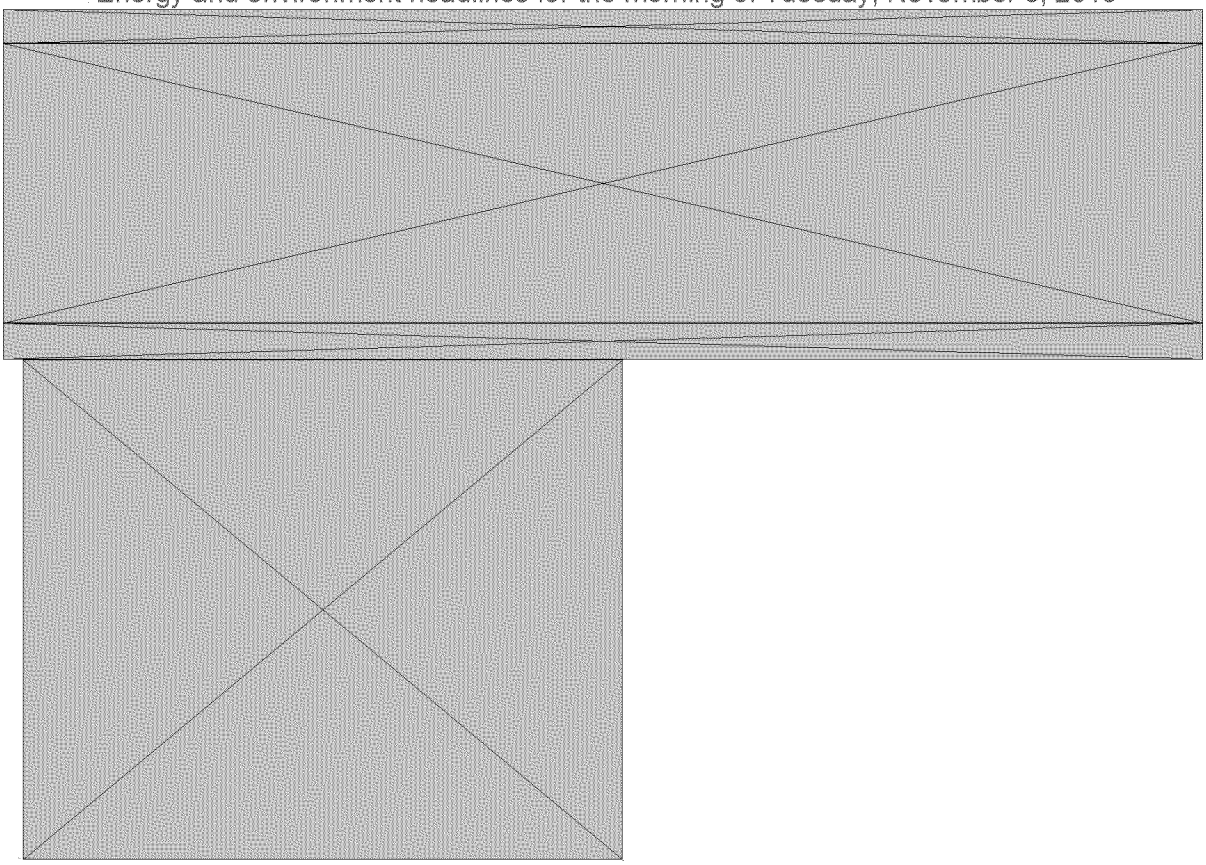
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Tue 11/3/2015 12:11:15 PM
Subject: Request to suspend Keystone permit review may delay decision past 2016 election

Advertise | Contact

Energy and environment headlines for the morning of Tuesday, November 3, 2015



Request to suspend Keystone permit review may delay decision past 2016 election

By Kevin Rogers

The seven-year saga of the Keystone XL pipeline could drag on a bit longer now that TransCanada has asked the State Department to suspend its permit application, a delay that could extend past next year's presidential elections and into the next administration.

Environmentalists celebrated the news Monday evening about the long-stalled project, which has become one of the most visible battlegrounds for the nation's climate and energy debates.

But backers of the pipeline, which would carry Alberta's oil sands to Gulf Coast refineries, placed the blame squarely on the Obama administration.

President and CEO Russ Girling, in a letter to Secretary of State John Kerry, requested the suspension to allow the company to win approval of its preferred route through Nebraska. It filed with the Nebraska Public Service Commission in October, and the company expects that the process could take as long as a year.

"I note that when the status of the Nebraska pipeline route was challenged last year, the State Department found it appropriate to suspend its review until that dispute was resolved," Girling wrote. "We feel under the current circumstances a similar suspension would be appropriate."

The company is seeking a new route after legal challenges were filed against a 2013 route approval.

State Department spokesperson Pooja Jhunjhunwala said the department had received the letter and was reviewing it. In the meantime, she said, the permit review is ongoing.

TransCanada's move comes the same day that White House Press Secretary Josh Earnest told reporters that Obama plans to make a decision "before the end of his administration," noting that the decision could possibly come as early as this year.

Obama has consistently downplayed the potential economic impact of the pipeline and earlier this year used a rare veto to reject legislation to approve the project. He has also said he would only back the project "if it does not significantly exacerbate the problem of carbon pollution."

If TransCanada's request is approved, the suspension could potentially keep the project in limbo and out of Obama's hands. In that case, it would fall to his successor to make a final call.

Democratic candidates, including former Secretary of State Hillary Clinton, have vowed to block the project in the name of climate action. Most Republicans candidates across the board tout the project as a job creator, though businessman Donald Trump said last week said he would need a "better deal" from TransCanada to approve the project.

Environmental groups called TransCanada's suspension request a less-than-transparent ploy to pass the project on toward a potential Republican administration.

"This is nothing more than another desperate and cynical attempt by TransCanada to build their dirty pipeline someday if they get a climate denier in the White House in 2017," League of Conservation Voters Senior Vice President of Government Affairs Tiernan Sittenfeld said in a statement.

350.org founder Bill McKibben said TransCanada had admitted defeat on the project, and

was fighting in vain for a new "head official." He urged Obama to act decisively and finally reject the pipeline.

"Clearly TransCanada has lost and they recognize that," he said. "No matter what route TransCanada comes back with, the ultimate problem all along with Keystone XL has been that it's a climate disaster — that it fails the President's own climate test."

Pipeline supporters in the Senate slammed the Obama administration for its delays, saying they would have a "chilling effect" on future energy infrastructure projects.

"TransCanada had been given every reason to believe its application would be denied by the current administration, despite the protracted review period and multiple favorable findings," Sen. John Hoeven, R-N.D., said.

Hoeven earlier this year sponsored the Senate bill to approve the project. His Democratic counterpart, Sen. Heidi Heitkamp, D-N.D., accused the administration of allowing an infrastructure project to get caught up in heated climate debate.

"Year after year we have waited on this Administration to make a decision on the construction of the Keystone XL pipeline, and in that time have witnessed the conflation of a basic infrastructure expansion project into the foremost emotional and overly politicized issue as it relates to our country's energy policy," she said in a statement.

Senate Energy and Natural Resources Chairman Sen. Lisa Murkowski, R-Alaska, derided Obama for "arbitrary delays" that would drive other companies to "simply give up" on investing in the U.S.

But some liberals in the chamber sounded a celebratory note. In a statement, Sen. Brian Schatz, D-Hawaii, said he was pleased that the company had moved to suspend the "disastrous" project.

"If we are going to create a better future for our children, we must move away from fossil fuels like tar sands oil and toward renewable energy," he said.

Quick Links

Climate change features as Obama mocks Republicans on Broadway

BMW enjoys luxury car boost, CEO defends diesel

Whiskey fungus nuisance case against Diageo can move ahead

Amnesty: Shell cleanups of oil spills in Nigeria a cover-up

EPA hands RFS off to the White House

Democrats doubt GOP leadership will advance bill targeting water rule

Nuke closures push Entergy to loss

Moody's, U.S. comptroller warn about oil company credit

Oil down on supply worries

RFS favors corn ethanol over greener biofuels, analysis concludes

Weather helps Dominion overcome low energy prices

Virginia non-profit may deal coal with carbon credits

Goldman raises renewable investment goal to $150 billion

Beverly Hills caught as California imposes fines for water use

Statoil gets OK for Scottish offshore wind farm

Upcoming Events

Climate change features as Obama mocks Republicans on Broadway

By Josh Lederman

NEW YORK (AP) — Appearing on Broadway for one night only: Barack Obama, in a solo comedy act roasting the Republican Party.

The president left a crowd of more than 1,300 in stiches on Monday night at the Richard Rodgers Theatre, home to the hit musical "Hamilton" about Founding Father Alexander Hamilton. The cast staged a special performance for a Democratic National Committee fundraiser, with Obama as the encore.

Tweaking Republicans who question climate change, Obama likened it to having 99 out of 100 doctors tell someone they have diabetes and having that person brush it off as a conspiracy.

"All 99 of those doctors got together — with Obama — to try to prevent me from having bacon and doughnuts," Obama said to laughter in the ornate Times Square theater. "It'd be

funny — except this is about climate change. This was an analogy."

More

BMW enjoys luxury car boost, CEO defends diesel

By David McHugh

FRANKFURT, Germany (AP) — Automaker BMW beat expectations with a 20 percent increase in third quarter net profit from a year earlier, as the luxury automaker maintained rich profit margins despite slowing demand in China.

The company said Tuesday that demand in China appeared to be "stabilizing" after a slowdown in the economy, which is expected to keep a lid on profit increases for the rest of this year.

CEO Harald Krueger defended diesel engines as crucial to meeting carbon dioxide emissions goals in Europe. Diesels have come under a shadow recently because of the scandal over diesels built by competitor Volkswagen with engine software that enabled them to cheat on U.S. emissions tests.

"Without diesel it is not possible to meet the EU's ambitious goals for CO2 emissions," Krueger said in a conference call with journalists.

More

Whiskey fungus nuisance case against Diageo can move ahead

By The Associated Press

LOUISVILLE, Ky. (AP) — Some Kentucky residents who claim a whiskey warehouse is causing black fungus to grow on their homes have received a court's permission to press their lawsuit against liquor giant Diageo.

Diageo Americas Supply distills and ages whiskey at warehouses in Louisville, resulting in tons of ethanol emissions.

The lawsuit filed by Louisville residents claims those emissions are a nuisance because they cause a growth called whiskey fungus to form on nearby properties. Whiskey fungus thrives in ethanol-rich environments.

The plaintiffs want an injunction that would require Diageo to curb its ethanol emissions.

More

Amnesty: Shell cleanups of oil spills in Nigeria a cover-up

By The Associated Press

LAGOS, Nigeria (AP) — Amnesty International says oil giant Shell's claims of cleaning up spills that have destroyed the livelihoods of hundreds of thousands of Nigerians are "false."

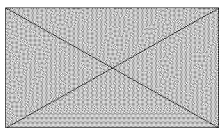
A report issued Tuesday quotes one contractor as saying his clean-up was "a cover-up."

Shell Nigeria rejects the findings and says it is "committed to cleaning up all spills" including in Ogoniland, where community protests forced Shell out in 1993.

The report says one Ogoniland area still is blighted though Shell said it was cleaned up 40 years ago and again after a 2011 U.N. investigation found massive contamination.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA

Power plant rule challenge to be decided after Paris.

Click here to read the brief

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

EPA hands RFS off to the White House

The White House Office of Management and Budget is giving the three years' worth of

ethanol blending mandates in the Renewable Fuel Standard a final review, having received the plan from the Environmental Protection Agency, The Hill reports.

More

Democrats doubt GOP leadership will advance bill targeting water rule

Senate Democrats doubt Majority Leader Mitch McConnell on Tuesday will round up the 60 votes needed to advance legislation sponsored by Sen. John Barrasso, R-Wyo., that would force the Environmental Protection Agency to rewrite its Clean Water Rule, Roll Call reports.

More

Nuke closures push Entergy to loss

Impairments stemming from the shutdowns of two nuclear power plants pushed Entergy Corp. to a $723 million loss in the third quarter, and even without the charges the company's profit came to less than analysts had predicted, The Wall Street Journal reports.

More

Moody's, U.S. comptroller warn about oil company credit

Losses and defaults from oil sector loans are set to rise, according to warnings from U.S. Comptroller of the Currency Thomas Curry and Moody's Investors Service, which predicts a four-year high for defaults next October, FuelFix reports.

More

Oil down on supply worries

News of increasing Russian production, a rise in U.S. stockpiles and weakening demand outlook from China helped push oil prices down early Tuesday. U.S. benchmark crude lost 2 cents to $46.12 per barrel in electronic trading on the Nymex, while in London Brent fell 21 cents to $48.58, Reuters reports.

More

RFS favors corn ethanol over greener biofuels, analysis concludes

An analysis commissioned by the Environmental Working Group says the blending mandates set in the Renewable Fuel Standard favor corn-based ethanol over more advanced biofuels, which have been struggling to gain a foothold in the market despite being more environmentally friendly, FuelFix reports.

More

Weather helps Dominion overcome low energy prices

Third quarter profit increased 12 percent for Dominion Resources Inc. as weather and moves like selling a third of the company's solar portfolio to SunEdison boosted its balance sheet despite continued low energy prices, The Wall Street Journal reports.

More

Virginia non-profit may deal coal with carbon credits

The head of the Virginia Conservation Legacy Fund says its subsidiary, ERP Compliant Fuels, is "focused" on closing a deal within weeks on a shipment of Central Appalachian coal from West Virginia that has carbon credits attached, Platts reports.

More

Goldman raises renewable investment goal to $150 billion

Having earlier said it would invest $40 billion in clean energy by 2012, Goldman Sachs now says it intends to nearly quadruple that and pour $150 billion into solar and wind power, energy efficiency projects and grid upgrades by 2025, Fortune reports.

More

Beverly Hills caught as California imposes fines for water use

Beverly Hills, the Indio Water Authority, the Coachella Valley Water District and the City of Redlands were fined by state officials last week for failing to meet water conservation targets, The New York Times reports.

More

Statoil gets OK for Scottish offshore wind farm

Hywind, a pilot project of five wind turbines off the northeastern coast of Scotland to be operated by Norway's Statoil, has gotten government approval and construction could begin early in 2016, BBC News reports.

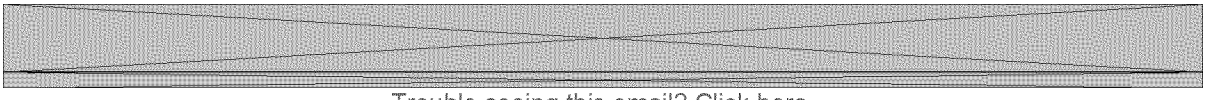
More

Upcoming Events

- Nov. 3, Washington: The John Hopkins School of Advanced International Studies to hold a forum on the expansion of U.S. oil companies globally. Andrew Cheon, an assistant professor of international political economy at SAIS to speak. 4:30 pm , 1717 Massachusetts Avenue NW.
- Nov. 3, Washington: The House Energy and Commerce Subcommittee on Energy and

Power to markup a pair of Congressional Review Act resolutions from Chairman Ed Whitfield, R-Ky., that would overturn the Environmental Protection Agency's Clean Power Plan. 1:00 pm , 2322 Rayburn.

- Nov. 3, Washington: The House Science, Space and Technology subcommittees on Environment and Oversight to hold a hearing on the Renewable Fuel Standard. 10:00 am , 2318 Rayburn.
- Nov. 3, Washington: The Senate to begin debate on a bill from Sen. John Barrasso, R-Wyo., that would send the Environmental Protection Agency's Clean Water Rule back to the agency to start over with new instructions. 10:00 am , U.S. Capitol Building
- Nov. 3, Washington: UNFCCC Executive Secretary Christiana Figueres to speak on the United Nations Paris Conference at an event hosted by The Christian Science Monitor. 9:00 am , St. Regis Hotel.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Good, David[good.david@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Thomas, Richard (EEO)
Sent: Tue 11/3/2015 12:23:04 PM
Subject: RE: 2016 FE Guide - Errors in Verify as of 6AM on Oct 27, 2015; Audi A3 etron PHEV errors attached

Hi Dave;

Yesterday morning I had corrected both labels in Verify, but I have a couple of questions about your comments below.

One of the issues for the A3 e-tron ultra (index# 102) was that the CS gasoline unadjusted combined CO2 value does not appear on the V18 calculator as does both the city and highway values. These two values we calculate and enter into the V18 calculator. I must not have calculated correctly but when I tried to enter the correct value as you said, this correct 165.95 CO2 value would not be accepted by Verify because more than one place right of the decimal is not allowed. I guess we'll see if that goes through your audit spreadsheet.

The other thing I noticed was that for the A3 e-tron (index #101) was that the CD electricity fuel unadjusted value from the V18 calculator reads 29.5 kW-hr/100 miles and your audit spreadsheet doesn't do any rounding, so depending upon if you use the 22.9966 miles from the combined Rcda value (cell G14) which yields 29.5191 combined kW-hr/100 mile (the value in cell AN4 when displayed to three places is 29.519.) or if you use the value shown for the Rcda of 23.00 you get the 29.5148 rounded to 29.515 value you said I should input. Should we always submit this value to 3 places right of the decimal?

If you could run the audit of these two labels again this morning and if you have a few minutes to discuss the results I would like to talk with you.

Thanks,

Richard

From: Good, David [mailto:good.david@epa.gov]
Sent: Friday, October 30, 2015 2:18 PM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Cc: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: Re: 2016 FE Guide - Errors in Verify as of 6AM on Oct 27, 2015; Audi A3 etron PHEV errors attached

Richard,

Re: 2016 FE Guide - Errors in Verify as of 6AM on Oct 27, 2015; Audi A3 etron PHEV errors attached

Attached are the data in Verify as of 6AM on Oct 27, 2015. The PHEV data is in a separate tab than the data for conventional vehicles. Labels with pea green fill in the first few columns have errors which need to be corrected before I can have the data posted on www.fueleconomy.gov. The errors are as follows:

A3 etron:

PHEV; Errors are highlighted in yellow fill with the correct values shown in the two rows below the cell where the error occurred; Error----CS driving range should be 367 (not 380) per v18 calculator; Error---charge depleting (CD) (fuel = electricity) unrounded adjusted city/hwy energy consumption values should be 41.7/39.1 kw-hr/100 mi (instead of 42/39) to agree with v18 calculator; Error---please revise CD (fuel = electricity) unrounded unadjusted city/hwy/comb MPGe values to 114.96/123.00/118.44 mpge (instead of 0/0/0) to agree with v18 calculator; Warning - number of battery packs exceed 4; please list battery packs, not cells; Error-- combined unadjusted FE more than 0.0001 difference from our calculation of 29.515.; Please revise Verify as needed.

A3 etron Ultra:

PHEV; Errors are highlighted in yellow fill with the correct values shown in the two rows below the cell where the error occurred; Error---CS driving range should be 412 (not 430) per v18 calculator; Error---please revise CD (fuel = electricity) unrounded unadjusted city/hwy/comb MPGe values to 122.52/123.63/123.02 mpge (instead of 0/0/0) to agree with v18 calculator; Error---please revise CD (fuel = electricity) unadjusted hwy mpge from 86.5 to 86.541 to agree with v18 calculator; Error please revise CS (fuel = gasoline) Unadjusted combined CO2 from 164.5 to 165.95 to agree with v18 calculator; Error please revise Battery Charge time (where fuel = electricity) from 2.5 to 3.7 hours; Warning - number

of battery packs exceed 4; please list battery packs, not cells; Please revise Verify as needed.

Please make any needed corrections to Verify when you get a chance and let me know when they have been corrected.

Thanks

Dave

RE
2015 OCT 3 AM 11:14
OFF
EXECUTIVE SECRET

Ex. 6

October 22, 2015

Environmental Protection Agency
Office of the Administrator
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

Re: *Volkswagen 2.0L TDI Diesel Emissions Issue, VW Action Code 23Q2*

Office of the Administrator,

My wife and I own a 2012 Volkswagen (VW) Golf[1] TDI 'Clean Diesel' passenger car equipped with a EA189 2.0-liter diesel engine. Our vehicle is fitted with the 'Gen 1' emissions aftertreatment system[2] and uses a software defeat device to cheat on the results of NO_x emmissions testing, and thus violates the US Clean Air Act (CAA)[3]. We purchased this vehicle, brand-new, from Stohlman Automotive of Tysons Corner, VA on July 25, 2011. Our two children have been regular passengers in the automobile since their births in June 2012 and June 2014 respectively. We are obviously extremely troubled about the long-term health implications this vehicle will have upon our family and our community due to exposure to excessive amounts of harmful NO_x pollutants. We are also very concerned about the financial repercussions this vehicle will have upon our family[4].

We purchased this vehicle due to its numerous publicized attributes:

- it is a 'Clean Diesel', Tier 2 Bin 5/CA LEV II-compliant automobile (i.e., the automobile can be sold & driven in all 50 states)
- VW rated this vehicle @ 140 hp and 236 lbs./ft torque with 30 mpg city and 42 mpg highway; and claimed that real-world fuel economy tests *beat* EPA estimates[5]
- numerous automotive publications indicated that the car was a highly rated 'green vehicle' blending 'clean' emissions with good fuel economy[6]

---

[1] **Ex. 6** <27,000 miles on the odometer

[2] Green Car Congress, *Background on the 2.0L diesel engines at the core of the Volkswagen emissions testing debacle*, <http://www.greencarcongress.com/2015/09/20150921-vw2l.html>

[3] US EPA, *Volkswagen Notice of Violation*, September 18, 2015, <http://www3.epa.gov/otaq/cert/documents/vw-nov-caa-09-18-15.pdf>

[4] The Wall Street Journal, *Kelley Blue Book: Volkswagen Diesel Car Values Decline 13%*, Christina Rogers, <http://on.wsj.com/1LyQmgr>

[5] PR Newswire, *Volkswagen's Clean Diesels Eligible for Alternative Motor Vehicle Federal Tax Credit*, http://www.emailthis.clickability.com/et/emailThis?clickMap=viewThis&etMailToID=1996563644

[6] See *References - Ratings*

- our test drive of a similarly equipped 2011 VW Golf TDI Clean Diesel confirmed reviews from the automotive publications;
- having been in production for the three previous years, the 2012 VW Golf TDI was not based-upon a new & untested design

It is now mid-October of 2015, and nearly 500 days have passed since this emissions system fraud was first uncovered by West Virginia University[7]. VW is continuing with their song-and-dance' stalling tactics asking for customers to be patient and give VW time to engineer a solution. VW Group of America CEO Michael Horn said in congressional testimony October 8, 2015 that an engineering solution for 'Gen 1' vehicles, such as ours, would probably not be ready until late 2016. With 340,000+ 'Gen 1' vehicles affected and recall repairs requiring approximately 5-10 hours per vehicle our automobile would surely not be repaired until sometime in 2017. This time-frame is unreasonable. VW maliciously defrauded consumers and regulators; they should immediately remedy the situation and be severely punished.

Every component interconnected to the emissions system in our vehicle has been compromised. The 'post-resolution' attributes of the vehicle are completely nebulous - horsepower, torque, fuel economy, performance, maintenance requirements, reliability and warrantability are all unknown quantities! Therefore the acceptability of any proposed remedy from VW should be at the discretion of the owner of the vehicle; not by the government, and certainly not by VW. Only the owner of the vehicle can determine the acceptable level of risk they are willing to bear. It is absolutely unreasonable for vehicle owners to be expected to wait another 500+ days for VW to implement a fix AND then bear the full burden of risk on a hastily designed, unproven, minimally tested 'Frankenstein' solution. Why should we trust VW? We demand that VW:

- offer owners the opportunity for an immediate 'buy back' of the affected cars for the entire purchase price of the vehicle
- repair all environmental damages; pay all government-issued penalties
- repair all vehicles ensuring full compliance with all US emissions standards
- fairly compensate owners for all inconveniences incurred due to the misdirected & deceitful December 2014 voluntary recall
- fairly compensate owners for all reasonable damages

For years we have been deceived by VW and their 'Clean Diesel'. Please help us ensure that those found to be responsible are held accountable and that victims' rights are fully protected.

Sincerely,

Ex. 6

Ex. 6

[7] West Virginia University, *WVU study found elevated levels of emissions from Volkswagen vehicles.* <https://shar.es/1uCXbc>

Addendum

To add further insult to our problems with this car, this past weekend our VW reported a Check Engine Light (CEL) warning. Diagnosis from the Stohlman VW service department identified a CEL P046C[8] code - a faulty Exhaust Gas Recirculation (EGR) valve - an approximate $900 repair. The EGR valve is a critical component in the 'Gen 1' diesel emissions aftertreatment system. We spoke to VW Customer Care (VW Customer Care Case # Ex. 6 suggesting that it is absurd that we pay one penny to repair a system is faulty due to defects in material design & workmanship. VW's response was that the emissions system is out-of-warranty and that there was nothing that they could do. We are being unfairly penalized for VW's criminal engineering and belated solutions.

Coincidentally, we have also recently been notified of NHTSA recall 15V483 (Steering Wheel Clock Spring) which may prevent the airbag on our 2012 VW Golf TDI from deploying in the event of a vehicle crash, *for which there is no repair solution available*. Can you see the long lines of dealers and people wanting to buy or trade for our vehicle?

References

Ratings

- treehugger.com - *2009 Green Car Of The Year: The Volkswagen Jetta TDI* - see http://www.treehugger.com/cars/2009-green-car-of-the-year-the-volkswagen-jetta-tdi.html
- autoblog.com - *VW stripped of Green Car Of The Year awards for Jetta, A3 diesels* - http://www.autoblog.com/2015/09/30/vw-stripped-of-green-car-of-the-year-awards-for-jetta-a3-diesel/
- Car and Driver - *2009 VW Jetta Review* http://www.caranddriver.com/reviews/2009-volkswagen-jetta-tdi-short-take-road-test
- Kelly Blue Book, *Top 10 Green Cars for 2010* http://www.kbb.com/car-news/green-car-news/top-10-green-cars-for-2010/2000005162/

[8] P046C: Exhaust Gas Recirculation Sensor "A" Circuit Range/Performance; Vac Valve N18; G212

RICHMOND VA 220
26 OCT 2015 PM 7 L

Environmental Protection Agency
Office of the Administrator
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

OCT 30 2015

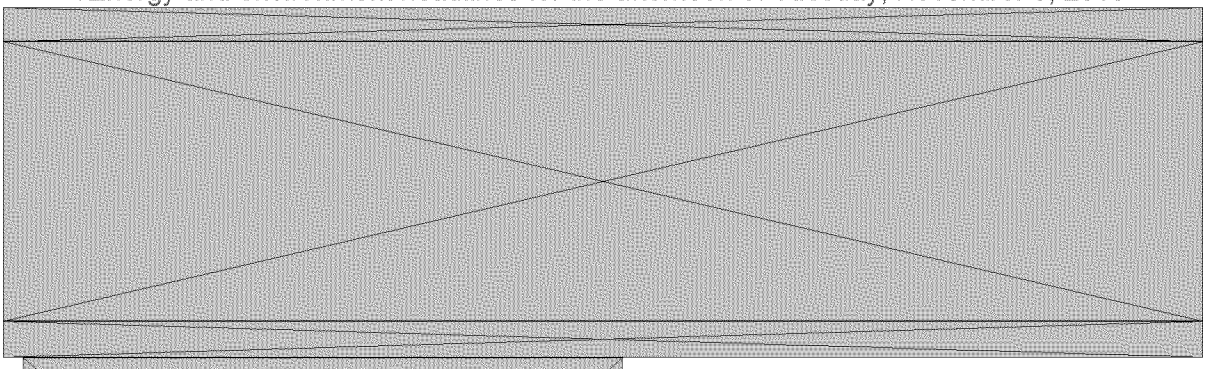
20460-

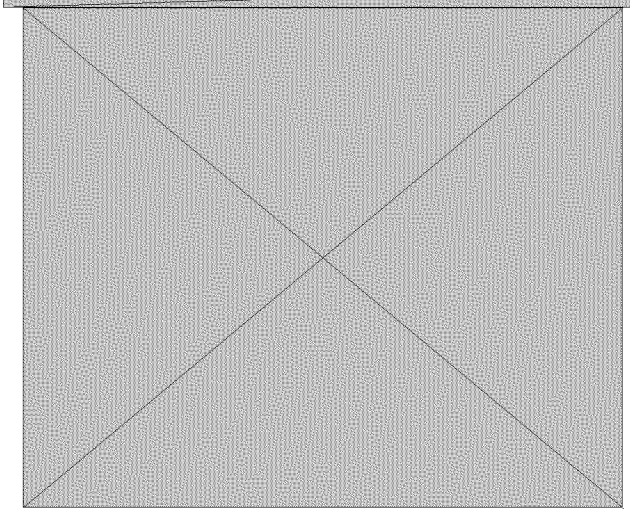
Ex. 6

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Tue 11/3/2015 10:43:23 PM
Subject: GOP advances water rule block, earning prompt veto threat

Advertise | Contact

Energy and environment headlines for the afternoon of Tuesday, November 3, 2015





GOP advances water rule block, earning prompt veto threat

By Kevin Rogers

Senate Republicans used a Congressional Review Act resolution to get around Democratic objections Tuesday and took a step toward blocking the Obama administration's Clean Water Rule — a maneuver that drew an immediate veto threat.

The resolution of disapproval, introduced by Sen. Joni Ernst, R-Iowa, was one of two Senate attempts to roll back the Environmental Protection Agency's rule clarifying what bodies are

protected under the Clean Water Act.

First, Democrats blocked cloture on a bill sponsored by Sen. John Barrasso, R-Wyo. But, unlike a bill, which requires 60 votes to advance to amendments and debate, a CRA resolution can move to debate with a simple majority. Ernst's resolution advanced by a vote of 55-43. The Senate will have up to 10 hours to debate the measure before proceeding with a final up-or-down vote.

The Office of Management and Budget quickly issued a Statement of Administration Policy condemning the resolution.

"If enacted, S.J.Res. 22 would nullify years of work and deny businesses and communities the regulatory certainty needed to invest in projects that rely on clean water," OMB said. "Simply put, S.J.Res. 22 is not an act of good governance. It would sow confusion and invite conflict at a time when our communities and businesses need clarity and certainty around clean water regulation."

And while the CRA resolution only requires a simple majority to win final approval in the Senate, Republicans would face an uphill climb to win the 67 votes required to override the veto.

The White House had already threatened to veto Barrasso's bill, which would have required EPA and the Army Corps of Engineers to restart the rulemaking process with a set of specific guidelines. But Democrats managed to stop its advance by defeating cloture 57-41.

Interest groups on both sides of the debate had said they would hold senators accountable for their vote on Barrasso's bill. The League of Conservation Voters warned that a vote for the bill would count against lawmakers on its National Environmental Scorecard. The Chamber of Commerce, meanwhile, urged lawmakers to support the measure as a key vote on its How They Voted scorecard.

Prior to the pair of votes, Senate Minority Leader Sen. Harry Reid, D-Nev., painted the Republican efforts as a futile waste of lawmakers' time, and warned that Republicans would suffer the same fate as they look to overturn EPA's Clean Power Plan in the coming weeks.

"This is just the first of a series of environmental attacks we expect this month from Republicans. They are also preparing to nullify the President's rules to address climate change," he said. "Republicans have no solutions. They have no plan to keep our water clean or address climate change. They're just wasting valuable Senate time on these show votes."

Senate Republicans, with some Democratic support, have introduced a pair of CRA resolutions aimed at overturning the rules for new and existing power plants, published in the Federal Register last month. While the resolutions will likely have the support to advance in the Senate, they would face the same battle to win enough support to override a veto.

Ahead of Tuesday's votes, Senate Majority Leader Mitch McConnell, R-Ky., called the water

rule "a cynical and overbearing power grab dressed awkwardly as some clean-water measure" and said senators should be "standing up for the middle class instead of defending cynical, job-crushing regulations."

Barrasso said that the Clean Water Rule, which was placed under a nationwide legal stay last month, was a "poster child of EPA overreach," that needed to be scrapped immediately.

"The courts have already started weighing in on their concerns and have stayed the rule nationally," he said. "There's a great legal uncertainty about whether this Waters of the United States rule will survive these legal challenges."

Supporters of the rule, however, said that the rule will pass muster with the courts.

"This is a step backward," Sen. Barbara Boxer, D-Calif., said. "I hope we'll reject this and we can move on and let this Clean Water Rule work its way through the courts and become the law of the land."

Some members of the Democratic caucus who voted against Barrasso's bill and the resolution are mounting their own efforts to revise the final rule.

Sen. Angus King, I-Maine, said the rule needed EPA revisions to make it less confusing for landowners, but said Barrasso's bill went too far.

"While Maine's farmers shouldn't have to hire a lawyer and a soil scientist just to build an irrigation ditch, my concern is that this bill goes too far – it's the legislative equivalent of using a sledgehammer to crack a walnut," he said in a statement.

King, joined by Sens. Tim Kaine, D-Va., and Bill Nelson, D-Fla., sent a letter to EPA Administrator Gina McCarthy calling for the agency to update its guidance to make the rule easier to implement.

Quick Links

Obama will still make Keystone decision: Earnest

Q&A: Nebraska lands again at center of Keystone XL debate

US stocks close higher, helped by energy, auto sales

Germany's VW: New C02 problems with 800,000 vehicles

As scientists worry about warming world, US public doesn't

UN food security expert warns about impact of climate change

Shell defends BG deal in time of low oil prices

Amnesty: Shell has not cleaned up oil spills in Nigeria

Lawsuit targeting EPA new plants rule filed by 23 states

Obama order affects agencies' use of—and effect on—natural resources

No link between wastewater disposal and quakes, say Texas regulators

Oil soars on Libya, Brazil worries; Brent back above $50

Revenue up but profits down for Transcanada in 3Q

Energy a bigger issue down-ballot in 2016?

Altamont wind company to replace turbines that kill birds

Green groups petition Utah to stop funds to Oakland coal terminal

Church solar experiment draws fire from Duke Energy

Buffalo suburb bans use of fracking waste as ice-melt

Upcoming Events

Obama will still make Keystone decision: Earnest

By Rob Gillies

TORONTO (AP) — The head of the company behind the Keystone XL pipeline denied Tuesday that political motivation was behind its decision to ask the U.S. government to delay consideration of the project.

The request by TransCanada to suspend its review of the Keystone XL pipeline could delay any decision until the next president takes office — potentially leaving the fate of the controversial project in the hands of a more supportive Republican administration.

TransCanada said Monday it had asked the State Department to suspend its review of the Alberta-to-Texas pipeline, citing uncertainties about the route it would take through Nebraska.

The request comes as many anticipate President Barack Obama will reject the project. If the

U.S. agrees to the suspension — which is not assured — that would leave the decision in the hands of the next president. While Democratic candidates, including front-runner Hillary Rodham Clinton, oppose the project, Republican candidates support it.

More

Q&A: Nebraska lands again at center of Keystone XL debate

By Grant Schulte

LINCOLN, Neb. (AP) — Nebraska is again at the center of the political debate over the Keystone XL pipeline as the company behind the project asks the State Department to pause its review of the proposal while TransCanada works with state officials to secure its preferred route.

The request marks the latest turn in the long-running battle between well-organized Nebraska landowners who oppose the pipeline and its developer.

Some answers to key questions about the situation:

More

US stocks close higher, helped by energy, auto sales

By Ken Sweet

NEW YORK (AP) — A rally in energy companies helped push the U.S. stock market higher for a second straight day on Tuesday. Investors also worked through corporate news and prepared for key U.S. economic data later this week.

The Dow Jones industrial average rose 89.39 points, or 0.5 percent, to 17,918.15. The Standard & Poor's 500 index rose 5.74 points, or 0.3 percent, to 2,109.79 and the Nasdaq composite rose 17.98 points, or 0.4 percent, to 5,145.13.

NEW YORK (AP) — A rally in energy companies helped push the U.S. stock market higher for a second straight day on Tuesday. Investors also worked through corporate news and prepared for key U.S. economic data later this week.

The Dow Jones industrial average rose 89.39 points, or 0.5 percent, to 17,918.15. The Standard & Poor's 500 index rose 5.74 points, or 0.3 percent, to 2,109.79 and the Nasdaq composite rose 17.98 points, or 0.4 percent, to 5,145.13.

More

Germany's VW: New C02 problems with 800,000 vehicles

By David Rising

BERLIN (AP) — Germany's Volkswagen, already reeling from news that it had cheated on U.S. tests for nitrogen oxide emissions, said Tuesday that an internal investigation had revealed "unexplained inconsistencies" in the carbon dioxide emissions from 800,000 vehicles that could cost the company another 2 billion euros ($2.2 billion).

The investigation was undertaken by the company after the revelations that many of its vehicles had software that allowed them to deceive U.S. nitrogen oxide tests. CEO Matthias Mueller promised Tuesday that Volkswagen "will relentlessly and completely clarify what has happened."

"It is a painful process, but for us there is no alternative," said Mueller, who took over after CEO Martin Winterkorn resigned in September because of the emissions-rigging scandal. "For us, only one thing counts, and that is the truth."

The news is the latest in a string of problems identified with Volkswagen emissions, which have caused share prices to plummet.

More

As scientists worry about warming world, US public doesn't

By Seth Borenstein

WASHINGTON (AP) — Americans are hot but not too bothered by global warming.

Most Americans know the climate is changing, but they say they are just not that worried about it, according to a new poll by The Associated Press-NORC Center for Public Affairs Research. And that is keeping the American public from demanding and getting the changes that are necessary to prevent global warming from reaching a crisis, according to climate and social scientists.

As top-level international negotiations to try to limit greenhouse gas emissions start later this month in Paris, the AP-NORC poll taken in mid-October shows about two out of three Americans accept global warming and the vast majority of those say human activities are at least part of the cause.

However, fewer than one in four Americans are extremely or very worried about it, according the poll of 1,058 people. About one out of three Americans are moderately worried and the highest percentage of those polled — 38 percent — were not too worried or not at all worried.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

UN food security expert warns about impact of climate change

By The Associated Press

GENEVA (AP) — A U.N. expert is warning that more extreme weather, higher temperatures, floods, droughts and rising sea levels linked to climate change are threatening people's access to food over the long term.

Hilal Elver, the U.N. special rapporteur on "the right to food," predicts the negative impact from climate change on agriculture could subject another 600 million people to malnutrition by 2080.

In a statement on Tuesday before a U.N. climate conference in Paris starting Nov. 30, she recommended a shift from large-scale, industrial agriculture to "agro-ecology" that supports the local food movement, small-scale farmers and the environment.

Most climate scientists say the climate is changing largely because of the buildup of heat-trapping gases from the burning of coal, oil and gas. Some public officials and a few climate scientists disagree.

Shell defends BG deal in time of low oil prices

By Danica Kirka

LONDON (AP) — Royal Dutch Shell outlined Tuesday its strategy for making its merger with BG profitable in a world with falling oil prices, revealing another $1 billion in cost savings from the deal.

Chief Executive Officer Ben van Beurden said cost savings for the deal are now expected to be $2 billion, bringing total synergies to $3.5 billion in 2018. Examples include savings on corporate costs such as real estate.

"The $1 billion increase is in operating cost synergies and has arisen from both de-risking our original assumptions but also from identifying further opportunities," he told reporters on a conference call. "Plans also call for $1.5 billion of synergies for the combined exploration portfolio in 2018."

Shell agreed to buy British rival BG Group for 47 billion pounds ($69.7 billion) in April, in a deal widely seen as an effort by the energy company to adapt to lower prices. The deal will boost Shell's oil and gas reserves by 25 percent and give it a bigger presence in the fast-growing liquefied natural gas market.

More

Amnesty: Shell has not cleaned up oil spills in Nigeria

By Michelle Faul

LAGOS, Nigeria (AP) — Oil giant Shell is "blatantly false" when it claims it is cleaning up spills that continue to destroy the livelihoods of hundreds of thousands of Nigerians, Amnesty International said Tuesday.

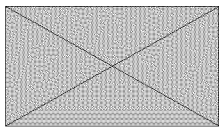
A new report quotes one contractor as saying his clean-up was "a cover-up" that involved simply turning over earth to let spilled oil dry for a few days, then returning the still-contaminated soil to the ground.

Shell Nigeria rejected Amnesty's charges and said it remains "committed to cleaning up all spills" including in Ogoniland, where community protests forced Shell out in 1993. Shell still has pipelines carrying oil in that part of Nigeria's southern Niger Delta.

Oil pollution that poisons fishing creeks, mangrove swamps and farmlands along with people's livelihoods and health is a decades-old scandal in Nigeria, where endemic corruption has allowed only an elite few to benefit from oil.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA

Power plant rule challenge to be decided after Paris.

Click here to read the brief

Lawsuit targeting EPA new plants rule filed by 23 states

West Virginia Attorney General Patrick Morrisey is leading 23 states in a lawsuit against the Environmental Protection Agency's rule limiting carbon emissions from new and modified power plants, The Hill reports.

More

Obama order affects agencies' use of—and effect on—natural resources

The White House has told five federal agencies—including the Interior Department, the Environmental Protection Agency and the National Oceanic and Atmospheric Administration—they must ensure that their activities do not lead to a net loss of various natural resources, E&E reports.

More

No link between wastewater disposal and quakes, say Texas regulators

The Texas Railroad Commission Tuesday accepted a staff report that found wastewater disposal wells were not likely to blame for a series of earthquakes that shook the towns of Azle and Reno in 2013 and 2014, Platts reports.

More

Oil soars on Libya, Brazil worries; Brent back above $50

A cut in Libyan exports after militiamen blocked a terminal, combined with a strike in Brazil that extends to oil workers, helped send oil prices zooming higher Tuesday. Light, sweet crude for December delivery jumped $1.76, or 3.8 percent, to settle at $47.90 a barrel on the Nymex, while in London, Brent gained $1.75 to $50.54, Marketwatch reports.

More

Revenue up but profits down for Transcanada in 3Q

TransCanada—the company behind the beleaguered Keystone XL pipeline project—reported a 12-percent drop in profits in the third quarter—better than analysts' expectations—but said revenue increased and cost-cutting would continue, The Wall Street Journal reports.

More

Energy a bigger issue down-ballot in 2016?

Speakers at a panel hosted by the American Petroleum Institute Tuesday said that energy issues would be more important to next year's state and local elections than to national contests, according to U.S. News and World Report.

More

Altamont wind company to replace turbines that kill birds

Turbines blamed by environmentalists for the deaths of raptors on Altamont Pass will be replaced by Altamont Winds Inc., under a proposal that could be approved by a local planning board Nov. 19, the San Francisco Chronicle reports.

More

Green groups petition Utah to stop funds to Oakland coal terminal

Petitions filed with Attorney General Sean Reyes say Utah's proposed investment in a coal export terminal in Oakland, California is an abuse of community funds intended to create projects for public use in Utah, The Salt Lake Tribune reports.

More

Church solar experiment draws fire from Duke Energy

In comments filed with the North Carolina Utilities Commission, Duke Energy is charging that advocacy group NC WARN is breaking the law by selling solar power to a Greensboro church, and urges the regulator to fine the group up to $1,000 a day, the Charlotte Business Journal reports.

More

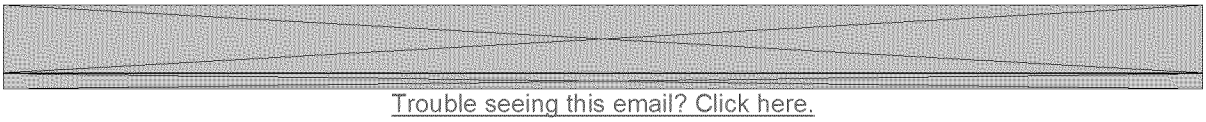
Buffalo suburb bans use of fracking waste as ice-melt

Concerned about its environmental impact, the town council in Amherst, N.Y. has voted to ban the use of fracking brine as ice-melt on winter roads, WIVB reports.

More

Upcoming Events

- Nov. 3, Washington: The John Hopkins School of Advanced International Studies to hold a forum on the expansion of U.S. oil companies globally. Andrew Cheon, an assistant professor of international political economy at SAIS to speak. 4:30 pm , 1717 Massachusetts Avenue NW.
- Nov. 3, Washington: The House Energy and Commerce Subcommittee on Energy and Power to markup a pair of Congressional Review Act resolutions from Chairman Ed Whitfield, R-Ky., that would overturn the Environmental Protection Agency's Clean Power Plan. 1:00 pm , 2322 Rayburn.
- Nov. 3, Washington: The House Science, Space and Technology subcommittees on Environment and Oversight to hold a hearing on the Renewable Fuel Standard. 10:00 am , 2318 Rayburn.
- Nov. 3, Washington: The Senate to begin debate on a bill from Sen. John Barrasso, R-Wyo., that would send the Environmental Protection Agency's Clean Water Rule back to the agency to start over with new instructions. 10:00 am , U.S. Capitol Building
- Nov. 3, Washington: UNFCCC Executive Secretary Christiana Figueres to speak on the United Nations Paris Conference at an event hosted by The Christian Science Monitor. 9:00 am , St. Regis Hotel.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

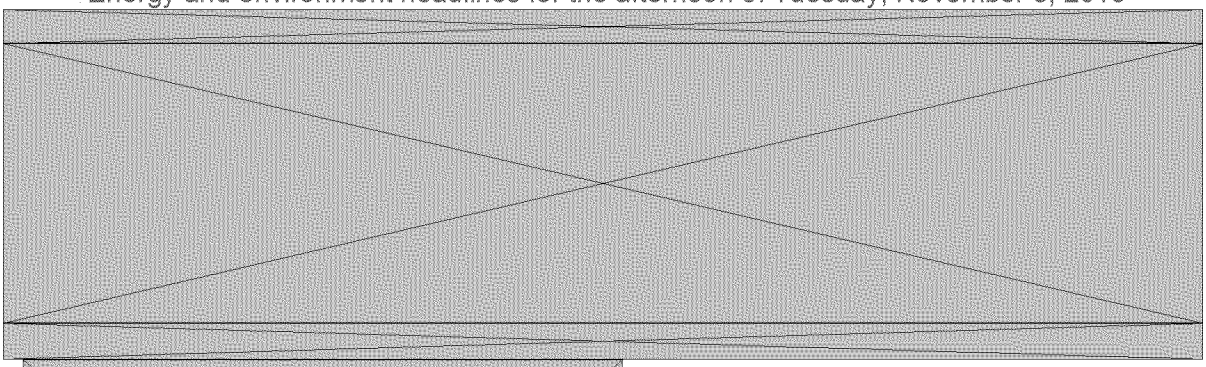
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

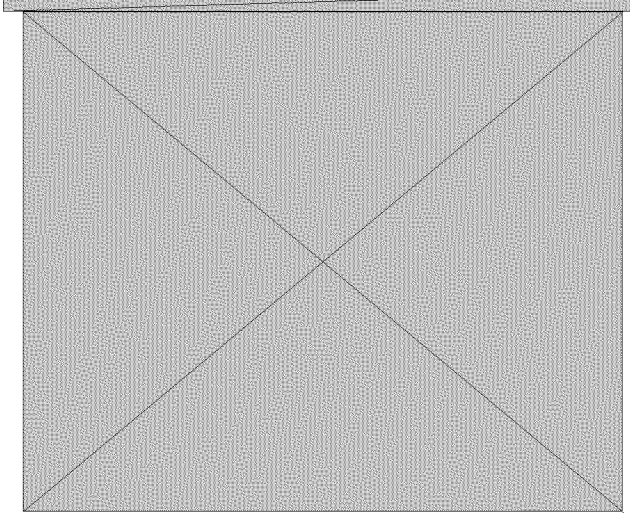
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Tue 11/3/2015 10:43:39 PM
Subject: GOP advances water rule block, earning prompt veto threat

Advertise | Contact

Energy and environment headlines for the afternoon of Tuesday, November 3, 2015





GOP advances water rule block, earning prompt veto threat

By Kevin Rogers

Senate Republicans used a Congressional Review Act resolution to get around Democratic objections Tuesday and took a step toward blocking the Obama administration's Clean Water Rule — a maneuver that drew an immediate veto threat.

The resolution of disapproval, introduced by Sen. Joni Ernst, R-Iowa, was one of two Senate attempts to roll back the Environmental Protection Agency's rule clarifying what bodies are

protected under the Clean Water Act.

First, Democrats blocked cloture on a bill sponsored by Sen. John Barrasso, R-Wyo. But, unlike a bill, which requires 60 votes to advance to amendments and debate, a CRA resolution can move to debate with a simple majority. Ernst's resolution advanced by a vote of 55-43. The Senate will have up to 10 hours to debate the measure before proceeding with a final up-or-down vote.

The Office of Management and Budget quickly issued a Statement of Administration Policy condemning the resolution.

"If enacted, S.J.Res. 22 would nullify years of work and deny businesses and communities the regulatory certainty needed to invest in projects that rely on clean water," OMB said. "Simply put, S.J.Res. 22 is not an act of good governance. It would sow confusion and invite conflict at a time when our communities and businesses need clarity and certainty around clean water regulation."

And while the CRA resolution only requires a simple majority to win final approval in the Senate, Republicans would face an uphill climb to win the 67 votes required to override the veto.

The White House had already threatened to veto Barrasso's bill, which would have required EPA and the Army Corps of Engineers to restart the rulemaking process with a set of specific guidelines. But Democrats managed to stop its advance by defeating cloture 57-41.

Interest groups on both sides of the debate had said they would hold senators accountable for their vote on Barrasso's bill. The League of Conservation Voters warned that a vote for the bill would count against lawmakers on its National Environmental Scorecard. The Chamber of Commerce, meanwhile, urged lawmakers to support the measure as a key vote on its How They Voted scorecard.

Prior to the pair of votes, Senate Minority Leader Sen. Harry Reid, D-Nev., painted the Republican efforts as a futile waste of lawmakers' time, and warned that Republicans would suffer the same fate as they look to overturn EPA's Clean Power Plan in the coming weeks.

"This is just the first of a series of environmental attacks we expect this month from Republicans. They are also preparing to nullify the President's rules to address climate change," he said. "Republicans have no solutions. They have no plan to keep our water clean or address climate change. They're just wasting valuable Senate time on these show votes."

Senate Republicans, with some Democratic support, have introduced a pair of CRA resolutions aimed at overturning the rules for new and existing power plants, published in the Federal Register last month. While the resolutions will likely have the support to advance in the Senate, they would face the same hurdle to win enough support to override a veto.

Ahead of Tuesday's votes, Senate Majority Leader Mitch McConnell, R-Ky., called the water

rule "a cynical and overbearing power grab dressed awkwardly as some clean-water measure" and said senators should be "standing up for the middle class instead of defending cynical, job-crushing regulations."

Barrasso said that the Clean Water Rule, which was placed under a nationwide legal stay last month, was a "poster child of EPA overreach," that needed to be scrapped immediately.

"The courts have already started weighing in on their concerns and have stayed the rule nationally," he said. "There's a great legal uncertainty about whether this Waters of the United States rule will survive these legal challenges."

Supporters of the rule, however, said that the rule will pass muster with the courts.

"This is a step backward," Sen. Barbara Boxer, D-Calif., said. "I hope we'll reject this and we can move on and let this Clean Water Rule work its way through the courts and become the law of the land."

Some members of the Democratic caucus who voted against Barrasso's bill and the resolution are mounting their own efforts to revise the final rule.

Sen. Angus King, I-Maine, said the rule needed EPA revisions to make it less confusing for landowners, but said Barrasso's bill went too far.

"While Maine's farmers shouldn't have to hire a lawyer and a soil scientist just to build an irrigation ditch, my concern is that this bill goes too far. It's the legislative equivalent of using a sledgehammer to crack a walnut," he said in a statement.

King, joined by Sens. Tim Kaine, D-Va., and Bill Nelson, D-Fla., sent a letter to EPA Administrator Gina McCarthy calling for the agency to update its guidance to make the rule easier to implement.

Quick Links

Obama will still make Keystone decision: Earnest

Q&A: Nebraska lands again at center of Keystone XL debate

US stocks close higher, helped by energy, auto sales

Germany's VW: New C02 problems with 800,000 vehicles

As scientists worry about warming world, US public doesn't

UN food security expert warns about impact of climate change

Shell defends BG deal in time of low oil prices

Amnesty: Shell has not cleaned up oil spills in Nigeria

Lawsuit targeting EPA new plants rule filed by 23 states

Obama order affects agencies' use of—and effect on—natural resources

No link between wastewater disposal and quakes, say Texas regulators

Oil soars on Libya, Brazil worries; Brent back above $50

Revenue up but profits down for Transcanada in 3Q

Energy a bigger issue down-ballot in 2016?

Altamont wind company to replace turbines that kill birds

Green groups petition Utah to stop funds to Oakland coal terminal

Church solar experiment draws fire from Duke Energy

Buffalo suburb bans use of fracking waste as ice-melt

Upcoming Events

Obama will still make Keystone decision: Earnest

By Rob Gillies

TORONTO (AP) — The head of the company behind the Keystone XL pipeline denied Tuesday that political motivation was behind its decision to ask the U.S. government to delay consideration of the project.

The request by TransCanada to suspend its review of the Keystone XL pipeline could delay any decision until the next president takes office — potentially leaving the fate of the controversial project in the hands of a more supportive Republican administration.

TransCanada said Monday it had asked the State Department to suspend its review of the Alberta-to-Texas pipeline, citing uncertainties about the route it would take through Nebraska.

The request comes as many anticipate President Barack Obama will reject the project. If the

U.S. agrees to the suspension — which is not assured — that would leave the decision in the hands of the next president. While Democratic candidates, including front-runner Hillary Rodham Clinton, oppose the project, Republican candidates support it.

More

Q&A: Nebraska lands again at center of Keystone XL debate

By Grant Schulte

LINCOLN, Neb. (AP) — Nebraska is again at the center of the political debate over the Keystone XL pipeline as the company behind the project asks the State Department to pause its review of the proposal while TransCanada works with state officials to secure its preferred route.

The request marks the latest turn in the long-running battle between well-organized Nebraska landowners who oppose the pipeline and its developer.

Some answers to key questions about the situation:

More

US stocks close higher, helped by energy, auto sales

By Ken Sweet

NEW YORK (AP) — A rally in energy companies helped push the U.S. stock market higher for a second straight day on Tuesday. Investors also worked through corporate news and prepared for key U.S. economic data later this week.

The Dow Jones industrial average rose 89.39 points, or 0.5 percent, to 17,918.15. The Standard & Poor's 500 index rose 5.74 points, or 0.3 percent, to 2,109.79 and the Nasdaq composite rose 17.98 points, or 0.4 percent, to 5,145.13.

NEW YORK (AP) — A rally in energy companies helped push the U.S. stock market higher for a second straight day on Tuesday. Investors also worked through corporate news and prepared for key U.S. economic data later this week.

The Dow Jones industrial average rose 89.39 points, or 0.5 percent, to 17,918.15. The Standard & Poor's 500 index rose 5.74 points, or 0.3 percent, to 2,109.79 and the Nasdaq composite rose 17.98 points, or 0.4 percent, to 5,145.13.

More

Germany's VW: New C02 problems with 800,000 vehicles

By David Rising

BERLIN (AP) — Germany's Volkswagen, already reeling from news that it had cheated on U.S. tests for nitrogen oxide emissions, said Tuesday that an internal investigation had revealed "unexplained inconsistencies" in the carbon dioxide emissions from 800,000 vehicles that could cost the company another 2 billion euros ($2.2 billion).

The investigation was undertaken by the company after the revelations that many of its vehicles had software that allowed them to deceive U.S. nitrogen oxide tests. CEO Matthias Mueller promised Tuesday that Volkswagen "will relentlessly and completely clarify what has happened."

"It is a painful process, but for us there is no alternative," said Mueller, who took over after CEO Martin Winterkorn resigned in September because of the emissions-rigging scandal. "For us, only one thing counts, and that is the truth."

The news is the latest in a string of problems identified with Volkswagen emissions, which have caused share prices to plummet.

More

As scientists worry about warming world, US public doesn't

By Seth Borenstein

WASHINGTON (AP) — Americans are hot but not too bothered by global warming.

Most Americans know the climate is changing, but they say they are just not that worried about it, according to a new poll by The Associated Press-NORC Center for Public Affairs Research. And that is keeping the American public from demanding and getting the changes that are necessary to prevent global warming from reaching a crisis, according to climate and social scientists.

As top-level international negotiations to try to limit greenhouse gas emissions start later this month in Paris, the AP-NORC poll taken in mid-October shows about two out of three Americans accept global warming and the vast majority of those say human activities are at least part of the cause.

However, fewer than one in four Americans are extremely or very worried about it, according the poll of 1,058 people. About one out of three Americans are moderately worried and the highest percentage of those polled — 38 percent — were not too worried or not at all worried.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

UN food security expert warns about impact of climate change

By The Associated Press

GENEVA (AP) — A U.N. expert is warning that more extreme weather, higher temperatures, floods, droughts and rising sea levels linked to climate change are threatening people's access to food over the long term.

Hilal Elver, the U.N. special rapporteur on "the right to food," predicts the negative impact from climate change on agriculture could subject another 600 million people to malnutrition by 2080.

In a statement on Tuesday before a U.N. climate conference in Paris starting Nov. 30, she recommended a shift from large-scale, industrial agriculture to "agro-ecology" that supports the local food movement, small-scale farmers and the environment.

Most climate scientists say the climate is changing largely because of the buildup of heat-trapping gases from the burning of coal, oil and gas. Some public officials and a few climate scientists disagree.

Shell defends BG deal in time of low oil prices

By Danica Kirka

LONDON (AP) — Royal Dutch Shell outlined Tuesday its strategy for making its merger with BG profitable in a world with falling oil prices, revealing another $1 billion in cost savings from the deal.

Chief Executive Officer Ben van Beurden said cost savings for the deal are now expected to be $2 billion, bringing total synergies to $3.5 billion in 2018. Examples include savings on corporate costs such as real estate.

"The $1 billion increase is in operating cost synergies and has arisen from both de-risking our original assumptions but also from identifying further opportunities," he told reporters on a conference call. "Plans also call for $1.5 billion of synergies for the combined exploration portfolio in 2018."

Shell agreed to buy British rival BG Group for 47 billion pounds ($69.7 billion) in April, in a deal widely seen as an effort by the energy company to adapt to lower prices. The deal will boost Shell's oil and gas reserves by 25 percent and give it a bigger presence in the fast-growing liquefied natural gas market.

More

Amnesty: Shell has not cleaned up oil spills in Nigeria

By Michelle Faul

LAGOS, Nigeria (AP) — Oil giant Shell is "blatantly false" when it claims it is cleaning up spills that continue to destroy the livelihoods of hundreds of thousands of Nigerians, Amnesty International said Tuesday.

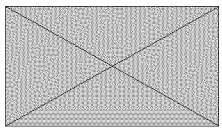
A new report quotes one contractor as saying his clean-up was "a cover-up" that involved simply turning over earth to let spilled oil dry for a few days, then returning the still-contaminated soil to the ground.

Shell Nigeria rejected Amnesty's charges and said it remains "committed to cleaning up all spills" including in Ogoniland, where community protests forced Shell out in 1993. Shell still has pipelines carrying oil in that part of Nigeria's southern Niger Delta.

Oil pollution that poisons fishing creeks, mangrove swamps and farmlands along with people's livelihoods and health is a decades-old scandal in Nigeria, where endemic corruption has allowed only an elite few to benefit from oil.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA

Power plant rule challenge to be decided after Paris.

Click here to read the brief

Lawsuit targeting EPA new plants rule filed by 23 states

West Virginia Attorney General Patrick Morrisey is leading 23 states in a lawsuit against the Environmental Protection Agency's rule limiting carbon emissions from new and modified power plants, The Hill reports.

More

Obama order affects agencies' use of—and effect on—natural resources

The White House has told five federal agencies—including the Interior Department, the Environmental Protection Agency and the National Oceanic and Atmospheric Administration—they must ensure that their activities do not lead to a net loss of various natural resources, E&E reports.

More

No link between wastewater disposal and quakes, say Texas regulators

The Texas Railroad Commission Tuesday accepted a staff report that found wastewater disposal wells were not likely to blame for a series of earthquakes that shook the towns of Azle and Reno in 2013 and 2014, Platts reports.

More

Oil soars on Libya, Brazil worries; Brent back above $50

A cut in Libyan exports after militiamen blocked a terminal, combined with a strike in Brazil that extends to oil workers, helped send oil prices zooming higher Tuesday. Light, sweet crude for December delivery jumped $1.76, or 3.8 percent, to settle at $47.90 a barrel on the Nymex, while in London, Brent gained $1.75 to $50.54, Marketwatch reports.

More

Revenue up but profits down for Transcanada in 3Q

TransCanada—the company behind the beleaguered Keystone XL pipeline project—reported a 12-percent drop in profits in the third quarter—better than analysts' expectations—but said revenue increased and cost-cutting would continue, The Wall Street Journal reports.

More

Energy a bigger issue down-ballot in 2016?

Speakers at a panel hosted by the American Petroleum Institute Tuesday said that energy issues would be more important to next year's state and local elections than to national contests, according to U.S. News and World Report.

More

Altamont wind company to replace turbines that kill birds

Turbines blamed by environmentalists for the deaths of raptors on Altamont Pass will be replaced by Altamont Winds Inc., under a proposal that could be approved by a local planning board Nov. 19, the San Francisco Chronicle reports.

More

Green groups petition Utah to stop funds to Oakland coal terminal

Petitions filed with Attorney General Sean Reyes say Utah's proposed investment in a coal export terminal in Oakland, California is an abuse of community funds intended to create projects for public use in Utah, The Salt Lake Tribune reports.

More

Church solar experiment draws fire from Duke Energy

In comments filed with the North Carolina Utilities Commission, Duke Energy is charging that advocacy group NC WARN is breaking the law by selling solar power to a Greensboro church, and urges the regulator to fine the group up to $1,000 a day, the Charlotte Business Journal reports.

More

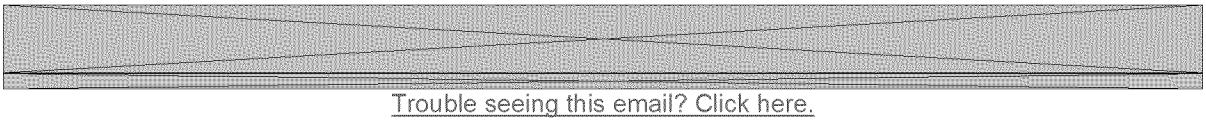
Buffalo suburb bans use of fracking waste as ice-melt

Concerned about its environmental impact, the town council in Amherst, N.Y. has voted to ban the use of fracking brine as ice-melt on winter roads, WIVB reports.

More

Upcoming Events

- Nov. 3, Washington: The John Hopkins School of Advanced International Studies to hold a forum on the expansion of U.S. oil companies globally. Andrew Cheon, an assistant professor of international political economy at SAIS to speak. 4:30 pm , 1717 Massachusetts Avenue NW.
- Nov. 3, Washington: The House Energy and Commerce Subcommittee on Energy and Power to markup a pair of Congressional Review Act resolutions from Chairman Ed Whitfield, R-Ky., that would overturn the Environmental Protection Agency's Clean Power Plan. 1:00 pm , 2322 Rayburn.
- Nov. 3, Washington: The House Science, Space and Technology subcommittees on Environment and Oversight to hold a hearing on the Renewable Fuel Standard. 10:00 am , 2318 Rayburn.
- Nov. 3, Washington: The Senate to begin debate on a bill from Sen. John Barrasso, R-Wyo., that would send the Environmental Protection Agency's Clean Water Rule back to the agency to start over with new instructions. 10:00 am , U.S. Capitol Building
- Nov. 3, Washington: UNFCCC Executive Secretary Christiana Figueres to speak on the United Nations Paris Conference at an event hosted by The Christian Science Monitor. 9:00 am , St. Regis Hotel.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

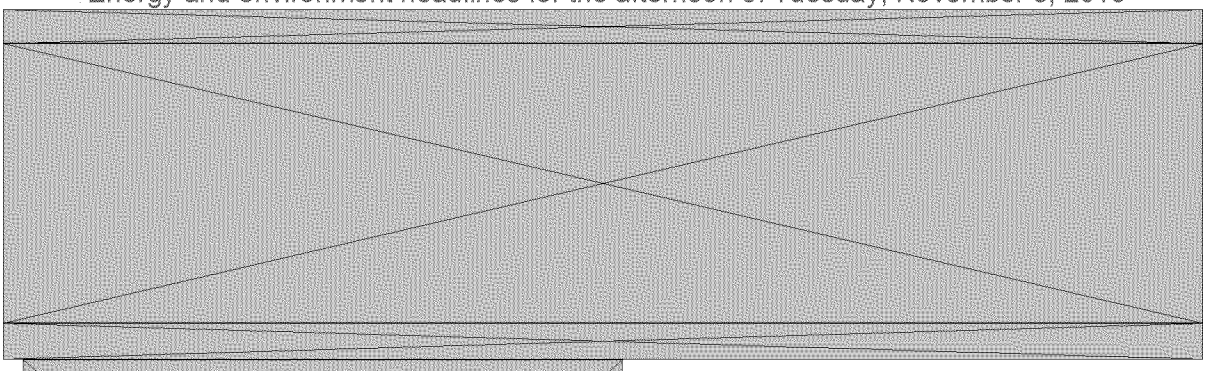
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

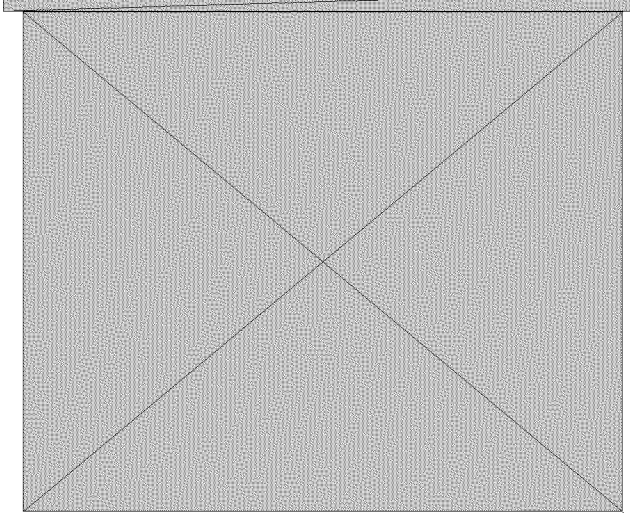
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Tue 11/3/2015 10:43:39 PM
Subject: GOP advances water rule block, earning prompt veto threat

Advertise | Contact

Energy and environment headlines for the afternoon of Tuesday, November 3, 2015





GOP advances water rule block, earning prompt veto threat

By Kevin Rogers

Senate Republicans used a Congressional Review Act resolution to get around Democratic objections Tuesday and took a step toward blocking the Obama administration's Clean Water Rule — a maneuver that drew an immediate veto threat.

The resolution of disapproval, introduced by Sen. Joni Ernst, R-Iowa, was one of two Senate attempts to roll back the Environmental Protection Agency's rule clarifying what bodies are

protected under the Clean Water Act.

First, Democrats blocked cloture on a bill sponsored by Sen. John Barrasso, R-Wyo. But, unlike a bill, which requires 60 votes to advance to amendments and debate, a CRA resolution can move to debate with a simple majority. Ernst's resolution advanced by a vote of 55-43. The Senate will have up to 10 hours to debate the measure before proceeding with a final up-or-down vote.

The Office of Management and Budget quickly issued a Statement of Administration Policy condemning the resolution.

"If enacted, S.J.Res. 22 would nullify years of work and deny businesses and communities the regulatory certainty needed to invest in projects that rely on clean water," OMB said. "Simply put, S.J.Res. 22 is not an act of good governance. It would sow confusion and invite conflict at a time when our communities and businesses need clarity and certainty around clean water regulation."

And while the CRA resolution only requires a simple majority to win final approval in the Senate, Republicans would face an uphill climb to win the 67 votes required to override the veto.

The White House had already threatened to veto Barrasso's bill, which would have required EPA and the Army Corps of Engineers to restart the rulemaking process with a set of specific guidelines. But Democrats managed to stop its advance by defeating cloture 57-41.

Interest groups on both sides of the debate had said they would hold senators accountable for their vote on Barrasso's bill. The League of Conservation Voters warned that a vote for the bill would count against lawmakers on its National Environmental Scorecard. The Chamber of Commerce, meanwhile, urged lawmakers to support the measure as a key vote on its How They Voted scorecard.

Prior to the pair of votes, Senate Minority Leader Sen. Harry Reid, D-Nev., painted the Republican efforts as a futile waste of lawmakers' time, and warned that Republicans would suffer the same fate as they look to overturn EPA's Clean Power Plan in the coming weeks.

"This is just the first of a series of environmental attacks we expect this month from Republicans. They are also preparing to nullify the President's rules to address climate change," he said. "Republicans have no solutions. They have no plan to keep our water clean or address climate change. They're just wasting valuable Senate time on these show votes."

Senate Republicans, with some Democratic support, have introduced a pair of CRA resolutions aimed at overturning the rules for new and existing power plants, published in the Federal Register last month. While the resolutions will likely have the support to advance in the Senate, they would face the same battle to win enough support to override a veto.

Ahead of Tuesday's votes, Senate Majority Leader Mitch McConnell, R-Ky., called the water

rule "a cynical and overbearing power grab dressed awkwardly as some clean-water measure" and said senators should be "standing up for the middle class instead of defending cynical, job-crushing regulations."

Barrasso said that the Clean Water Rule, which was placed under a nationwide legal stay last month, was a "poster child of EPA overreach," that needed to be scrapped immediately.

"The courts have already started weighing in on their concerns and have stayed the rule nationally," he said. "There's a great legal uncertainty about whether this Waters of the United States rule will survive these legal challenges."

Supporters of the rule, however, said that the rule will pass muster with the courts.

"This is a step backward," Sen. Barbara Boxer, D-Calif., said. "I hope we'll reject this and we can move on and let this Clean Water Rule work its way through the courts and become the law of the land."

Some members of the Democratic caucus who voted against Barrasso's bill and the resolution are mounting their own efforts to revise the final rule.

Sen. Angus King, I-Maine, said the rule needed EPA revisions to make it less confusing for landowners, but said Barrasso's bill went too far.

"While Maine's farmers shouldn't have to hire a lawyer and a soil scientist just to build an irrigation ditch, my concern is that this bill goes too far. It's the legislative equivalent of using a sledgehammer to crack a walnut," he said in a statement.

King, joined by Sens. Tim Kaine, D-Va., and Bill Nelson, D-Fla., sent a letter to EPA Administrator Gina McCarthy calling for the agency to update its guidance to make the rule easier to implement.

Quick Links

Obama will still make Keystone decision: Earnest

Q&A: Nebraska lands again at center of Keystone XL debate

US stocks close higher, helped by energy, auto sales

Germany's VW: New C02 problems with 800,000 vehicles

As scientists worry about warming world, US public doesn't

UN food security expert warns about impact of climate change

Shell defends BG deal in time of low oil prices

Amnesty: Shell has not cleaned up oil spills in Nigeria

Lawsuit targeting EPA new plants rule filed by 23 states

Obama order affects agencies' use of—and effect on—natural resources

No link between wastewater disposal and quakes, say Texas regulators

Oil soars on Libya, Brazil worries; Brent back above $50

Revenue up but profits down for Transcanada in 3Q

Energy a bigger issue down-ballot in 2016?

Altamont wind company to replace turbines that kill birds

Green groups petition Utah to stop funds to Oakland coal terminal

Church solar experiment draws fire from Duke Energy

Buffalo suburb bans use of fracking waste as ice-melt

Upcoming Events

Obama will still make Keystone decision: Earnest

By Rob Gillies

TORONTO (AP) — The head of the company behind the Keystone XL pipeline denied Tuesday that political motivation was behind its decision to ask the U.S. government to delay consideration of the project.

The request by TransCanada to suspend its review of the Keystone XL pipeline could delay any decision until the next president takes office — potentially leaving the fate of the controversial project in the hands of a more supportive Republican administration.

TransCanada said Monday it had asked the State Department to suspend its review of the Alberta-to-Texas pipeline, citing uncertainties about the route it would take through Nebraska.

The request comes as many anticipate President Barack Obama will reject the project. If the

U.S. agrees to the suspension — which is not assured — that would leave the decision in the hands of the next president. While Democratic candidates, including front-runner Hillary Rodham Clinton, oppose the project, Republican candidates support it.

More

Q&A: Nebraska lands again at center of Keystone XL debate

By Grant Schulte

LINCOLN, Neb. (AP) — Nebraska is again at the center of the political debate over the Keystone XL pipeline as the company behind the project asks the State Department to pause its review of the proposal while TransCanada works with state officials to secure its preferred route.

The request marks the latest turn in the long-running battle between well-organized Nebraska landowners who oppose the pipeline and its developer.

Some answers to key questions about the situation:

More

US stocks close higher, helped by energy, auto sales

By Ken Sweet

NEW YORK (AP) — A rally in energy companies helped push the U.S. stock market higher for a second straight day on Tuesday. Investors also worked through corporate news and prepared for key U.S. economic data later this week.

The Dow Jones industrial average rose 89.39 points, or 0.5 percent, to 17,918.15. The Standard & Poor's 500 index rose 5.74 points, or 0.3 percent, to 2,109.79 and the Nasdaq composite rose 17.98 points, or 0.4 percent, to 5,145.13.

NEW YORK (AP) — A rally in energy companies helped push the U.S. stock market higher for a second straight day on Tuesday. Investors also worked through corporate news and prepared for key U.S. economic data later this week.

The Dow Jones industrial average rose 89.39 points, or 0.5 percent, to 17,918.15. The Standard & Poor's 500 index rose 5.74 points, or 0.3 percent, to 2,109.79 and the Nasdaq composite rose 17.98 points, or 0.4 percent, to 5,145.13.

More

Germany's VW: New C02 problems with 800,000 vehicles

By David Rising

BERLIN (AP) — Germany's Volkswagen, already reeling from news that it had cheated on U.S. tests for nitrogen oxide emissions, said Tuesday that an internal investigation had revealed "unexplained inconsistencies" in the carbon dioxide emissions from 800,000 vehicles that could cost the company another 2 billion euros ($2.2 billion).

The investigation was undertaken by the company after the revelations that many of its vehicles had software that allowed them to deceive U.S. nitrogen oxide tests. CEO Matthias Mueller promised Tuesday that Volkswagen "will relentlessly and completely clarify what has happened."

"It is a painful process, but for us there is no alternative," said Mueller, who took over after CEO Martin Winterkorn resigned in September because of the emissions-rigging scandal. "For us, only one thing counts, and that is the truth."

The news is the latest in a string of problems identified with Volkswagen emissions, which have caused share prices to plummet.

More

As scientists worry about warming world, US public doesn't

By Seth Borenstein

WASHINGTON (AP) — Americans are hot but not too bothered by global warming.

Most Americans know the climate is changing, but they say they are just not that worried about it, according to a new poll by The Associated Press-NORC Center for Public Affairs Research. And that is keeping the American public from demanding and getting the changes that are necessary to prevent global warming from reaching a crisis, according to climate and social scientists.

As top-level international negotiations to try to limit greenhouse gas emissions start later this month in Paris, the AP-NORC poll taken in mid-October shows about two out of three Americans accept global warming and the vast majority of those say human activities are at least part of the cause.

However, fewer than one in four Americans are extremely or very worried about it, according the poll of 1,058 people. About one out of three Americans are moderately worried and the highest percentage of those polled — 38 percent — were not too worried or not at all worried.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

UN food security expert warns about impact of climate change

By The Associated Press

GENEVA (AP) — A U.N. expert is warning that more extreme weather, higher temperatures, floods, droughts and rising sea levels linked to climate change are threatening people's access to food over the long term.

Hilal Elver, the U.N. special rapporteur on "the right to food," predicts the negative impact from climate change on agriculture could subject another 600 million people to malnutrition by 2080.

In a statement on Tuesday before a U.N. climate conference in Paris starting Nov. 30, she recommended a shift from large-scale, industrial agriculture to "agro-ecology" that supports the local food movement, small-scale farmers and the environment.

Most climate scientists say the climate is changing largely because of the buildup of heat-trapping gases from the burning of coal, oil and gas. Some public officials and a few climate scientists disagree.

Shell defends BG deal in time of low oil prices

By Danica Kirka

LONDON (AP) — Royal Dutch Shell outlined Tuesday its strategy for making its merger with BG profitable in a world with falling oil prices, revealing another $1 billion in cost savings from the deal.

Chief Executive Officer Ben van Beurden said cost savings for the deal are now expected to be $2 billion, bringing total synergies to $3.5 billion in 2018. Examples include savings on corporate costs such as real estate.

"The $1 billion increase is in operating cost synergies and has arisen from both de-risking our original assumptions but also from identifying further opportunities," he told reporters on a conference call. "Plans also call for $1.5 billion of synergies for the combined exploration portfolio in 2018."

Shell agreed to buy British rival BG Group for 47 billion pounds ($69.7 billion) in April, in a deal widely seen as an effort by the energy company to adapt to lower prices. The deal will boost Shell's oil and gas reserves by 25 percent and give it a bigger presence in the fast-growing liquefied natural gas market.

More

Amnesty: Shell has not cleaned up oil spills in Nigeria

By Michelle Faul

LAGOS, Nigeria (AP) — Oil giant Shell is "blatantly false" when it claims it is cleaning up spills that continue to destroy the livelihoods of hundreds of thousands of Nigerians, Amnesty International said Tuesday.

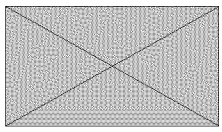
A new report quotes one contractor as saying his clean-up was "a cover-up" that involved simply turning over earth to let spilled oil dry for a few days, then returning the still-contaminated soil to the ground.

Shell Nigeria rejected Amnesty's charges and said it remains "committed to cleaning up all spills" including in Ogoniland, where community protests forced Shell out in 1993. Shell still has pipelines carrying oil in that part of Nigeria's southern Niger Delta.

Oil pollution that poisons fishing creeks, mangrove swamps and farmlands along with people's livelihoods and health is a decades-old scandal in Nigeria, where endemic corruption has allowed only an elite few to benefit from oil.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA

Power plant rule challenge to be decided after Paris.

Click here to read the brief

Lawsuit targeting EPA new plants rule filed by 23 states

West Virginia Attorney General Patrick Morrisey is leading 23 states in a lawsuit against the Environmental Protection Agency's rule limiting carbon emissions from new and modified power plants, The Hill reports.

More

Obama order affects agencies' use of—and effect on—natural resources

The White House has told five federal agencies—including the Interior Department, the Environmental Protection Agency and the National Oceanic and Atmospheric Administration—they must ensure that their activities do not lead to a net loss of various natural resources, E&E reports.

More

No link between wastewater disposal and quakes, say Texas regulators

The Texas Railroad Commission Tuesday accepted a staff report that found wastewater disposal wells were not likely to blame for a series of earthquakes that shook the towns of Azle and Reno in 2013 and 2014, Platts reports.

More

Oil soars on Libya, Brazil worries; Brent back above $50

A cut in Libyan exports after militiamen blocked a terminal, combined with a strike in Brazil that extends to oil workers, helped send oil prices zooming higher Tuesday. Light, sweet crude for December delivery jumped $1.76, or 3.8 percent, to settle at $47.90 a barrel on the Nymex, while in London, Brent gained $1.75 to $50.54, Marketwatch reports.

More

Revenue up but profits down for Transcanada in 3Q

TransCanada—the company behind the beleaguered Keystone XL pipeline project—reported a 12-percent drop in profits in the third quarter—better than analysts' expectations—but said revenue increased and cost-cutting would continue, The Wall Street Journal reports.

More

Energy a bigger issue down-ballot in 2016?

Speakers at a panel hosted by the American Petroleum Institute Tuesday said that energy issues would be more important to next year's state and local elections than to national contests, according to U.S. News and World Report.

More

Altamont wind company to replace turbines that kill birds

Turbines blamed by environmentalists for the deaths of raptors on Altamont Pass will be replaced by Altamont Winds Inc., under a proposal that could be approved by a local planning board Nov. 19, the San Francisco Chronicle reports.

More

Green groups petition Utah to stop funds to Oakland coal terminal

Petitions filed with Attorney General Sean Reyes say Utah's proposed investment in a coal export terminal in Oakland, California is an abuse of community funds intended to create projects for public use in Utah, The Salt Lake Tribune reports.

More

Church solar experiment draws fire from Duke Energy

In comments filed with the North Carolina Utilities Commission, Duke Energy is charging that advocacy group NC WARN is breaking the law by selling solar power to a Greensboro church, and urges the regulator to fine the group up to $1,000 a day, the Charlotte Business Journal reports.

More

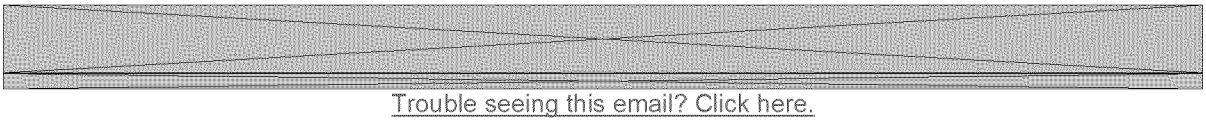
Buffalo suburb bans use of fracking waste as ice-melt

Concerned about its environmental impact, the town council in Amherst, N.Y. has voted to ban the use of fracking brine as ice-melt on winter roads, WIVB reports.

More

Upcoming Events

- Nov. 3, Washington: The John Hopkins School of Advanced International Studies to hold a forum on the expansion of U.S. oil companies globally. Andrew Cheon, an assistant professor of international political economy at SAIS to speak. 4:30 pm , 1717 Massachusetts Avenue NW.
- Nov. 3, Washington: The House Energy and Commerce Subcommittee on Energy and Power to markup a pair of Congressional Review Act resolutions from Chairman Ed Whitfield, R-Ky., that would overturn the Environmental Protection Agency's Clean Power Plan. 1:00 pm , 2322 Rayburn.
- Nov. 3, Washington: The House Science, Space and Technology subcommittees on Environment and Oversight to hold a hearing on the Renewable Fuel Standard. 10:00 am , 2318 Rayburn.
- Nov. 3, Washington: The Senate to begin debate on a bill from Sen. John Barrasso, R-Wyo., that would send the Environmental Protection Agency's Clean Water Rule back to the agency to start over with new instructions. 10:00 am , U.S. Capitol Building
- Nov. 3, Washington: UNFCCC Executive Secretary Christiana Figueres to speak on the United Nations Paris Conference at an event hosted by The Christian Science Monitor. 9:00 am , St. Regis Hotel.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Ekhard.Zinke@kba.de[Ekhard.Zinke@kba.de]
From: Grundler, Christopher
Sent: Wed 11/4/2015 4:13:31 AM
Subject: Re: VW issue

Dear Mr Zinke:

Thank you very much for your kind note. You will find more information about the second notice of violation issued by EPA here:

http://www3.epa.gov/otaq/cert/violations.htm

We include on this website a copy of the notice, which has a general description of what our testing revealed with the 6 cylinder engines. I note that testing done by our partners in California and Environment Canada showed consistent results with these engines.

Unfortunately, we are unable to share these test results with KBA, or further details about our ongoing work with you at this time, as they are evidence in an ongoing enforcement matter.

Sincerely,

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington)
734.214.4207 (Ann Arbor)
www.epa.gov/otaq

On Nov 3, 2015, at 2:50 PM, "Ekhard.Zinke@kba.de" <Ekhard.Zinke@kba.de> wrote:

> Dear Mr. Grundler,
>
> first of all I´d like to express my personal appreciation for the friendly reception we had received during the visit of the federal German delegation under the lead of the German Minister of Transportation at the EPA just last week. I regard the experienced open – minded atmosphere of dialogue as a very constructive step towards a closer cooperation between our institutions mainly in the course of handling the "VW Issue" on either side of the Atlantic.
>
> Our investigations concerning VW and as mentioned on other diesel market participants in Germany are ongoing on a very intense level, mainly including a variety of dynometer and also on-road test procedures, both as varieties on the European NEFC and future RDE requirements. So far roughly 2/3rd of the designated test "participants" have been tested with

and without PEMs. So far I do regard the test results only as raw data which still have to be analyzed and scienetifically evaluated in a rather sophisticated process. Thus it is far to soon right now to speak of actually validated results.

Just of this morning the media over here has reported on new allegations towards VW on grounds of additional violations against the Clean Air Act. Referring to your most recent news release VW, AUDI and PORSCHE have unlawfully deployed software in their 3,0 l diesel engines by means of installing a non-described defeat device.

As you can imagine, we are highly interested in further details concerning the data basis, test environments and so forth. Even more so, since according to our test "results" with an AUDI A6, 3,0 l diesel, this engine seems to comply fully with the European emission standards.

If it would be convenient with you, I´d like to start a more thorough technical-oriented dialogue on this new aspect of the VW issue with you and your institution. Since I´m personally just being a lawyer and an engineer-illiterate so to speak, I´d like to propose that maybe one of my very experienced staff engineers, Mr. Frank Wrobel (Frank.Wrobel@kba.de), head of my Conformity Testing Department, will get in touch with you or one of your staff members. Therefore I´d be very pleased to receive a name of a contact person/ address and already thank you for your kind support.

Let´s keep in touch!

With kind regards

Ekhard Zinke

Head of Federal German Motor Vehicle Authority

To: richard.thomas@vw.com[richard.thomas@vw.com]
From: Good, David
Sent: Wed 11/4/2015 4:17:43 PM
Subject: ADFE formula - missing page from CD95-08 attached
ADFE missing page from CD-95-08.pdf

Richard,

Call me if questions----this document also has my handwritten notes on how to do the calculations.

Dave

ADFE Coefficients

Cars

Parameter	City Fuel Economy		Highway Fuel Economy	
	Parameter Increases	Parameter Decreases	Parameter Increases	Parameter Decreases
ETW	-0.522	-0.408	-0.303	-0.207
N/V	-0.351	-0.267	-0.476	-0.406
DPA	-0.091	-0.039	-0.304	-0.260
TCL	-0.108	-0.070	-0.125	-0.093

Trucks

Parameter	City Fuel Economy		Highway Fuel Economy	
	Parameter Increases	Parameter Decreases	Parameter Increases	Parameter Decreases
ETW	-0.388	-0.256	-0.291	-0.179
N/V	-0.309	-0.205	-0.448	-0.360
DPA	-0.243	-0.157	-0.450	-0.378
TCL	-0.080	-0.042	-0.103	-0.071

ADFE = (Baseline MPG) + {[(A x C1) + (B x C2) + (C X C3) + (D X C4)] X (Baseline MPG)}

Where:

1. A, B, C, D are the coefficients selected from the table for the applicable parameter

2. C1, C2, C3, and C4 are the proportional differences (see equation for Cn, below) in the applicable parameter between the baseline and target ADFE subconfiguration

   Cn = (ADFE Parameter - Tested Parameter) / Tested Parameter

3. TCL = [(0.06172 X ETW) / Target Coastdown Time] - DPA

2004 ADFE

Source

CCD-00-04

$$TRLHP_{50} = \frac{f_0 + (f_1 \times 50) + (50 \times 50 \times f_2)}{7.5}$$

Round to 0.1 hp

CD-95-08

eqn $ADFE = \text{Baseline MPG} + [A \times C_1 + B \times C_2 + C \times C_3] \times [\text{Baseline MPG}]$

where: A, B, C are coefs from table in CCD-04-06 - page 2 of Encl 1.

C_1 C_2 C_3 are proportional parameter diffs

where $C_n = (\text{ADFE parameter}) - (\text{Tested Parameter}) / (\text{Tested Parameter})$

Parameters = ETW, N/V and TRLHP

where: TRLHP = $TRLHP_{50}$ (from CCD-00-04)

Baseline test vehicles are selected per CD-0406

- Closest ADFE, with config to the test veh, etc, etc from a pool of all vehs etc etc

Ref CCD-04-06
CD-00-04
CD-95-08

12/16/05

To: Good, David[good.david@epa.gov]
From: Thomas, Richard (EEO)
Sent: Wed 11/4/2015 7:37:48 PM
Subject: RE: ADFE formula - missing page from CD95-08 attached

Thank you Dave. You know I may have a slight recollection of this missing page back in 1995. I was young then, well maybe not too young.

From: Good, David [mailto:good.david@epa.gov]
Sent: Wednesday, November 04, 2015 11:18 AM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Subject: ADFE formula - missing page from CD95-08 attached

Richard,

Call me if questions----this document also has my handwritten notes on how to do the calculations.

Dave

To: John German[john@theicct.org]; Charmley, William[charmley.william@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Cohen, Janet[cohen.janet@epa.gov]
Cc: Drew Kodjak[drew@theicct.org]; Anup Bandivadekar[anup@theicct.org]; Joe Schulz[joe@theicct.org]
From: Bunker, Byron
Sent: Wed 11/4/2015 10:33:40 PM
Subject: RE: Request: Interview with stern-Magazine

Thanks John,

I am responding to you and copying in our press team with this e-mail. The press team is helping us manage which of these requests to respond to so that our technical team can keep its focus on the work.

We do very much appreciate you pointing them to us and the way you have talked about this program. This whole episode is pointing a needed light on the importance of regulatory oversight to deliver on our environmental goals. Thanks for that!

Erin – can you have someone follow up with John if we are able to support this request?

Thanks,

Byron

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: John German [mailto:john@theicct.org]
Sent: Wednesday, November 04, 2015 5:11 PM
To: Bunker, Byron; Charmley, William
Cc: Drew Kodjak; Anup Bandivadekar; Joe Schulz
Subject: Fwd: Request: Interview with stern-Magazine

Bryon/Bill,

Stern Magazine wants to publish a story about the VW scandal in their year-end edition (see emails below). As part of this, they will be coming to Ann Arbor to interview me.

One of their requests was,

"Can you show me the equipment which is necessary to measure the emissions?"

I explained that ICCT doesn't have such equipment (contracted with WVU) and we rented the Jetta in CA, so no access to the vehicle, either. Instead, I suggested that they might want to visit the EPA lab. They thought this was a good idea.

I have no idea if you want to - or even can - talk to Stern magazine about the VW stuff. But even if you can't, I suspect Stern would be interested in the basic process that EPA/CARB follow when investigating any allegation of high emissions and/or defeat devices, completely independent of what EPA did or is doing for this specific case. And from their question, they would certainly be interested in seeing a PEMS unit and maybe having a demonstration of how it works.

Let me know if EPA might be interested and, if so, how this might be arranged. Date isn't set yet, but is supposed to be sometime in Nov.

Oh, and if this can be worked out, Swiss Radio Television is planning a one-hour documentary on the VW scandal. They want me to go to WVU to do the interview at their lab, but I don't have time for this. So, they will likely be coming to Ann Arbor sometime between Dec. 3 and Dec. 6 and might be interested in seeing the EPA lab.

John

734-355-1055

P.S. I want you to know that every time I talk to a reporter I tell them that ICCT just found the high emissions and our testing wasn't structured to identify the cause of the high emissions, so we turned the data and report over to EPA and CARB to let the experts figure out what was going on. I'm actually embarrassed to be getting so much publicity and credit for what was just a routine test program.

Begin forwarded message:

From: "Hoefler, Norbert" <hoefler.norbert@stern-ny.com>

Subject: Re: Request: Interview with stern-Magazine

Date: November 3, 2015 5:53:56 PM EST

To: John German <john@theicct.org>

An office in the attic and an garage full of auto parts sounds very good. Yes, I would very much like to visit you in Ann Arbor. And if we can drive to the EPA lab for a visit, I can guarantee that stern will mention their part in the story.

So please let us meet and talk.

My schedule is flexible.

Best

Norbert

Norbert Höfler

US Correspondent

stern

stern magazin

535 Fifth Avenue
29th Floor
New York,NY 10017

Phone (+1) 646.884.7104

Fax (+1) 646.884.7111
Cell (+1) 646.341.0778

E-Mail hoefler.norbert@stern-ny.com

www.stern.de

From: John German <john@theicct.org>
Date: Dienstag, 3. November 2015 17:36
To: Norbert Höfler <hoefler.norbert@stern-ny.com>
Cc: Joe Schultz <joe@theicct.org>
Subject: Re: Request: Interview with stern-Magazine

The problem with meeting in Ann Arbor is that I work from home most of the time. So, the only thing in Ann Arbor is my office (in my 3rd story attic) and my garage full of car parts. You are welcome to come if you want (although my wife might have a heart attack).

It might be possible to arrange to meet at the EPA lab in Ann Arbor.

My official office is in DC and I am required to go there one week a month. We could meet there

right after Thanksgiving, or possibly the week before. Although it is just an office complex.

ICCT is an organization driven by data and analyses. But we are a small organization (about 40 people in offices in San Francisco, DC, and Berlin) and we don't have any testing equipment of our own. PEMS (portable emission control system) units are about a half million dollars each and we don't own one. Thus, we contracted with West Virginia University to do the testing for us. And we rented vehicles - in California - for the testing, so we don't have access to them either. We do have pictures of the PEMS unit in the truck of the different vehicles.

John

On Nov 3, 2015, at 2:33 PM, "Hoefler, Norbert" <hoefler.norbert@stern-ny.com> wrote:

Dear John,

I talked to my editor in chief and we want to publish your story in our year-end edition. It is a special edition of stern-Magazine in which we look back into the year 2015 and recall the most important stories.

One of the stories is for sure the VW-diesel scandal.

For me as a reporter it is important to meet you in person.

Maybe it is possible that we can sit down for an interview in your office or at your workplace at home.

Maybe it is possible that you can show me a little bit around at the ICCT.

Is the VW-Passat which was the first test-car still there? Can you show me the equipment which is necessary to measure the emissions?

The focus of the story is: How you at icct discovered the truth.

So it would be really a great opportunity if I can meet you in Ann Arbor. **Any date in November will work for me**. Just let me know, I'll be there.

Looking forward to meet you

Sincerely

Norbert

Norbert Höfler

US Correspondent

<4874313E-36ED-46F1-BD83-8ECCD8DDF85B[11].png>
<7014CCBD-70F7-4B95-BCDD-83C31A0729BE[11].png>
stern magazin

535 Fifth Avenue
29th Floor
New York,NY 10017

Phone (+1) 646.884.7104

Fax (+1) 646.884.7111
Cell (+1) 646.341.0778

E-Mail hoefler.norbert@stern-ny.com

www.stern.de

From: John German <john@theicct.org>
Date: Montag, 2. November 2015 20:28
To: Norbert Höfler <hoefler.norbert@stern-ny.com>
Cc: Joe Schultz <joe@theicct.org>, Anup Bandivadekar <anup@theicct.org>
Subject: Re: Request: Interview with stern-Magazine

Yes, we would be happy to cooperate.

Meeting in person might be a bit of a problem, as I will be in San Francisco next week and I usually work from home in Ann Arbor, MI. I may also be in DC towards the end of Nov., although it isn't scheduled yet.

I could talk over the phone most days in Nov., although Nov. 9 and Nov. 12 would be difficult due to travel.

John

734-355-1055

On Nov 2, 2015, at 12:19 PM, "Hoefler, Norbert" <hoefler.norbert@stern-ny.com> wrote:

> Dear Mr. German,
>
> hope this e-mail finds you well. My name is Norbert Hoefler and I'm the US-Correspondent in New York with stern magazine, Germany`s largest newsweekly with more than six million readers. Stern magazine is comparable to Time Magazine. Please have a look at our website: www.stern.de or for more in depth data (english version): www.gujmedia.com/print/portfolio/stern/profil And here you find some more information about me:http://www.stern.de/norbert-hoefler-3005190.html
>
> **My request:** I would like to meet you for an interview at the icct. stern-Magazine is working on an article about VW and the problems with the diesel engines. In an interview with you I want to learn how you discovered the manipulation and how icct works.
>
> I would be really glad, if you have time to talk with me. Every date form next week till the end of November will work form me.
>
> Please let me know, if you are available for „stern".

Hope to see you soon.

Sincerely

Norbert Höfler

US Correspondent

<4874313E-36ED-46F1-BD83-8ECCD8DDF85B[11].png>
<7014CCBD-70F7-4B95-BCDD-83C31A0729BE[11].png>
stern magazin

535 Fifth Avenue
29th Floor
New York,NY 10017

Phone (+1) 646.884.7104

Fax (+1) 646.884.7111
Cell (+1) 646.341.0778

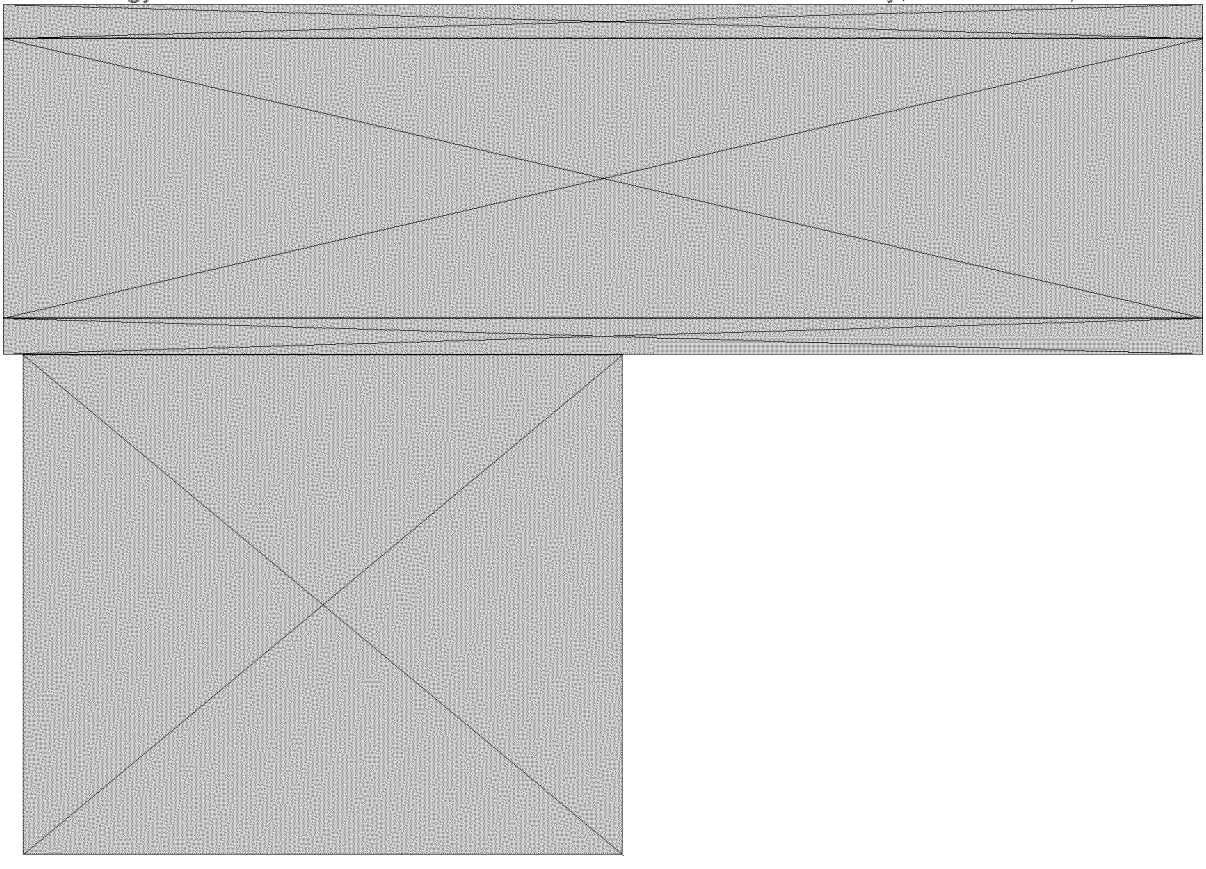
E-Mail hoefler.norbert@stern-ny.com

www.stern.de

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: EnergyGuardian
Sent: Wed 11/4/2015 10:48:32 PM
Subject: 18 states formally seek to join legal defense of Clean Power Plan

Advertise | Contact

Energy and environment headlines for the afternoon of Wednesday, November 4, 2015



18 states formally seek to join legal defense of Clean Power Plan

By Kevin Rogers

A coalition of state and local governments told a federal appeals court Wednesday that they have "a compelling interest" in the success of the Obama administration's rule limiting carbon emissions from existing power plants, and sought permission join the legal battle against states who want the rule thrown out.

The motion to intervene if approved by the U.S. Court of Appeals for the District of

Columbia Circuit, would put the group of 18 states, six cities and one county – led by New York State – on a collision course with the group of 26 states – led by West Virginia – that is trying to kill the Clean Power Plan.

On a call with reporters, New York Attorney General Eric Schneiderman said that EPA's rule is "firmly grounded in science and the law" and is necessary to press other states to get moving on efforts to limit climate-warming emissions.

"What it does is set standards for all states to ensure that some states aren't working hard to reduce carbon emissions only to have it come in from across the borders," he said. "The EPA plan takes all existing, successful technologies – this is not based on technologies that do not already exist – and makes sure every state steps up to the plate and does its fair share."

The motion says the states and municipalities "have unique sovereign interests in limiting climate change pollution in order to prevent and mitigate loss and damage to publicly-owned coastal property, to protect public infrastructure, and to limit emergency response costs borne by the public."

In addition to New York, the states filing the motion include California, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Mexico, Oregon, Rhode Island, Vermont, Virginia and Washington. They were also joined by the District of Columbia and the cities of New York, Chicago, Philadelphia and Boulder, Colorado, as well as South Miami and Broward County in Florida.

They are seeking to join the Environmental Protection Agency and a coalition of environmental groups who are defending the Clean Power Plan against 26 states, in addition to dozens of companies and industry groups.

West Virginia Attorney General Patrick Morrisey in a statement said that the rules deserved a robust challenge and he touted the wide coalition opposed to the regulations.

"A growing national coalition of mineworkers, boilermakers, operators, utilities, businesses, Democrats, Republicans, Independents and consumer groups agree: the EPA lacks the authority to transform itself from an environmental regulator into a central energy planning authority," he said. "If the EPA succeeds in this unprecedented and illegal power grab, many jobs will be lost, electricity prices will rise, the reliability of the power grid will be put at risk and the rule of law will not be upheld."

Opponents have asked the court to block implementation of the rule until legal challenges can be settled. The rules have been described as a federal "power grab" intended to force states to transform their energy systems, since it encourages states to reduce coal use in favor of cleaner-burning natural gas and zero-emission sources.

"This court should issue a stay, and expedite consideration of the Petition For Review, because the states are being immediately and irreparably harmed by EPA's illegal effort to force states to reorder their electrical generation systems," states wrote in their petition.

The states defending the rule, on the other hand, said that the national approach was the only way to take meaningful climate action.

"This is the total absence of a power grab. It's a vacuum," Iowa Attorney General Tom Miller said. "We can never have anything like this on a state-by-state basis. It has to be done comprehensively as part of a national plan."

If the court grants the proponent states the right to intervene, they will have almost two months to file their comments. The court will take legal requests from EPA, its supporters and opponents until Dec. 23.

That means there will be no ruling before or during the United Nations climate negotiations in Paris next month. Schneiderman told reporters that allowing the plan to proceed would give the U.S. a stronger hand in Paris.

"This also will provide the United States with a position of national leadership, so that we can be more effective in negotiating with other countries on reducing greenhouse gas emissions," Schneiderman said.

The rule for existing plants set state-specific goals to reduce carbon, asking states to draw up reduction plans to be implemented starting in 2022. States can meet targets through making coal plants more efficient, replacing coal with natural gas, and building new renewable capacity.

The regulation, together with its companion rule for new power plants, seeks to cut sector carbon emissions by 32 percent from 2005 levels, and to hit that goal in 2030.

The same type of state vs. state legal fight is shaping up for the rule for new plants.

On Tuesday, West Virginia led a coalition of 23 states to sue EPA over that rule, which imposes hard emissions limits on fossil fuel-fired plants. The states alleged that the reductions would require the use of technology not readily available.

With that suit filed, Schneiderman and his allies said they plan to move to intervene in defense of the new plant rule as well.

Quick Links

State Department won't suspend Keystone XL review

Senate votes to scrub EPA water rule over White House objections

Pressure grows on Volkswagen as bad news piles up

US trade deficit narrowed to $40.8 billion in September

Michigan phosphorus reduction plan focuses on sewage plants

No oil leak found in sunken barge at bottom of Lake Erie

Witness cries during safety testimony in ex-coal CEO's trial

Duke Energy ditches 45-mile power line over Carolina mountains

UN head: Climate summit success now rests with world leaders

Paris and other cities want voices heard at climate talks

Forces holding Libya oil fields threaten to cut off exports

Petrobras strike hits oil firm's output

EPA handling of Pebble Mine ‘highly questionable’: GOP lawmakers

Carbon emissions dropping as coal plants close: Sierra Club

Chesapeake to cut spending further as losses mount

Oil slides on stockpile gain, dollar strength

Key Energy shutting international operations

Enbridge considering major Gulf Coast projects

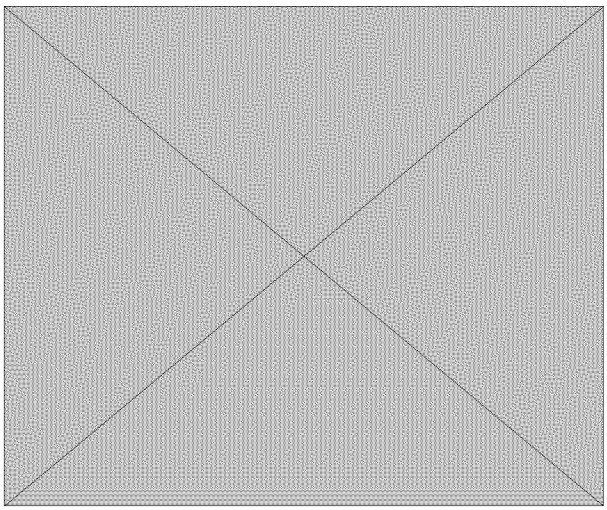
Problematic weather patterns plaguing the Pacific

Gore joins those asking for probe of Exxon over climate allegations

Wal-Mart uses its size to get good deals on renewables

Upcoming Events

State Department won't suspend Keystone XL review



By Kevin Rogers

The State Department has rejected TransCanada's request to suspend its review of the Keystone XL pipeline, choosing to “keep that process in place” and complete its full analysis on the oil sands project.

At a State Department briefing, spokesman John Kirby said that the department formally notified the Canadian pipeline firm Wednesday.

“We're not required to pause it based on an applicant's request. There's no legal basis to do that,” Kirby said. “To include interagency review and coordination and to allow significant coordination here, the secretary believes that it's most appropriate to keep that process in place.”

TransCanada had requested the suspension on Monday, to allow more time for Nebraska's Public Service Commission to approve its preferred path through the state. Spokesman Mark Cooper said that the company respects the decision, and said it would continue its push for approval.

“Our efforts will continue to demonstrate that Keystone XL is in the national interest of the United States—just as five reports and 17,000 pages of State Department review have demonstrated over the past seven-plus years,” he said.

The pipeline would carry oil sands crude from Alberta to Gulf Coast refineries. It awaits a final approval for a presidential permit from President Barack Obama. Press Secretary Josh Earnest said this week that a final decision will come before the end of Obama's term.

Environmental groups said the suspension request was a ploy to pass the final decision on the project to the next administration—and a potential Republican president.

Earlier Wednesday Democratic presidential contender Sen. Bernie Sanders of Vermont urged Obama to reject the pipeline before United Nations climate talks in Paris, saying it would be a show of "bold leadership."

More

Senate votes to scrub EPA water rule over White House objections

By Mary Clare Jalonick

WASHINGTON (AP) — Despite White House objections, the Senate voted for a resolution Wednesday to scrap new federal rules to protect smaller streams, tributaries and wetlands from development and pollution.

Senators voted 53-44 in favor of a "resolution of disapproval," a measure that would void the regulations if also passed by the House and signed by the president. The White House has already said it would veto the resolution.

On Tuesday, Senate Democrats blocked a separate bill that would have required the agencies to withdraw and rewrite the rules. The House had passed similar legislation.

The Obama administration says the rules issued by the Environmental Protection Agency and the U.S. Army Corps of Engineers in May would safeguard drinking water for 117 million Americans. In its veto threat, the White House said that more than 1 in 3 Americans get their drinking water from rivers, lakes, and reservoirs that are at risk of pollution from upstream sources.

More

Pressure grows on Volkswagen as bad news piles up

By David McHugh and Geir Moulson

FRANKFURT, Germany (AP) — The fallout from Volkswagen's emissions-cheating scandal intensified Wednesday, as investors dumped the company's stock and a credit ratings agency downgraded its debt. European regulators demanded VW speed up its investigation into the cheating, while the company halted sales of seven models in the U.S. that allegedly were part of the plot.

The latest developments followed Volkswagen's admission Tuesday that it had understated the carbon dioxide emissions for 800,000 cars, widening the scope of the scandal.

The company has been unable halt the flow of bad news since mid-September, when the U.S. Environmental Protection Agency said Volkswagen had installed software on 482,000 cars with small diesel engines that enabled them to cheat on emissions tests for one pollutant, nitrogen oxide. The software reduced emissions when the car was on a test stand. Volkswagen acknowledged that 11 million vehicles worldwide have the software.

On Monday, the EPA charged that Volkswagen also used cheating software in some cars with larger diesel engines, including Volkswagen's elite Porsche brand. Volkswagen denied the claim, but over the past two days halted sales in the U.S. and Canada of the models involved: the Volkswagen Touareg, Porsche Cayenne, and the Audi A6, A7, A8, Q5 and Q7.

More

US trade deficit narrowed to $40.8 billion in September

By Martin Crutsinger

WASHINGTON (AP) — The U.S. trade deficit declined in September to the lowest level in seven months as exports rebounded while imports shrank, reflecting the smallest monthly foreign oil bill in more than a decade.

The trade deficit narrowed to $40.8 billion in September, down 15 percent from a $48 billion deficit in August, the Commerce Department reported Wednesday.

Exports rose 1.6 percent to $187.9 billion, helped by stronger sales of commercial airplanes and jet engines.

Imports contracted 1.8 percent to $228.7 billion. The big drop in oil prices sent petroleum imports down 8.3 percent to $13.8 billion, the lowest level since May 2004.

More

Michigan phosphorus reduction plan focuses on sewage plants

By The Associated Press

LANSING, Mich. (AP) — Michigan officials have released plans to reduce phosphorus runoff into Lake Erie to ease the worsening problem of harmful algae blooms.

Michigan and Ohio signed a deal in June with the Canadian province of Ontario to cut phosphorus flows into the suffering lake by 40 percent over the next decade.

The Department of Environmental Quality says Michigan will maintain phosphorus reductions required under a permit issued to the Detroit Water and Sewerage Department in 2011 and order the Wayne County Downriver Wastewater Treatment Plant to achieve similar cutbacks.

Additionally, the plan promises cooperation with Ohio and Indiana on phosphorus reduction in the Maumee River basin and continuing study of harmful algae blooms in Michigan waters, including the role that invasive mussels might play.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

No oil leak found in sunken barge at bottom of Lake Erie

By John Seewer

TOLEDO, Ohio (AP) — Divers looking for the source of seeping oil near a sunken barge on the bottom of Lake Erie haven't located any active leaks, but they did find four open hatches on the wreckage, the U.S. Coast Guard said Wednesday.

It's not clear yet whether the open hatches could be the source of a petroleum-based solvent spotted on the surface near the U.S.-Canadian border within the past two weeks.

The substance is believed to be coming from the Argo, a tanker barge that went down during a storm in 1937 and is one of 87 shipwrecks on a federal registry that identifies the most serious pollution threats to U.S. waters.

Water samples revealed that the colorless solvent that evaporates quickly is a light to medium oil that has been exposed to the environment for quite some time, said Marvin Kimmel, a Coast Guard spokesman.

More

Witness cries during safety testimony in ex-coal CEO's trial

By John Raby

CHARLESTON, W.Va. (AP) — A former Massey Energy official wept on the witness stand while describing efforts to address safety problems nine months before an explosion killed 29 miners.

William Ross is one of the government's top witnesses in the trial of former Massey Energy CEO Don Blankenship. Ross continued testifying Wednesday about a once-confidential safety assessment he gave of Massey.

Ross cried after reading excerpts of a July 2009 memo in which he wrote he was "so thrilled about a NEW Massey Energy." Ross testified that he believed Massey Energy was going to take "serious" steps to make improvements.

The Upper Big Branch mine in southern West Virginia exploded in April 2010. Blankenship is charged with conspiring to break safety laws at the mine and lying to financial regulators about safety.

Duke Energy ditches 45-mile power line over Carolina mountains

By The Associated Press

CHARLOTTE, N.C. (AP) — Duke Energy is dropping plans to build a 45-mile power line across the mountains of North Carolina and South Carolina as part of a plan to replace an old coal-fired power plant near Asheville.

Residents and environmental groups opposed the transmission line, which would have connected a power plant that would run off of natural gas in Asheville to a substation in Campobello, South Carolina, north of Spartanburg.

Instead, Duke Energy will build two smaller natural gas plants to replace the coal plant that the utility plans to shut down by 2020. Officials said a third plant might be needed if conservation doesn't help lower electricity demand.

"The new plan balances the concerns raised by the community and the very real need for more electricity to serve this growing region. We're eager to ramp up our efforts in working with the community to reduce power demand across the region," said Lloyd Yates, president of the utility's Carolinas region.

Sponsored Links

More

UN head: Climate summit success now rests with world leaders

By Cara Anna

UNITED NATIONS (AP) — Key issues remaining ahead of a major climate summit in Paris this month "have proven too challenging for negotiators to resolve on their own," and responsibility for its success now rests with world leaders, the U.N. secretary-general said Wednesday.

Organizers hope that the summit that begins Nov. 30 will result in the biggest, strongest global agreement ever to fight global warming.

Ban Ki-moon told U.N. member states that 155 countries had submitted their climate plans by the end of October, covering almost 90 percent of global carbon dioxide emissions.

But he said key remaining issues include financial and other support to help developing countries reduce emissions. He called on developed countries to make public pledges of financing before the Paris summit, which runs through Dec. 11.

More

Paris and other cities want voices heard at climate talks

By The Associated Press

PARIS (AP) — Michael Bloomberg and mayors of large world cities want to weigh in on upcoming U.N. climate negotiations with their local experiences in fighting global warming.

Paris Mayor Anne Hidalgo and Bloomberg, former New York mayor and now a U.N. climate change envoy, are convening mayors of Rio de Janeiro, Mexico City, Johannesburg and other cities Dec. 4 in Paris. Hidalgo's office said the mayors will produce proposals to negotiators at the U.N. conference near Paris Nov. 30-Dec. 11.

Local leaders have been at the forefront of some of the more ambitious measures to reduce emissions. Bloomberg said the mayors' meeting will help ensure their "voice is heard in the treaty negotiations."

His efforts in New York included planting 800,000 trees, improving bus and bike transport and requiring more energy-efficient buildings.

Forces holding Libya oil fields threaten to cut off exports

By The Associated Press

CAIRO (AP) — The forces that control most of Libya's oil fields on Wednesday threatened to cut off exports if foreign companies do not start wiring payments to the internationally recognized government in the country's east.

Until now foreign companies have paid the Central Bank in the capital Tripoli, which is controlled by Islamist-allied militias who back a rival government.

The internationally recognized government, which is based in the country's far eastern city of Tobruk, recently set up its own Central Bank and National Oil Company.

Ali al-Hassi, spokesman for the Oil Fields Guard, told The Associated Press that foreign companies must transfer funds to the new authorities.

More

Petrobras strike hits oil firm's output

By The Associated Press

SAO PAULO (AP) — Oil production at Brazil's state-run Petrobras has fallen 13 percent in each of the first two days of a strike, the company says, though it expects losses to lessen.

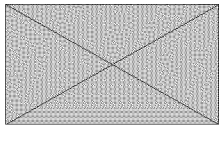
The strike began on Sunday.

An 8.5 percent production loss was registered on Tuesday, the third day of the strike.

Oil workers are seeking an 18-percent rise in their salaries. They've already rejected a Petrobras offer of an 8.1-percent raise.

More

Sponsored Links



Power plant rule challenge to be decided after Paris.

Click here to read the brief

EPA handling of Pebble Mine 'highly questionable': GOP lawmakers

Republicans on the House Oversight Committee have issued a report and a letter saying that the Environmental Protection Agency's moves to block the Pebble Mine project in Alaska were "unprecedented" and "lacking a legal basis," The Hill reports.

More

Carbon emissions dropping as coal plants close: Sierra Club

Carbon emissions from U.S. power plants should fall this year to levels not seen since 1995, according to the Sierra Club, which attributes the decline to the shutdown of coal-fired plants, The Hill reports.

More

Chesapeake to cut spending further as losses mount

Chesapeake Energy has reported a loss of $4.65 billion in the third quarter — although its results beat analysts' expectations — and CEO Doug Lawler warned that the company is looking at further spending cuts next year, The Wall Street Journal reports.

More

Oil slides on stockpile gain, dollar strength

A rise in U.S. crude stockpiles combined with a strengthening dollar sent oil prices plummeting again Wednesday. West Texas Intermediate crude for December delivery slumped $1.58, or 3.3 percent, to settle at $46.32 a barrel on the Nymex, while in London, Brent dropped $1.96 to $48.58, Marketwatch reports.

More

Key Energy shutting international operations

Lamenting an "unsustainable" pricing environment, troubled oil field services firm Key Energy closed up shop in Colombia, Ecuador and Oman in the third quarter, says it has found a buyer for its Bahrain operations and is looking to unload in Russia as well, FuelFix reports.

More

Enbridge considering major Gulf Coast projects

A spokesman for Enbridge has confirmed to Reuters that the Canadian pipeline giant is

considering sinking $5 billion into oil storage facilities and terminals on the U.S. Gulf Coast, but isn't yet ready to make any announcements.

More

Problematic weather patterns plaguing the Pacific

Phenomena such as the Pacific Decadal Oscillation and a warm-water zone called "the Blob," along with El Nino and the impact of climate change, are contributing to unsettled and difficult weather in the Pacific Ocean, The New York Times reports.

More

Gore joins those asking for probe of Exxon over climate allegations

Likening the company behavior to that of tobacco firms in the 1980s, Al Gore has called for an investigation into allegations that Exxon knew about the dangers of climate change decades ago but deliberately downplayed the risks, The New York Times reports.

More

Wal-Mart uses its size to get good deals on renewables

For the past ten years, Wal-Mart has been pursuing the goal of getting all of its power from renewable sources—the retailer is now at 26 percent—using its size and financial muscle to get suppliers such as SolarCity to assume much of the risk, Forbes reports.

More

Upcoming Events

- Nov. 4, WAshington: Sen. Mike Lee, R-Utah, to speak on the Paris conference and the Obama administration's push for a deal that wouldn't require Senate approval at an event hosted by the Heritage Foundation and the Competitive Enterprise Institute. 2:30 pm , 214 Massachusetts Ave NE
- Nov. 4, Washington: The House Natural Resources Subcommittee on Energy and Mineral Resources to hold a legislative hearing on a pair of bills to reform Environmental Protection Agency mining policy. 10:30 am , 1334 Longworth.
- Nov. 4, Washington: The Senate to vote on a Congressional Review Act resolution of disapproval of the Clean Water Rule, introduced by Sen. Joni Ernst, R-Iowa. 10:00 am , U.S. Capitol Building

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

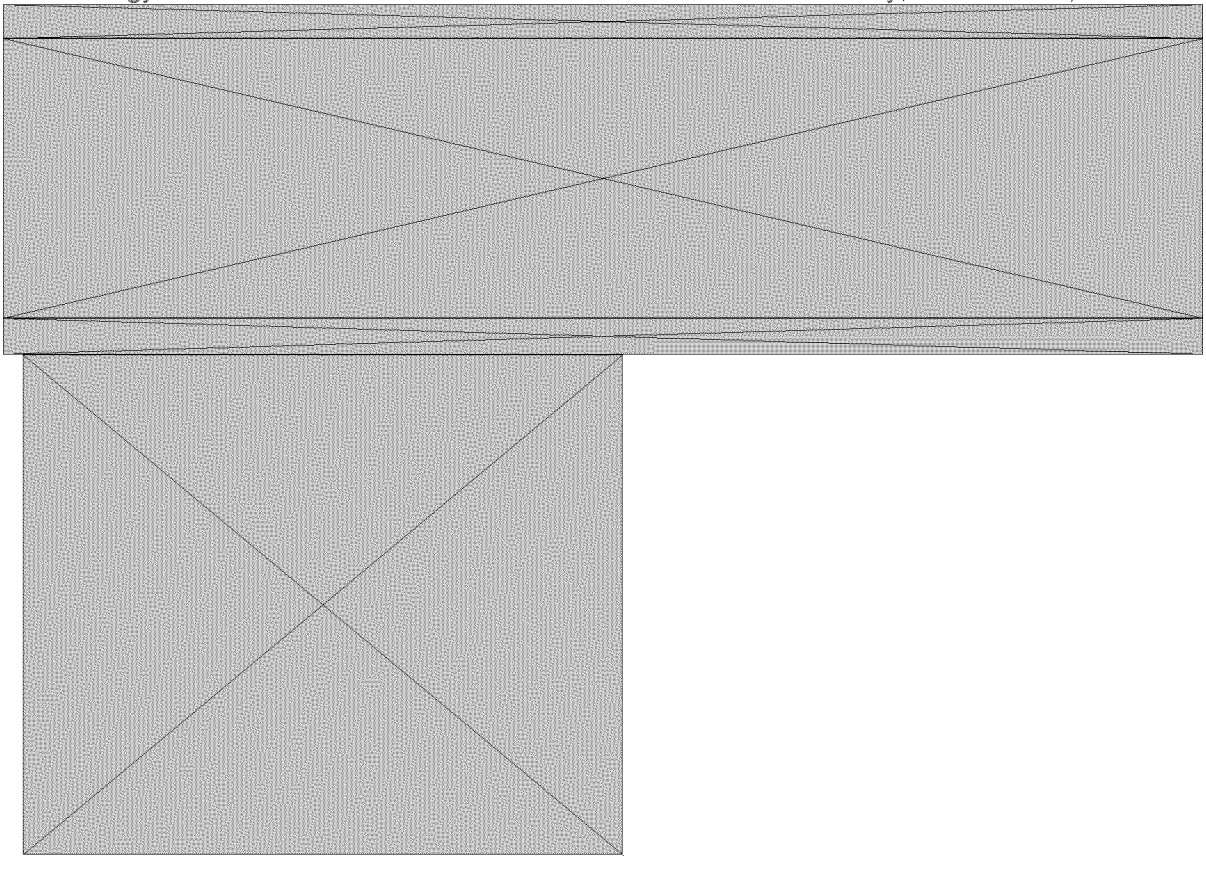
This email was sent to brooks.phillip@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Wed 11/4/2015 10:48:32 PM
Subject: 18 states formally seek to join legal defense of Clean Power Plan

Advertise | Contact

Energy and environment headlines for the afternoon of Wednesday, November 4, 2015



18 states formally seek to join legal defense of Clean Power Plan

By Kevin Rogers

A coalition of state and local governments told a federal appeals court Wednesday that they have "a compelling interest" in the success of the Obama administration's rule limiting carbon emissions from existing power plants, and sought permission join the legal battle against states who want the rule thrown out.

The motion to intervene if approved by the U.S. Court of Appeals for the District of

Columbia Circuit, would put the group of 18 states, six cities and one county – led by New York State– on a collision course with the group of 26 states – led by West Virginia – that is trying to kill the Clean Power Plan.

On a call with reporters, New York Attorney General Eric Schneiderman said that EPA's rule is "firmly grounded in science and the law" and is necessary to press other states to get moving on efforts to limit climate-warming emissions.

"What it does is set standards for all states to ensure that some states aren't working hard to reduce carbon emissions only to have it come in from across the borders," he said. "The EPA plan takes all existing, successful technologies – this is not based on technologies that do not already exist – and makes sure every state steps up to the plate and does its fair share."

The motion says the states and municipalities "have unique sovereign interests in limiting climate change pollution in order to prevent and mitigate loss and damage to publicly-owned coastal property, to protect public infrastructure, and to limit emergency response costs borne by the public."

In addition to New York, the states filing the motion include California, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Mexico, Oregon, Rhode Island, Vermont, Virginia and Washington. They were also joined by the District of Columbia and the cities of New York, Chicago, Philadelphia and Boulder, Colorado, as well as South Miami and Broward County in Florida.

They are seeking to join the Environmental Protection Agency and a coalition of environmental groups who are defending the Clean Power Plan against 26 states, in addition to dozens of companies and industry groups.

West Virginia Attorney General Patrick Morrisey in a statement said that the rules deserved a robust challenge and he touted the wide coalition opposed to the regulations.

"A growing national coalition of mineworkers, boilermakers, operators, utilities, businesses, Democrats, Republicans, Independents and consumer groups agree: the EPA lacks the authority to transform itself from an environmental regulator into a central energy planning authority," he said. "If the EPA succeeds in this unprecedented and illegal power grab, many jobs will be lost, electricity prices will rise, the reliability of the power grid will be put at risk and the rule of law will not be upheld."

Opponents have asked the court to block implementation of the rule until legal challenges can be settled. The rules have been described as a federal "power grab" intended to force states to transform their energy systems, since it encourages states to reduce coal use in favor of cleaner-burning natural gas and zero-emission sources.

"This court should issue a stay, and expedite consideration of the Petition For Review, because the states are being immediately and irreparably harmed by EPA's illegal effort to force states to reorder their electrical generation systems," states wrote in their petition.

The states defending the rule, on the other hand, said that the national approach was the only way to take meaningful climate action.

"This is the total absence of a power grab. It's a vacuum," Iowa Attorney General Tom Miller said. "We can never have anything like this on a state-by-state basis. It has to be done comprehensively as part of a national plan."

If the court grants the proponent states the right to intervene, they will have almost two months to file their comments. The court will take legal requests from EPA, its supporters and opponents until Dec. 23.

That means there will be no ruling before or during the United Nations climate negotiations in Paris next month. Schneiderman told reporters that allowing the plan to proceed would give the U.S. a stronger hand in Paris.

"This also will provide the United States with a position of national leadership, so that we can be more effective in negotiating with other countries on reducing greenhouse gas emissions," Schneiderman said.

The rule for existing plants set state-specific goals to reduce carbon, asking states to draw up reduction plans to be implemented starting in 2022. States can meet targets through making coal plants more efficient, replacing coal with natural gas, and building new renewable capacity.

The regulation, together with its companion rule for new power plants, seeks to cut sector carbon emissions by 32 percent from 2005 levels, and to hit that goal in 2030.

The same type of state vs. state legal fight is shaping up for the rule for new plants.

On Tuesday, West Virginia led a coalition of 23 states to sue EPA over that rule, which imposes hard emissions limits on fossil fuel-fired plants. The states alleged that the reductions would require the use of technology not readily available.

With that suit filed, Schneiderman and his allies said they plan to move to intervene in defense of the new plant rule as well.

Quick Links

State Department won't suspend Keystone XL review

Senate votes to scrub EPA water rule over White House objections

Pressure grows on Volkswagen as bad news piles up

US trade deficit narrowed to $40.8 billion in September

Michigan phosphorus reduction plan focuses on sewage plants

No oil leak found in sunken barge at bottom of Lake Erie

Witness cries during safety testimony in ex-coal CEO's trial

Duke Energy ditches 45-mile power line over Carolina mountains

UN head: Climate summit success now rests with world leaders

Paris and other cities want voices heard at climate talks

Forces holding Libya oil fields threaten to cut off exports

Petrobras strike hits oil firm's output

EPA handling of Pebble Mine ‘highly questionable’: GOP lawmakers

Carbon emissions dropping as coal plants close: Sierra Club

Chesapeake to cut spending further as losses mount

Oil slides on stockpile gain, dollar strength

Key Energy shutting international operations

Enbridge considering major Gulf Coast projects

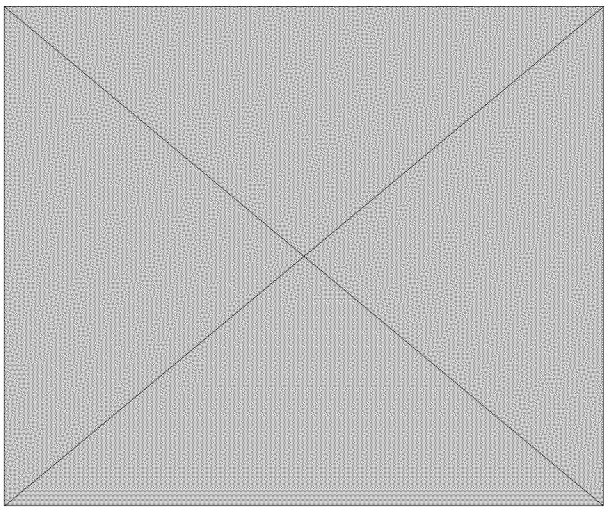
Problematic weather patterns plaguing the Pacific

Gore joins those asking for probe of Exxon over climate allegations

Wal-Mart uses its size to get good deals on renewables

Upcoming Events

State Department won't suspend Keystone XL review



By Kevin Rogers

The State Department has rejected TransCanada's request to suspend its review of the Keystone XL pipeline, choosing to “keep that process in place” and complete its full analysis on the oil sands project.

At a State Department briefing, spokesman John Kirby said that the department formally notified the Canadian pipeline firm Wednesday.

“We're not required to pause it based on an applicant's request. There's no legal basis to do that,” Kirby said. “To include interagency review and coordination and to allow significant coordination here, the secretary believes that it's most appropriate to keep that process in place.”

TransCanada had requested the suspension on Monday, to allow more time for Nebraska's Public Service Commission to approve its preferred path through the state. Spokesman Mark Cooper said that the company respects the decision, and said it would continue its push for approval.

“Our efforts will continue to demonstrate that Keystone XL is in the national interest of the United States—just as five reports and 17,000 pages of State Department review have demonstrated over the past seven-plus years,” he said.

The pipeline would carry oil sands crude from Alberta to Gulf Coast refineries. It awaits a final approval for a presidential permit from President Barack Obama. Press Secretary Josh Earnest said this week that a final decision will come before the end of Obama's term.

Environmental groups said the suspension request was a ploy to pass the final decision on the project to the next administration—and a potential Republican president.

Earlier Wednesday Democratic presidential contender Sen. Bernie Sanders of Vermont urged Obama to reject the pipeline before United Nations climate talks in Paris, saying it would be a show of "bold leadership."

More

Senate votes to scrub EPA water rule over White House objections

By Mary Clare Jalonick

WASHINGTON (AP) — Despite White House objections, the Senate voted for a resolution Wednesday to scrap new federal rules to protect smaller streams, tributaries and wetlands from development and pollution.

Senators voted 53-44 in favor of a "resolution of disapproval," a measure that would void the regulations if also passed by the House and signed by the president. The White House has already said it would veto the resolution.

On Tuesday, Senate Democrats blocked a separate bill that would have required the agencies to withdraw and rewrite the rules. The House had passed similar legislation.

The Obama administration says the rules issued by the Environmental Protection Agency and the U.S. Army Corps of Engineers in May would safeguard drinking water for 117 million Americans. In its veto threat, the White House said that more than 1 in 3 Americans get their drinking water from rivers, lakes, and reservoirs that are at risk of pollution from upstream sources.

More

Pressure grows on Volkswagen as bad news piles up

By David McHugh and Geir Moulson

FRANKFURT, Germany (AP) — The fallout from Volkswagen's emissions-cheating scandal intensified Wednesday, as investors dumped the company's stock and a credit ratings agency downgraded its debt. European regulators demanded VW speed up its investigation into the cheating, while the company halted sales of seven models in the U.S. that allegedly were part of the plot.

The latest developments followed Volkswagen's admission Tuesday that it had understated the carbon dioxide emissions for 800,000 cars, widening the scope of the scandal.

The company has been unable halt the flow of bad news since mid-September, when the U.S. Environmental Protection Agency said Volkswagen had installed software on 482,000 cars with small diesel engines that enabled them to cheat on emissions tests for one pollutant, nitrogen oxide. The software reduced emissions when the car was on a test stand. Volkswagen acknowledged that 11 million vehicles worldwide have the software.

On Monday, the EPA charged that Volkswagen also used cheating software in some cars with larger diesel engines, including Volkswagen's elite Porsche brand. Volkswagen denied the claim, but over the past two days halted sales in the U.S. and Canada of the models involved: the Volkswagen Touareg, Porsche Cayenne, and the Audi A6, A7, A8, Q5 and Q7.

More

US trade deficit narrowed to $40.8 billion in September

By Martin Crutsinger

WASHINGTON (AP) — The U.S. trade deficit declined in September to the lowest level in seven months as exports rebounded while imports shrank, reflecting the smallest monthly foreign oil bill in more than a decade.

The trade deficit narrowed to $40.8 billion in September, down 15 percent from a $48 billion deficit in August, the Commerce Department reported Wednesday.

Exports rose 1.6 percent to $187.9 billion, helped by stronger sales of commercial airplanes and jet engines.

Imports contracted 1.8 percent to $228.7 billion. The big drop in oil prices sent petroleum imports down 8.3 percent to $13.8 billion, the lowest level since May 2004.

More

Michigan phosphorus reduction plan focuses on sewage plants

By The Associated Press

LANSING, Mich. (AP) — Michigan officials have released plans to reduce phosphorus runoff into Lake Erie to ease the worsening problem of harmful algae blooms.

Michigan and Ohio signed a deal in June with the Canadian province of Ontario to cut phosphorus flows into the suffering lake by 40 percent over the next decade.

The Department of Environmental Quality says Michigan will maintain phosphorus reductions required under a permit issued to the Detroit Water and Sewerage Department in 2011 and order the Wayne County Downriver Wastewater Treatment Plant to achieve similar cutbacks.

Additionally, the plan promises cooperation with Ohio and Indiana on phosphorus reduction in the Maumee River basin and continuing study of harmful algae blooms in Michigan waters, including the role that invasive mussels might play.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

No oil leak found in sunken barge at bottom of Lake Erie

By John Seewer

TOLEDO, Ohio (AP) — Divers looking for the source of seeping oil near a sunken barge on the bottom of Lake Erie haven't located any active leaks, but they did find four open hatches on the wreckage, the U.S. Coast Guard said Wednesday.

It's not clear yet whether the open hatches could be the source of a petroleum-based solvent spotted on the surface near the U.S.-Canadian border within the past two weeks.

The substance is believed to be coming from the Argo, a tanker barge that went down during a storm in 1937 and is one of 87 shipwrecks on a federal registry that identifies the most serious pollution threats to U.S. waters.

Water samples revealed that the colorless solvent that evaporates quickly is a light to medium oil that has been exposed to the environment for quite some time, said Marvin Kimmel, a Coast Guard spokesman.

More

Witness cries during safety testimony in ex-coal CEO's trial

By John Raby

CHARLESTON, W.Va. (AP) — A former Massey Energy official wept on the witness stand while describing efforts to address safety problems nine months before an explosion killed 29 miners.

William Ross is one of the government's top witnesses in the trial of former Massey Energy CEO Don Blankenship. Ross continued testifying Wednesday about a once-confidential safety assessment he gave of Massey.

Ross cried after reading excerpts of a July 2009 memo in which he wrote he was "so thrilled about a NEW Massey Energy." Ross testified that he believed Massey Energy was going to take "serious" steps to make improvements.

The Upper Big Branch mine in southern West Virginia exploded in April 2010. Blankenship is charged with conspiring to break safety laws at the mine and lying to financial regulators about safety.

Duke Energy ditches 45-mile power line over Carolina mountains

By The Associated Press

CHARLOTTE, N.C. (AP) — Duke Energy is dropping plans to build a 45-mile power line across the mountains of North Carolina and South Carolina as part of a plan to replace an old coal-fired power plant near Asheville.

Residents and environmental groups opposed the transmission line, which would have connected a power plant that would run off of natural gas in Asheville to a substation in Campobello, South Carolina, north of Spartanburg.

Instead, Duke Energy will build two smaller natural gas plants to replace the coal plant that the utility plans to shut down by 2020. Officials said a third plant might be needed if conservation doesn't help lower electricity demand.

"The new plan balances the concerns raised by the community and the very real need for more electricity to serve this growing region. We're eager to ramp up our efforts in working with the community to reduce power demand across the region," said Lloyd Yates, president of the utility's Carolinas region.

Sponsored Links

More

UN head: Climate summit success now rests with world leaders

By Cara Anna

UNITED NATIONS (AP) — Key issues remaining ahead of a major climate summit in Paris this month "have proven too challenging for negotiators to resolve on their own," and responsibility for its success now rests with world leaders, the U.N. secretary-general said Wednesday.

Organizers hope that the summit that begins Nov. 30 will result in the biggest, strongest global agreement ever to fight global warming.

Ban Ki-moon told U.N. member states that 155 countries had submitted their climate plans by the end of October, covering almost 90 percent of global carbon dioxide emissions.

But he said key remaining issues include financial and other support to help developing countries reduce emissions. He called on developed countries to make public pledges of financing before the Paris summit, which runs through Dec. 11.

More

Paris and other cities want voices heard at climate talks

By The Associated Press

PARIS (AP) — Michael Bloomberg and mayors of large world cities want to weigh in on upcoming U.N. climate negotiations with their local experiences in fighting global warming.

Paris Mayor Anne Hidalgo and Bloomberg, former New York mayor and now a U.N. climate change envoy, are convening mayors of Rio de Janeiro, Mexico City, Johannesburg and other cities Dec. 4 in Paris. Hidalgo's office said the mayors will produce proposals to negotiators at the U.N. conference near Paris Nov. 30-Dec. 11.

Local leaders have been at the forefront of some of the more ambitious measures to reduce emissions. Bloomberg said the mayors' meeting will help ensure their "voice is heard in the treaty negotiations."

His efforts in New York included planting 800,000 trees, improving bus and bike transport and requiring more energy-efficient buildings.

Forces holding Libya oil fields threaten to cut off exports

By The Associated Press

CAIRO (AP) — The forces that control most of Libya's oil fields on Wednesday threatened to cut off exports if foreign companies do not start wiring payments to the internationally recognized government in the country's east.

Until now foreign companies have paid the Central Bank in the capital Tripoli, which is controlled by Islamist-allied militias who back a rival government.

The internationally recognized government, which is based in the country's far eastern city of Tobruk, recently set up its own Central Bank and National Oil Company.

Ali al-Hassi, spokesman for the Oil Fields Guard, told The Associated Press that foreign companies must transfer funds to the new authorities.

More

Petrobras strike hits oil firm's output

By The Associated Press

SAO PAULO (AP) — Oil production at Brazil's state-run Petrobras has fallen 13 percent in each of the first two days of a strike, the company says, though it expects losses to lessen.

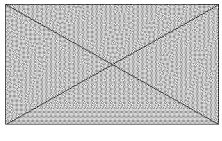
The strike began on Sunday.

An 8.5 percent production loss was registered on Tuesday, the third day of the strike.

Oil workers are seeking an 18-percent rise in their salaries. They've already rejected a Petrobras offer of an 8.1-percent raise.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA
Trouble seeing this email? Click here.

Power plant rule challenge to be decided after Paris.

Click here to read the brief

EPA handling of Pebble Mine 'highly questionable': GOP lawmakers

Republicans on the House Oversight Committee have issued a report and a letter saying that the Environmental Protection Agency's moves to block the Pebble Mine project in Alaska were "unprecedented" and "lacking a legal basis," The Hill reports.

More

Carbon emissions dropping as coal plants close: Sierra Club

Carbon emissions from U.S. power plants should fall this year to levels not seen since 1995, according to the Sierra Club, which attributes the decline to the shutdown of coal-fired plants, The Hill reports.

More

Chesapeake to cut spending further as losses mount

Chesapeake Energy has reported a loss of $4.65 billion in the third quarter — although its results beat analysts' expectations — and CEO Doug Lawler warned that the company is looking at further spending cuts next year, The Wall Street Journal reports.

More

Oil slides on stockpile gain, dollar strength

A rise in U.S. crude stockpiles combined with a strengthening dollar sent oil prices plummeting again Wednesday. West Texas Intermediate crude for December delivery slumped $1.58, or 3.3 percent, to settle at $46.32 a barrel on the Nymex, while in London, Brent dropped $1.96 to $48.58, Marketwatch reports.

More

Key Energy shutting international operations

Lamenting an "unsustainable" pricing environment, troubled oil field services firm Key Energy closed up shop in Colombia, Ecuador and Oman in the third quarter, says it has found a buyer for its Bahrain operations and is looking to unload in Russia as well, FuelFix reports.

More

Enbridge considering major Gulf Coast projects

A spokesman for Enbridge has confirmed to Reuters that the Canadian pipeline giant is

considering sinking $5 billion into oil storage facilities and terminals on the U.S. Gulf Coast, but isn't yet ready to make any announcements.

More

Problematic weather patterns plaguing the Pacific

Phenomena such as the Pacific Decadal Oscillation and a warm-water zone called "the Blob," along with El Nino and the impact of climate change, are contributing to unsettled and difficult weather in the Pacific Ocean, The New York Times reports.

More

Gore joins those asking for probe of Exxon over climate allegations

Likening the company behavior to that of tobacco firms in the 1980s, Al Gore has called for an investigation into allegations that Exxon knew about the dangers of climate change decades ago but deliberately downplayed the risks, The New York Times reports.

More

Wal-Mart uses its size to get good deals on renewables

For the past ten years, Wal-Mart has been pursuing the goal of getting all of its power from renewable sources—the retailer is now at 26 percent—using its size and financial muscle to get suppliers such as SolarCity to assume much of the risk, Forbes reports.

More

Upcoming Events

- Nov. 4, WAshington: Sen. Mike Lee, R-Utah, to speak on the Paris conference and the Obama administration's push for a deal that wouldn't require Senate approval at an event hosted by the Heritage Foundation and the Competitive Enterprise Institute. 2:30 pm , 214 Massachusetts Ave NE
- Nov. 4, Washington: The House Natural Resources Subcommittee on Energy and Mineral Resources to hold a legislative hearing on a pair of bills to reform Environmental Protection Agency mining policy. 10:30 am , 1334 Longworth.
- Nov. 4, Washington: The Senate to vote on a Congressional Review Act resolution of disapproval of the Clean Water Rule, introduced by Sen. Joni Ernst, R-Iowa. 10:00 am , U.S. Capitol Building

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

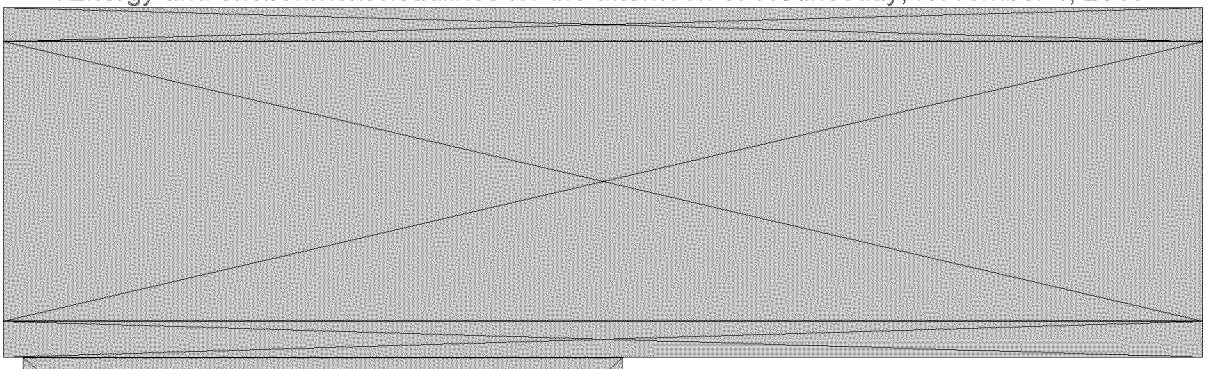
This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

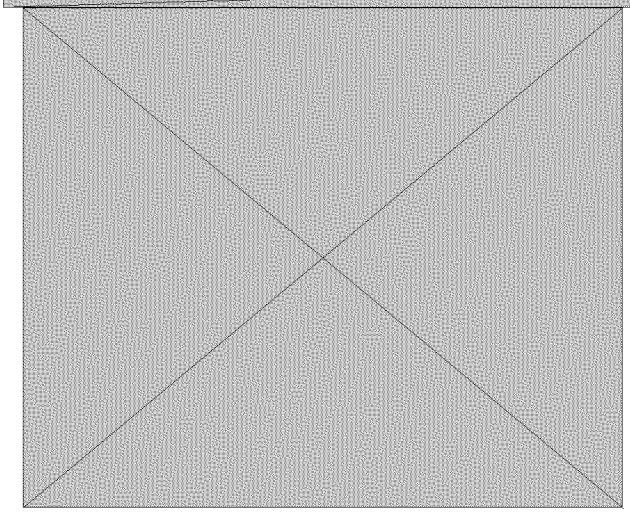
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Wed 11/4/2015 10:48:33 PM
Subject: 18 states formally seek to join legal defense of Clean Power Plan

Advertise | Contact

Energy and environment headlines for the afternoon of Wednesday, November 4, 2015





18 states formally seek to join legal defense of Clean Power Plan

By Kevin Rogers

A coalition of state and local governments told a federal appeals court Wednesday that they have "a compelling interest" in the success of the Obama administration's rule limiting carbon emissions from existing power plants, and sought permission join the legal battle against states who want the rule thrown out.

The motion to intervene if approved by the U.S. Court of Appeals for the District of

Columbia Circuit, would put the group of 18 states, six cities and one county – led by New York State– on a collision course with the group of 26 states – led by West Virginia – that is trying to kill the Clean Power Plan.

On a call with reporters, New York Attorney General Eric Schneiderman said that EPA's rule is "firmly grounded in science and the law" and is necessary to press other states to get moving on efforts to limit climate-warming emissions.

"What it does is set standards for all states to ensure that some states aren't working hard to reduce carbon emissions only to have it come in from across the borders," he said. "The EPA plan takes all existing, successful technologies – this is not based on technologies that do not already exist – and makes sure every state steps up to the plate and does its fair share."

The motion says the states and municipalities "have unique sovereign interests in limiting climate change pollution in order to prevent and mitigate loss and damage to publicly-owned coastal property, to protect public infrastructure, and to limit emergency response costs borne by the public."

In addition to New York, the states filing the motion include California, Connecticut, Delaware, Hawaii, Illinois, Iowa, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Mexico, Oregon, Rhode Island, Vermont, Virginia and Washington. They were also joined by the District of Columbia and the cities of New York, Chicago, Philadelphia and Boulder, Colorado, as well as South Miami and Broward County in Florida.

They are seeking to join the Environmental Protection Agency and a coalition of environmental groups who are defending the Clean Power Plan against 26 states, in addition to dozens of companies and industry groups.

West Virginia Attorney General Patrick Morrisey in a statement said that the rules deserved a robust challenge and he touted the wide coalition opposed to the regulations.

"A growing national coalition of mineworkers, boilermakers, operators, utilities, businesses, Democrats, Republicans, Independents and consumer groups agree: the EPA lacks the authority to transform itself from an environmental regulator into a central energy planning authority," he said. "If the EPA succeeds in this unprecedented and illegal power grab, many jobs will be lost, electricity prices will rise, the reliability of the power grid will be put at risk and the rule of law will not be upheld."

Opponents have asked the court to block implementation of the rule until legal challenges can be settled. The rules have been described as a federal "power grab" intended to force states to transform their energy systems, since it encourages states to reduce coal use in favor of cleaner-burning natural gas and zero-emission sources.

"This court should issue a stay, and expedite consideration of the Petition For Review, because the states are being immediately and irreparably harmed by EPA's illegal effort to force states to reorder their electrical generation systems," states wrote in their petition.

The states defending the rule, on the other hand, said that the national approach was the only way to take meaningful climate action.

"This is the total absence of a power grab. It's a vacuum," Iowa Attorney General Tom Miller said. "We can never have anything like this on a state-by-state basis. It has to be done comprehensively as part of a national plan."

If the court grants the proponent states the right to intervene, they will have almost two months to file their comments. The court will take legal requests from EPA, its supporters and opponents until Dec. 23.

That means there will be no ruling before or during the United Nations climate negotiations in Paris next month. Schneiderman told reporters that allowing the plan to proceed would give the U.S. a stronger hand in Paris.

"This also will provide the United States with a position of national leadership, so that we can be more effective in negotiating with other countries on reducing greenhouse gas emissions," Schneiderman said.

The rule for existing plants set state-specific goals to reduce carbon, asking states to draw up reduction plans to be implemented starting in 2022. States can meet targets through making coal plants more efficient, replacing coal with natural gas, and building new renewable capacity.

The regulation, together with its companion rule for new power plants, seeks to cut sector carbon emissions by 32 percent from 2005 levels, and to hit that goal in 2030.

The same type of state vs. state legal fight is shaping up for the rule for new plants.

On Tuesday, West Virginia led a coalition of 23 states to sue EPA over that rule, which imposes hard emissions limits on fossil fuel-fired plants. The states alleged that the reductions would require the use of technology not readily available.

With that suit filed, Schneiderman and his allies said they plan to move to intervene in defense of the new plant rule as well.

Quick Links

State Department won't suspend Keystone XL review

Senate votes to scrub EPA water rule over White House objections

Pressure grows on Volkswagen as bad news piles up

US trade deficit narrowed to $40.8 billion in September

Michigan phosphorus reduction plan focuses on sewage plants

No oil leak found in sunken barge at bottom of Lake Erie

Witness cries during safety testimony in ex-coal CEO's trial

Duke Energy ditches 45-mile power line over Carolina mountains

UN head: Climate summit success now rests with world leaders

Paris and other cities want voices heard at climate talks

Forces holding Libya oil fields threaten to cut off exports

Petrobras strike hits oil firm's output

EPA handling of Pebble Mine ‘highly questionable’: GOP lawmakers

Carbon emissions dropping as coal plants close: Sierra Club

Chesapeake to cut spending further as losses mount

Oil slides on stockpile gain, dollar strength

Key Energy shutting international operations

Enbridge considering major Gulf Coast projects

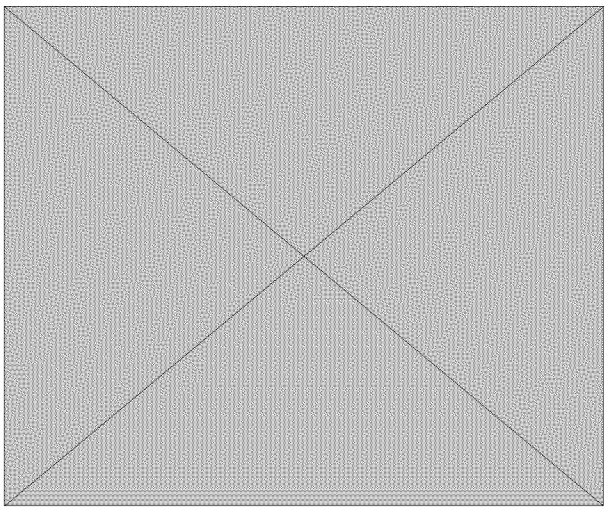
Problematic weather patterns plaguing the Pacific

Gore joins those asking for probe of Exxon over climate allegations

Wal-Mart uses its size to get good deals on renewables

Upcoming Events

State Department won't suspend Keystone XL review



By Kevin Rogers

The State Department has rejected TransCanada's request to suspend its review of the Keystone XL pipeline, choosing to “keep that process in place” and complete its full analysis on the oil sands project.

At a State Department briefing, spokesman John Kirby said that the department formally notified the Canadian pipeline firm Wednesday.

“We're not required to pause it based on an applicant's request. There's no legal basis to do that,” Kirby said. “To include interagency review and coordination and to allow significant coordination here, the secretary believes that it's most appropriate to keep that process in place.”

TransCanada had requested the suspension on Monday, to allow more time for Nebraska's Public Service Commission to approve its preferred path through the state. Spokesman Mark Cooper said that the company respects the decision, and said it would continue its push for approval.

“Our efforts will continue to demonstrate that Keystone XL is in the national interest of the United States—just as five reports and 17,000 pages of State Department review have demonstrated over the past seven-plus years,” he said.

The pipeline would carry oil sands crude from Alberta to Gulf Coast refineries. It awaits a final approval for a presidential permit from President Barack Obama. Press Secretary Josh Earnest said this week that a final decision will come before the end of Obama's term.

Environmental groups said the suspension request was a ploy to pass the final decision on the project to the next administration—and a potential Republican president.

Earlier Wednesday Democratic presidential contender Sen. Bernie Sanders of Vermont urged Obama to reject the pipeline before United Nations climate talks in Paris, saying it would be a show of "bold leadership."

More

Senate votes to scrub EPA water rule over White House objections

By Mary Clare Jalonick

WASHINGTON (AP) — Despite White House objections, the Senate voted for a resolution Wednesday to scrap new federal rules to protect smaller streams, tributaries and wetlands from development and pollution.

Senators voted 53-44 in favor of a "resolution of disapproval," a measure that would void the regulations if also passed by the House and signed by the president. The White House has already said it would veto the resolution.

On Tuesday, Senate Democrats blocked a separate bill that would have required the agencies to withdraw and rewrite the rules. The House had passed similar legislation.

The Obama administration says the rules issued by the Environmental Protection Agency and the U.S. Army Corps of Engineers in May would safeguard drinking water for 117 million Americans. In its veto threat, the White House said that more than 1 in 3 Americans get their drinking water from rivers, lakes, and reservoirs that are at risk of pollution from upstream sources.

More

Pressure grows on Volkswagen as bad news piles up

By David McHugh and Geir Moulson

FRANKFURT, Germany (AP) — The fallout from Volkswagen's emissions-cheating scandal intensified Wednesday, as investors dumped the company's stock and a credit ratings agency downgraded its debt. European regulators demanded VW speed up its investigation into the cheating, while the company halted sales of seven models in the U.S. that allegedly were part of the plot.

The latest developments followed Volkswagen's admission Tuesday that it had understated the carbon dioxide emissions for 800,000 cars, widening the scope of the scandal.

The company has been unable halt the flow of bad news since mid-September, when the U.S. Environmental Protection Agency said Volkswagen had installed software on 482,000 cars with small diesel engines that enabled them to cheat on emissions tests for one pollutant, nitrogen oxide. The software reduced emissions when the car was on a test stand. Volkswagen acknowledged that 11 million vehicles worldwide have the software.

On Monday, the EPA charged that Volkswagen also used cheating software in some cars with larger diesel engines, including Volkswagen's elite Porsche brand. Volkswagen denied the claim, but over the past two days halted sales in the U.S. and Canada of the models involved: the Volkswagen Touareg, Porsche Cayenne, and the Audi A6, A7, A8, Q5 and Q7.

More

US trade deficit narrowed to $40.8 billion in September

By Martin Crutsinger

WASHINGTON (AP) — The U.S. trade deficit declined in September to the lowest level in seven months as exports rebounded while imports shrank, reflecting the smallest monthly foreign oil bill in more than a decade.

The trade deficit narrowed to $40.8 billion in September, down 15 percent from a $48 billion deficit in August, the Commerce Department reported Wednesday.

Exports rose 1.6 percent to $187.9 billion, helped by stronger sales of commercial airplanes and jet engines.

Imports contracted 1.8 percent to $228.7 billion. The big drop in oil prices sent petroleum imports down 8.3 percent to $13.8 billion, the lowest level since May 2004.

More

Michigan phosphorus reduction plan focuses on sewage plants

By The Associated Press

LANSING, Mich. (AP) — Michigan officials have released plans to reduce phosphorus runoff into Lake Erie to ease the worsening problem of harmful algae blooms.

Michigan and Ohio signed a deal in June with the Canadian province of Ontario to cut phosphorus flows into the suffering lake by 40 percent over the next decade.

The Department of Environmental Quality says Michigan will maintain phosphorus reductions required under a permit issued to the Detroit Water and Sewerage Department in 2011 and order the Wayne County Downriver Wastewater Treatment Plant to achieve similar cutbacks.

Additionally, the plan promises cooperation with Ohio and Indiana on phosphorus reduction in the Maumee River basin and continuing study of harmful algae blooms in Michigan waters, including the role that invasive mussels might play.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

No oil leak found in sunken barge at bottom of Lake Erie

By John Seewer

TOLEDO, Ohio (AP) — Divers looking for the source of seeping oil near a sunken barge on the bottom of Lake Erie haven't located any active leaks, but they did find four open hatches on the wreckage, the U.S. Coast Guard said Wednesday.

It's not clear yet whether the open hatches could be the source of a petroleum-based solvent spotted on the surface near the U.S.-Canadian border within the past two weeks.

The substance is believed to be coming from the Argo, a tanker barge that went down during a storm in 1937 and is one of 87 shipwrecks on a federal registry that identifies the most serious pollution threats to U.S. waters.

Water samples revealed that the colorless solvent that evaporates quickly is a light to medium oil that has been exposed to the environment for quite some time, said Marvin Kimmel, a Coast Guard spokesman.

More

Witness cries during safety testimony in ex-coal CEO's trial

By John Raby

CHARLESTON, W.Va. (AP) — A former Massey Energy official wept on the witness stand while describing efforts to address safety problems nine months before an explosion killed 29 miners.

William Ross is one of the government's top witnesses in the trial of former Massey Energy CEO Don Blankenship. Ross continued testifying Wednesday about a once-confidential safety assessment he gave of Massey.

Ross cried after reading excerpts of a July 2009 memo in which he wrote he was "so thrilled about a NEW Massey Energy." Ross testified that he believed Massey Energy was going to take "serious" steps to make improvements.

The Upper Big Branch mine in southern West Virginia exploded in April 2010. Blankenship is charged with conspiring to break safety laws at the mine and lying to financial regulators about safety.

Duke Energy ditches 45-mile power line over Carolina mountains

By The Associated Press

CHARLOTTE, N.C. (AP) — Duke Energy is dropping plans to build a 45-mile power line across the mountains of North Carolina and South Carolina as part of a plan to replace an old coal-fired power plant near Asheville.

Residents and environmental groups opposed the transmission line, which would have connected a power plant that would run off of natural gas in Asheville to a substation in Campobello, South Carolina, north of Spartanburg.

Instead, Duke Energy will build two smaller natural gas plants to replace the coal plant that the utility plans to shut down by 2020. Officials said a third plant might be needed if conservation doesn't help lower electricity demand.

"The new plan balances the concerns raised by the community and the very real need for more electricity to serve this growing region. We're eager to ramp up our efforts in working with the community to reduce power demand across the region," said Lloyd Yates, president of the utility's Carolinas region.

Sponsored Links

More

UN head: Climate summit success now rests with world leaders

By Cara Anna

UNITED NATIONS (AP) — Key issues remaining ahead of a major climate summit in Paris this month "have proven too challenging for negotiators to resolve on their own," and responsibility for its success now rests with world leaders, the U.N. secretary-general said Wednesday.

Organizers hope that the summit that begins Nov. 30 will result in the biggest, strongest global agreement ever to fight global warming.

Ban Ki-moon told U.N. member states that 155 countries had submitted their climate plans by the end of October, covering almost 90 percent of global carbon dioxide emissions.

But he said key remaining issues include financial and other support to help developing countries reduce emissions. He called on developed countries to make public pledges of financing before the Paris summit, which runs through Dec. 11.

More

Paris and other cities want voices heard at climate talks

By The Associated Press

PARIS (AP) — Michael Bloomberg and mayors of large world cities want to weigh in on upcoming U.N. climate negotiations with their local experiences in fighting global warming.

Paris Mayor Anne Hidalgo and Bloomberg, former New York mayor and now a U.N. climate change envoy, are convening mayors of Rio de Janeiro, Mexico City, Johannesburg and other cities Dec. 4 in Paris. Hidalgo's office said the mayors will produce proposals to negotiators at the U.N. conference near Paris Nov. 30-Dec. 11.

Local leaders have been at the forefront of some of the more ambitious measures to reduce emissions. Bloomberg said the mayors' meeting will help ensure their "voice is heard in the treaty negotiations."

His efforts in New York included planting 800,000 trees, improving bus and bike transport and requiring more energy-efficient buildings.

Forces holding Libya oil fields threaten to cut off exports

By The Associated Press

CAIRO (AP) — The forces that control most of Libya's oil fields on Wednesday threatened to cut off exports if foreign companies do not start wiring payments to the internationally recognized government in the country's east.

Until now foreign companies have paid the Central Bank in the capital Tripoli, which is controlled by Islamist-allied militias who back a rival government.

The internationally recognized government, which is based in the country's far eastern city of Tobruk, recently set up its own Central Bank and National Oil Company.

Ali al-Hassi, spokesman for the Oil Fields Guard, told The Associated Press that foreign companies must transfer funds to the new authorities.

More

Petrobras strike hits oil firm's output

By The Associated Press

SAO PAULO (AP) — Oil production at Brazil's state-run Petrobras has fallen 13 percent in each of the first two days of a strike, the company says, though it expects losses to lessen.

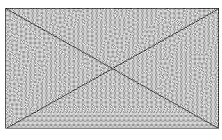
The strike began on Sunday.

An 8.5 percent production loss was registered on Tuesday, the third day of the strike.

Oil workers are seeking an 18-percent rise in their salaries. They've already rejected a Petrobras offer of an 8.1-percent raise.

More

Sponsored Links



Week in Review – Federal Courts Yield to Obama's EPA

Trouble seeing this email? Click here.

Power plant rule challenge to be decided after Paris.

Click here to read the brief

EPA handling of Pebble Mine 'highly questionable': GOP lawmakers

Republicans on the House Oversight Committee have issued a report and a letter saying that the Environmental Protection Agency's moves to block the Pebble Mine project in Alaska were "unprecedented" and "lacking a legal basis," The Hill reports.

More

Carbon emissions dropping as coal plants close: Sierra Club

Carbon emissions from U.S. power plants should fall this year to levels not seen since 1995, according to the Sierra Club, which attributes the decline to the shutdown of coal-fired plants, The Hill reports.

More

Chesapeake to cut spending further as losses mount

Chesapeake Energy has reported a loss of $4.65 billion in the third quarter — although its results beat analysts' expectations — and CEO Doug Lawler warned that the company is looking at further spending cuts next year, The Wall Street Journal reports.

More

Oil slides on stockpile gain, dollar strength

A rise in U.S. crude stockpiles combined with a strengthening dollar sent oil prices plummeting again Wednesday. West Texas Intermediate crude for December delivery slumped $1.58, or 3.3 percent, to settle at $46.32 a barrel on the Nymex, while in London, Brent dropped $1.96 to $48.58, Marketwatch reports.

More

Key Energy shutting international operations

Lamenting an "unsustainable" pricing environment, troubled oil field services firm Key Energy closed up shop in Colombia, Ecuador and Oman in the third quarter, says it has found a buyer for its Bahrain operations and is looking to unload in Russia as well, FuelFix reports.

More

Enbridge considering major Gulf Coast projects

A spokesman for Enbridge has confirmed to Reuters that the Canadian pipeline giant is

considering sinking $5 billion into oil storage facilities and terminals on the U.S. Gulf Coast, but isn't yet ready to make any announcements.

More

Problematic weather patterns plaguing the Pacific

Phenomena such as the Pacific Decadal Oscillation and a warm-water zone called "the Blob," along with El Nino and the impact of climate change, are contributing to unsettled and difficult weather in the Pacific Ocean, The New York Times reports.

More

Gore joins those asking for probe of Exxon over climate allegations

Likening the company behavior to that of tobacco firms in the 1980s, Al Gore has called for an investigation into allegations that Exxon knew about the dangers of climate change decades ago but deliberately downplayed the risks, The New York Times reports.

More

Wal-Mart uses its size to get good deals on renewables

For the past ten years, Wal-Mart has been pursuing the goal of getting all of its power from renewable sources—the retailer is now at 26 percent—using its size and financial muscle to get suppliers such as SolarCity to assume much of the risk, Forbes reports.

More

Upcoming Events

- Nov. 4, WAshington: Sen. Mike Lee, R-Utah, to speak on the Paris conference and the Obama administration's push for a deal that wouldn't require Senate approval at an event hosted by the Heritage Foundation and the Competitive Enterprise Institute. 2:30 pm , 214 Massachusetts Ave NE
- Nov. 4, Washington: The House Natural Resources Subcommittee on Energy and Mineral Resources to hold a legislative hearing on a pair of bills to reform Environmental Protection Agency mining policy. 10:30 am , 1334 Longworth.
- Nov. 4, Washington: The Senate to vote on a Congressional Review Act resolution of disapproval of the Clean Water Rule, introduced by Sen. Joni Ernst, R-Iowa. 10:00 am , U.S. Capitol Building

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: richard.thomas@vw.com[richard.thomas@vw.com]
From: Good, David
Sent: Thur 11/5/2015 5:52:18 PM
Subject: PHEV data attached
VW_Group_2016 FE Guide-all rel dates-no-sales-11-3-2015.xlsx

Richard,

Got to run to another meeting. Here's the PHEV data. It looks error free to me.

Please let me know if you agree. Also, Please send me copies of the actual FE Lables (window stickers) when you get a chance.

Thanks for your help, correcting errors, etc.

Dave

2016 Model Year:

EPA Comments	Model Type Information							
EPA comn	VERIFY co	Model Yr (Mfr Name	Division (t	Carline	Verify Mfr	Index (Mo	Eng Displ	# Cyl
PHEV; (blended)		2016	Volkswage	Audi	A3 e-tron	VGA	101	1.4	4
PHEV; (blended)		2016	Volkswage	Audi	A3 e-tron	VGA	101	1.4	4
PHEV; (blended)		2016	Volkswage	Audi	A3 e-tron ı	VGA	102	1.4	4
PHEV; (blended)		2016	Volkswage	Audi	A3 e-tron ı	VGA	102	1.4	4

	Charge Sustaining Information (Gasoline Operation)						
Transmiss	City FE (G	Hwy FE (C	Comb FE	Low'd City	Low'd HW	Low'd Cor	City Unad	Hwy Unad	Comb Una
				2016 Audi A3 e-tron (PHEV)					
Auto(AM-S	33	37	35				43.6	52	47.0178
Auto(AM-S	33	37	35				43.6	52	47.0178
				2016 Audi A3 e-tron ultra (PHEV)					
Auto(AM-S	37	41	39				49.5	59	53.3668
Auto(AM-S	37	41	39				49.5	59	53.3668

			Charge Sustaining Information		(Gasoline Operation)	
City Unrd	Hwy Unrd	Comb Unr	Guzzler?	Air Aspir I	Air Aspira	Trans	Trans Des	Trans, Otl	# Gears
33	36.7	34.5683		TC	Turbochar	AMS	Automated Manual- Selectable		6
33	36.7	34.5683		TC	Turbochar	AMS	Automated Manual- Selectable		6
36.8	41.4	39		TC	Turbochar	AMS	Automated Manual- Selectable		6
36.8	41.4	39		TC	Turbochar	AMS	Automated Manual- Selectable		6

Lockup Tc	Trans Cre	Drive Sys	Drive Des	Primary B	Max Ethar	Max Biodi	Range1 - I	Fuel Usag	Fuel Usag
		2016 Audi A3 e-tron (PHEV)							
tomated M	anual with	paddles)	2-Wheel D	GVGAV01.	15		367	GP	Gasoline (F
tomated M	anual with	paddles)	2-Wheel D	GVGAV01.	15		367	GP	Gasoline (F
		2016 Audi A3 e-tron ultra (PHEV)							
tomated M	anual with	paddles)	2-Wheel D	GVGAV01.	15		412	GP	Gasoline (F
tomated M	anual with	paddles)	2-Wheel D	GVGAV01.	15		412	GP	Gasoline (F

	Vehicle Information							
Fuel Unit	Gas Guzzl	Gas Guzzl	2Dr Pass V	2Dr Lugg V	4Dr Pass V	4Dr Lugg V	Htchbk Pa	Htchbk Lu
					2016 Audi A3 e-tron (PHEV)			
MPG	Unleaded Recommended)	Not exempt				89		14
MPG	Unleaded Recommended)	Not exempt				89		14
					2016 Audi A3 e-tron ultra (PHEV)			
MPG	Unleaded Recommended)	Not exempt				89		14
MPG	Unleaded Recommended)	Not exempt				89		14

Ann Fuel Cost		Mfr Comm	Charge Depleting Information (Electricity Operation)						
Annual Fu	EPA Calcu	Comment	City2 FE (I	Hwy2 Fue	Comb2 Fu	Low'd City	Low'd Hw	Low'd Cor	City2 Una
1200	1200	corrections	42	39	40				29.2
1200	1200	corrections	81	86	83				114.96
1050	750	composite	39	38	38				27.3
1050	1250	composite	86	87	86				122.52

Charge Depleting Information (Electricity Operation)

Hwy2	Cmb2	UCity2	UHwy2	Unrd Hwy2	Unrd Cmb2	Unrd Range2	Fuel2 Usa	Fuel2 Usa	Fuel2 Unit	Fuel2 Unit
				2016 Audi A3 e-tron (PHEV)						
29.9	29.515	41.7	39.1	40	16	EL	Electricity	KW-HR/10	kilowatt-h	
123	118.44	80.7	86.1	83	16	EL	Electricity	MPG	miles per g	
				2016 Audi A3 e-tron ultra (PHEV)						
29.8	28.4	38.9	38	38	17	EL	Electricity	KW-HR/10	kilowatt-h	
123.63	123.02	86.2	86.5	86	17	EL	Electricity	MPG	miles per g	

Alternative Fuel				General Information				
Fuel2 AltCity	CO2 I	Hwy CO2	Comb CO	Fuel2 EPA	Descripto	Intake Val	Exhaust V	Carline Cl	Carline Cl
									2016 Audi A3 e-tr
100 miles	1200				SIDI; PHEV	2	2	4	Compact C
	1200				SIDI; PHEV	2	2	4	Compact C
									2016 Audi A3 e-tr
100 miles	1050				SIDI; PHEV	2	2	4	Compact C
	1050				SIDI; PHEV	2	2	4	Compact C

General Information				General Hybrid Vehicle	Information - Engine, Motor/Generator, Battery Informa			
SC Car/Truck	Calc Appr	Sales Release Date	EPA FE Label Datas	Unique La	Label Rec	Relabel	Relabel D	
on (PHEV)								
car	Plug-in Hybrid Label	11/6/2015	19186	Y	N			
car	Plug-in Hybrid Label	11/6/2015	19186	Y	N			
on ultra (PHEV)								
car	Plug-in Hybrid Label	11/6/2015	19187	Y	N			
car	Plug-in Hybrid Label	11/6/2015	19187	Y	N			

Suppress	Police/Em	Comment	Cyl Deact	Cyl Deact	Var Valve	Var Valve	Var Valve	Var Valve	Energy St
					2016 Audi A3 e-tron (PHEV)				
N	N	Engine Coc	N		Y	Electro/Hy	N		Battery(s)
N	N	Engine Coc	N		Y	Electro/Hy	N		Battery(s)
					2016 Audi A3 e-tron ultra (PHEV)				
N	N	Engine Coc	N		Y	Electro/Hy	N		Battery(s)
N	N	Engine Coc	N		Y	Electro/Hy	N		Battery(s)

evice Desc	Energy St	# Batteries	Battery Ty	Battery Ty	Total Volt	Batt Ener	Batt Spec	Batt Char	Comment	# Capacit
		1	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		1	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		1	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		
		1	Lithium Ion		350	8800	70.4	Both On-Board and Off-Board		

General Hybrid Vehicle Information - Engine, Motor/Generator, Battery Information, etc.

Regen Bra	Regen Bra	Regen Bra	Driver Cnt	Fuel Cell I	Usable H2	Fuel Cell (	HEV-EV C	# Drive Mc	Motor Ger
2016 Audi A3 e-tron (PHEV)									
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M
2016 Audi A3 e-tron ultra (PHEV)									
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M
Electrical Regen Brake	Front Whe	Y						1	DC Permanent M

Motor Ger	Rated Mot	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Cell V	Off Board	Camless V	Oil Viscosi
									2016 Audi A3 e-tr
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW
									2016 Audi A3 e-tr
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW
agnet, brushless	80		GDI	Spark Ignit	N	Y	N		5W40 VW

Stop/Start	Stop/Start	Trans in FE	Trans as I	Model Typ	Charge De	Charge De	Charge Su	Charge Su	EPA Calcul
on (PHEV)									
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C			Charge Sustaining 2-cycle
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C			Charge Sustaining 2-cycle
on ultra (PHEV)									
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C			Charge Sustaining 2-cycle
Y	Yes	Auto(AM-S	Auto(AM-S6)	CD-2C	Charge De	CS-2C			Charge Sustaining 2-cycle

		FE & GHG Ratings		#1 Smog Rating Test Group		
[illegible]	EPA Calculated Gas G	FE Rating	GHG Ratin	#1 Smog R	#1 Mfr Sm	#1 EPA Sm SmartWay
		2016 Audi A3 e-tron (PHEV)				
47		9	10	GVGAV01.	8	
47		9	10	GVGAV01.	8	
		2016 Audi A3 e-tron ultra (PHEV)				
53.4		10	10	GVGAV01.	8	
53.4		10	10	GVGAV01.	8	

#2 Smog Rating Test Group				#3 Smog Rating Test Group				#4 Smog Rating Test Group	
[illegible]	[illegible]	[illegible]	[illegible]	#3 Smog R	#3 Mfr Sm	#3 EPA Sm	SmartWay	#4 Smog R	#4 Mfr Sm
									2016 Audi A3 e-tr
									2016 Audi A3 e-tr

Smog Rating Test Group	You Save/You Spend	Adjusted Gasoline CO2			Voluntarily Increased CO2		
[illegible]	You Save$ You Spend	City CO2 R	Hwy CO2 R	Comb CO2	CO2- Volu	CO2- Volu	CO2-Vol In
on (PHEV)							
	3000	0	0	0			
	3000	270	242	257			
on ultra (PHEV)							
	3750	0	0	0			
	3750	240	214	228			

Unadjusted Gasoline CO2			Adjusted Gasoline CO2			PHEV	Battery Charge Time	PHEV Total Range
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	240V Char	120V Char	PHEV Tota
					2016 Audi A3 e-tron (PHEV)			
0	0	0	0	0	0	158	2.5	380
204	171	189.2	270	242	257	158	2.5	380
					2016 Audi A3 e-tron ultra (PHEV)			
0	0	0	0	0	0	138	2.5	430
179	150	165.9	240	214	228	138	2.5	430

PHEV Composite MPGe				Combined Fuel Consumpt (gal/100mi)		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
42	47	44	Y	2.9	2.9	
42	47	44	Y	2.9	2.9	
48	51	49	Y	0	0	
48	51	49	Y	2.6	2.6	

[redacted]EPA_UNRD

2016 Audi A3 e-tron (PHEV)

2016 Audi A3 e-tron ultra (PHEV)

EPA_UNR EPA_UNR EPA_UNR EPA_UNR EPA_ADJ EPA_PHEV Label Subr GHG 1-10 rating on Ethanol (EPA Deter

Mr Richard E Thomas Jr
Mr Richard E Thomas Jr

Mr Richard E Thomas Jr
Mr Richarc 10

mined)

EPA comm	VERIFY cc	Model Yr (Mfr Name	Division (t	Carline	Verify Mfr	Index (Mo	Eng Displ	# Cyl
		2016 Volkswage	Audi	A3	VGA	36	1.8	4
		2016 Volkswage	Audi	A3 Cabriol	VGA	37	1.8	4
		2016 Volkswage	Audi	A3 Cabriol	VGA	39	2.0	4
		2016 Volkswage	Audi	A3 quattro	VGA	38	2.0	4
		2016 Volkswage	Audi	A4	VGA	51	2.0	4
		2016 Volkswage	Audi	A4 quattro	VGA	33	2.0	4
		2016 Volkswage	Audi	A4 quattro	VGA	49	2.0	4
		2016 Volkswage	Audi	A5 Cabriol	VGA	35	2.0	4
		2016 Volkswage	Audi	A5 quattro	VGA	34	2.0	4
		2016 Volkswage	Audi	A5 quattro	VGA	50	2.0	4
		2016 Volkswage	Audi	A6	VGA	16	2.0	4
		2016 Volkswage	Audi	A6 quattro	VGA	15	2.0	4
		2016 Volkswage	Audi	A6 quattro	VGA	2	3.0	6
Diesel;		2016 Volkswage	Audi	A6 quattro	VGA	3	3.0	6
		2016 Volkswage	Audi	A7 quattro	VGA	1	3.0	6
Diesel;		2016 Volkswage	Audi	A7 quattro	VGA	4	3.0	6
Diesel;		2016 Volkswage	Audi	A8L	VGA	26	3.0	6
		2016 Volkswage	Audi	A8L	VGA	25	3.0	6
		2016 Volkswage	Audi	A8L	VGA	9	4.0	8
		2016 Volkswage	Audi	A8L	VGA	66	6.3	12
		2016 Volkswage	Audi	allroad qua	VGA	32	2.0	4
		2016 Volkswage	Audi	Q3	VGA	53	2.0	4
		2016 Volkswage	Audi	Q3 quattro	VGA	54	2.0	4
		2016 Volkswage	Audi	Q5	VGA	31	2.0	4
Diesel;		2016 Volkswage	Audi	Q5	VGA	27	3.0	6
		2016 Volkswage	Audi	Q5	VGA	47	3.0	6
Hybrid;		2016 Volkswage	Audi	Q5 Hybrid	VGA	62	2.0	4
		2016 Volkswage	Audi	RS7	VGA	12	4.0	8
		2016 Volkswage	Audi	S3	VGA	55	2.0	4
		2016 Volkswage	Audi	S4	VGA	42	3.0	6
		2016 Volkswage	Audi	S4	VGA	45	3.0	6
		2016 Volkswage	Audi	S5	VGA	43	3.0	6
		2016 Volkswage	Audi	S5	VGA	46	3.0	6
		2016 Volkswage	Audi	S5 Cabriole	VGA	44	3.0	6
		2016 Volkswage	Audi	S6	VGA	14	4.0	8
		2016 Volkswage	Audi	S7	VGA	13	4.0	8
Relabeled. Please include in 2016		2016 Volkswage	Audi	S8	VGA	11	4.0	8
		2016 Volkswage	Audi	SQ5	VGA	48	3.0	6
		2016 Volkswage	Audi	TT Coupe c	VGA	60	2.0	4
		2016 Volkswage	Audi	TT Roadste	VGA	61	2.0	4
		2016 Volkswage	Audi	TTS Coupe	VGA	52	2.0	4
		2016 Volkswage	Bentley	Continenta	VGA	6	4.0	8
		2016 Volkswage	Bentley	Continenta	VGA	28	6.0	12
		2016 Volkswage	Bentley	Continenta	VGA	7	4.0	8

	2016	Volkswage	Bentley	Continenta	VGA	30	6.0	12
	2016	Volkswage	Bentley	Flying Spur	VGA	8	4.0	8
	2016	Volkswage	Bentley	Flying Spur	VGA	29	6.0	12
	2016	Volkswage	Bentley	Mulsanne	VGA	5	6.8	8
	2016	Volkswage	Lamborghi	Aventador	VGA	17	6.5	12
	2016	Volkswage	Lamborghi	Aventador	VGA	18	6.5	12
	2016	Volkswage	Lamborghi	Huracan	VGA	87	5.2	10
Suppressed by EPA from FE2016	2016	Volkswage	Lamborghi	Huracan Sp	VGA	88	5.2	10
	2016	Volkswage	Volkswage	Beetle	VGA	71	1.8	4
	2016	Volkswage	Volkswage	Beetle	VGA	74	1.8	4
	2016	Volkswage	Volkswage	Beetle	VGA	82	2.0	4
	2016	Volkswage	Volkswage	Beetle	VGA	79	2.0	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	72	1.8	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	77	2.0	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	80	2.0	4
	2016	Volkswage	Volkswage	CC	VGA	63	2.0	4
	2016	Volkswage	Volkswage	CC	VGA	64	2.0	4
	2016	Volkswage	Volkswage	CC 4Motio	VGA	68	3.6	6
	2016	Volkswage	Volkswage	Eos	VGA	65	2.0	4
	2016	Volkswage	Volkswage	Golf	VGA	58	1.8	4
	2016	Volkswage	Volkswage	Golf	VGA	59	1.8	4
Relabeled. Please include in 16	2016	Volkswage	Volkswage	Golf R	VGA	22	2.0	4
	2016	Volkswage	Volkswage	Golf R	VGA	23	2.0	4
	2016	Volkswage	Volkswage	Golf Sport\	VGA	56	1.8	4
	2016	Volkswage	Volkswage	Golf Sport\	VGA	57	1.8	4
	2016	Volkswage	Volkswage	GTI	VGA	40	2.0	4
	2016	Volkswage	Volkswage	GTI	VGA	41	2.0	4
	2016	Volkswage	Volkswage	Jetta	VGA	85	1.4	4
	2016	Volkswage	Volkswage	Jetta	VGA	100	1.4	4
	2016	Volkswage	Volkswage	Jetta	VGA	70	1.8	4
	2016	Volkswage	Volkswage	Jetta	VGA	73	1.8	4
	2016	Volkswage	Volkswage	Jetta	VGA	76	2.0	4
	2016	Volkswage	Volkswage	Jetta	VGA	78	2.0	4
Hybrid;	2016	Volkswage	Volkswage	Jetta Hybri	VGA	83	1.4	4
	2016	Volkswage	Volkswage	Passat	VGA	81	1.8	4
	2016	Volkswage	Volkswage	Passat	VGA	67	3.6	6
	2016	Volkswage	Volkswage	Tiguan	VGA	21	2.0	4
	2016	Volkswage	Volkswage	Tiguan 4M	VGA	20	2.0	4
Diesel;	2016	Volkswage	Volkswage	Touareg	VGA	19	3.0	6
	2016	Volkswage	Volkswage	Touareg	VGA	69	3.6	6

Transmiss	City FE (G	Hwy FE (C	Comb FE	Low'd City	Low'd HW	Low'd Cor	City Unad	Hwy Unad	Comb Una
Auto(AM-S	23	33	27				28.9	46.6	34.858
Auto(AM-S	24	35	28				30.5	47	36.2224
Auto(AM-S	23	32	26				29	44.2	34.3094
Auto(AM-S	24	33	27				30	44.6	35.1828
Auto(AV-S	24	31	27				30.3	44.6	35.4089
Auto(S8)	21	30	25				27.1	42.2	32.3011
Manual(M	22	32	26				27.6526	43.9914	33.2017
Auto(S8)	21	29	24				26.4	41	31.4377
Auto(S8)	21	30	25				27.1	42.2	32.3011
Manual(M	22	32	26				27.6526	43.9914	33.2017
Auto(AM-S	24	35	28				31.2269	48.8	37.2657
Auto(S8)	22	32	26				27.8348	45.5	33.7274
Auto(S8)	20	30	24				25.6	41.9	31.0325
Auto(S8)	25	38	30				31.1687	52.7	38.1901
Auto(S8)	20	30	24				25.6	41.9	31.0325
Auto(S8)	25	38	30				31.1687	52.7	38.1901
Auto(S8)	24	36	28				29.9399	51.4	36.8664
Auto(S8)	19	29	22				23.5657	39.6	28.8162
Auto(S8)	18	29	22				22.278	39.1	27.6266
Auto(S8)	14	22	17				17.2	28.6	20.9595
Auto(S8)	21	28	24				26.7	39.2	31.1732
Auto(S6)	20	29	23				24.8499	40	29.9555
Auto(S6)	20	28	23				24.8	38.5	29.5284
Auto(S8)	20	28	23				24.8	38.6	29.5548
Auto(S8)	24	31	27				29.1832	44.1	34.4228
Auto(S8)	18	26	21				22.8446	35.5	27.2096
Auto(S8)	24	30	26				30.4	39.9	34.048
Auto(S8)	15	25	18				17.8763	33.1799	22.5584
Auto(AM-S	23	31	26				28.5	41.5	33.1767
Auto(AM-S	18	28	21				22.4	35.8	26.9372
Manual(M	17	26	20				20	33.4	24.4063
Auto(AM-S	18	28	21				22.4	35.8	26.9372
Manual(M	17	26	20				20	33.4	24.4063
Auto(AM-S	18	26	21				22.1	34.7	26.4165
Auto(AM-S	18	27	21				21.9777	36.8	26.843
Auto(AM-S	17	27	21				21.7499	37.3	26.7724
Auto(S8)	16	26	20				19.8464	35.1318	24.6781
Auto(S8)	17	24	19				20.8	32.9	24.9252
Auto(AM-S	23	30	26				28.8051	41.9128	33.5228
Auto(AM-S	23	30	26				28.8051	41.9128	33.5228
Auto(AM-S	23	27	25				28.2	38	31.9024
Auto(S8)	15	25	19				19.1	33.5	23.6806
Auto(S8)	12	21	15				15.4	28.3	19.3741
Auto(S8)	14	24	17				17.3	31.8	21.7662

vided), §600.314-08 states label values must not change for entire model year, except for §600.507(a) and §600.314-0

Auto(S8)	12	20	15	14.4	26.7	18.1658
Auto(S8)	14	24	17	17.3	31.8	21.7662
Auto(S8)	12	20	15	14.4	26.7	18.1658
Auto(S8)	11	18	13	13.6993	24.8	17.1546
Auto(AM-S	11	18	13	12.6	25.2	16.2581
Auto(AM-S	10	17	12	11.7313	21.9881	14.8481
Auto(AM-S	14	21	17	17.3	27	20.6362
Auto(AM-S	14	20	16	17	26.4	20.2436
Auto(S6)	25	34	28	31.4714	47.6267	37.1407
Manual(M	25	34	28	31.76	47.8	37.4089
Auto(AM-S	24	31	27	30.4602	44.2	35.4141
Manual(M	23	31	26	28.5453	43.3257	33.7222
Auto(S6)	25	34	28	31.4714	47.6267	37.1407
Auto(AM-S	23	31	26	29.1428	43.2697	34.1618
Manual(M	23	31	26	28.5453	43.3257	33.7222
Auto(AM-S	22	31	25	26.9721	42.4615	32.2692
Manual(M	21	32	25	25.7082	43.8369	31.5863
Auto(S6)	17	25	20	20.5	33.5	24.8373
Auto(AM-S	22	30	25	27.5	41.5	32.4219
Auto(S6)	25	36	29	32.5	51.1	38.8661
Manual(M	25	37	30	32.6	52.5	39.3042
Auto(AM-S	23	30	25	28.1	40.6	32.6193
Manual(M	22	31	25	26.5	39.7	31.1626
Auto(S6)	25	35	29	32.7	49.4	38.567
Manual(M	25	36	29	31.7	50.5	38.0792
Auto(AM-S	25	33	28	30.7	45.3	35.9078
Manual(M	25	34	28	30	46.4	35.674
Auto(S6)	28	39	32	36.4	58.1	43.7538
Manual(M	28	40	33	37.3	59.4	44.8007
Auto(S6)	25	36	29	32.6424	51.503	39.083
Manual(M	25	37	29	32.2552	52.1	38.9275
Auto(AM-S	24	33	27	30.639	47.1	36.3569
Manual(M	23	33	27	28.8819	46.678	34.8632
Auto(AM-S	42	48	44	57.5	65.3	60.7663
Auto(S6)	25	38	29	32.1277	53.336	39.1294
Auto(AM-S	20	28	23	23.9	37.3	28.5088
Auto(S6)	21	26	23	25.9873	36.0386	29.7169
Auto(S6)	20	26	23	25.7782	36.0407	29.5668
Auto(S8)	21	29	24	25.3	41	30.5673
Auto(S8)	17	23	19	21.3	31.6	24.9612

vided), §600.314-08 states label values must not change for entire model year, except for 600.507(a) and 600.314-0

City Unrd	Hwy Unrd	Comb Unr	Guzzler?	Air Aspir I	Air Aspira	Trans	Trans Des	Trans, Otl	# Gears
23.4556	33.3421	27.0673		TC	Turbochar	AMS	Automated Manual- Selectable	6	
24.3444	34.5845	28.0867		TC	Turbochar	AMS	Automated Manual- Selectable	6	
23.312	31.5429	26.4136		TC	Turbochar	AMS	Automated Manual- Selectable	6	
24.0818	32.6198	27.297		TC	Turbochar	AMS	Automated Manual- Selectable	6	
23.7847	30.8933	26.532		TC	Turbochar	SCV	Selectable Continuously Variable		8
21.3584	30.0427	24.5522		TC	Turbochar	SA	Semi-Automatic		8
22.2613	32.093	25.8209		TC	Turbochar	M	Manual		6
20.8442	29.2228	23.9319		TC	Turbochar	SA	Semi-Automatic		8
21.3584	30.0427	24.5522		TC	Turbochar	SA	Semi-Automatic		8
22.2613	32.093	25.8209		TC	Turbochar	M	Manual		6
24.3335	34.5182	28.059		TC	Turbochar	AMS	Automated Manual- Selectable	7	
21.8708	32.2876	25.5853		TC	Turbochar	SA	Semi-Automatic		8
20.2543	29.8379	23.6763		SC	Supercha	SA	Semi-Automatic		8
25.2158	37.5811	29.5982		TC	Turbochar	SA	Semi-Automatic		8
20.2543	29.8379	23.6763		SC	Supercha	SA	Semi-Automatic		8
25.2158	37.5811	29.5982		TC	Turbochar	SA	Semi-Automatic		8
23.8727	36.3252	28.2271		TC	Turbochar	SA	Semi-Automatic		8
18.6853	29.3211	22.3303		SC	Supercha	SA	Semi-Automatic		8
17.9485	28.5015	21.5369		TC	Turbochar	SA	Semi-Automatic		8
13.8358	21.9706	16.602	G	NA	Naturally A	SA	Semi-Automatic		8
21.0646	27.9892	23.7037		TC	Turbochar	SA	Semi-Automatic		8
19.6619	28.538	22.8617		TC	Turbochar	SA	Semi-Automatic		6
19.7028	28.0105	22.7375		TC	Turbochar	SA	Semi-Automatic		6
19.6619	27.5771	22.5781		TC	Turbochar	SA	Semi-Automatic		8
23.6286	31.3636	26.5783		TC	Turbochar	SA	Semi-Automatic		8
17.8443	25.5746	20.6536		SC	Supercha	SA	Semi-Automatic		8
24.0075	29.7936	26.3065		TC	Turbochar	SA	Semi-Automatic		8
14.521	25.1577	17.9329		TC	Turbochar	SA	Semi-Automatic		8
23.1833	30.7065	26.056		TC	Turbochar	AMS	Automated Manual- Selectable	6	
18.117	27.558	21.419		SC	Supercha	AMS	Automated Manual- Selectable	7	
17.0438	26.023	20.1767		SC	Supercha	M	Manual		6
18.117	27.558	21.419		SC	Supercha	AMS	Automated Manual- Selectable	7	
17.0438	26.023	20.1767		SC	Supercha	M	Manual		6
17.6699	25.953	20.6333		SC	Supercha	AMS	Automated Manual- Selectable	7	
17.7328	26.6352	20.8721		TC	Turbochar	AMS	Automated Manual- Selectable	7	
17.4937	26.7312	20.715		TC	Turbochar	AMS	Automated Manual- Selectable	7	
16.1859	26.2858	19.9672		TC	Turbochar	SA	Semi-Automatic		8
16.7285	23.6581	19.2682		SC	Supercha	SA	Semi-Automatic		8
23.3039	30.3915	26.0363		TC	Turbochar	AMS	Automated Manual- Selectable	6	
23.3039	30.3915	26.0363		TC	Turbochar	AMS	Automated Manual- Selectable	6	
22.8034	27.3644	24.6524		TC	Turbochar	AMS	Automated Manual- Selectable	6	
15.2087	25.3816	18.5553		TC	Turbochar	SA	Semi-Automatic		8
12.4737	21.0866	15.2827	G	TC	Turbochar	SA	Semi-Automatic		8
13.819	23.8488	17.0447	G	TC	Turbochar	SA	Semi-Automatic		8

8(e)(4) reasons]. Please revise release date to the effective date when vehicles were relabeled;

12.0228	20.0478	14.6643	G	TC	Turbochar¡SA	Semi-Automatic 8
13.819	23.8488	17.0447	G	TC	Turbochar¡SA	Semi-Automatic 8
12.0228	20.0478	14.6643	G	TC	Turbochar¡SA	Semi-Automatic 8
11.1823	17.9616	13.4701	G	TC	Turbochar¡SA	Semi-Automatic 8
10.6055	18.4729	13.1199	G	NA	Naturally ASAMS	Automated Manual- Selectable7
9.9676	16.7	12.1766	G	NA	Naturally ASAMS	Automated Manual- Selectable7
14.318	20.6311	16.6044	G	NA	Naturally ASAMS	Automated Manual- Selectable7
13.9274	19.9987	16.1311	G	NA	Naturally ASAMS	Automated Manual- Selectable7
24.5488	33.7087	27.9689		TC	Turbochar¡SA	Semi-Automatic 6
24.7637	33.8438	28.164		TC	Turbochar¡M	Manual 5
23.83	31.405	26.7315		TC	Turbochar¡AMS	Automated Manual- Selectable6
23.0368	30.5347	25.8985		TC	Turbochar¡M	Manual 6
24.5488	33.7087	27.9689		TC	Turbochar¡SA	Semi-Automatic 6
22.8175	30.7926	25.8277		TC	Turbochar¡AMS	Automated Manual- Selectable6
23.0368	30.5347	25.8985		TC	Turbochar¡M	Manual 6
21.8736	31.0153	25.2185		TC	Turbochar¡AMS	Automated Manual- Selectable6
20.7831	31.7504	24.6082		TC	Turbochar¡M	Manual 6
16.9415	25.219	19.8774		NA	Naturally ASA	Semi-Automatic 6
21.7634	30.1121	24.8658		TC	Turbochar¡AMS	Automated Manual- Selectable6
25.264	36.0643	29.1989		TC	Turbochar¡SA	Semi-Automatic 6
25.3353	37.0021	29.5244		TC	Turbochar¡M	Manual 5
22.6857	29.0622	25.5705		TC	Turbochar¡AMS	Automated Manual- Selectable6
21.6528	30.5249	24.911		TC	Turbochar¡M	Manual 6
25.4066	34.9222	28.9572		TC	Turbochar¡SA	Semi-Automatic 6
24.6921	35.6616	28.6591		TC	Turbochar¡M	Manual 5
24.6434	32.6158	27.6891		TC	Turbochar¡AMS	Automated Manual- Selectable6
24.9095	34.2917	28.407		TC	Turbochar¡M	Manual 6
27.8072	39.2595	32.009		TC	Turbochar¡SA	Semi-Automatic 6
28.4148	40.0257	32.681		TC	Turbochar¡M	Manual 5
25.3353	36.3325	29.3303		TC	Turbochar¡SA	Semi-Automatic 6
25.1212	36.7344	29.2878		TC	Turbochar¡M	Manual 5
23.902	33.3709	27.4007		TC	Turbochar¡AMS	Automated Manual- Selectable6
23.1336	32.7327	26.6506		TC	Turbochar¡M	Manual 6
41.5773	48.2766	44.3466		TC	Turbochar¡AMS	Automated Manual- Selectable7
24.9783	37.5368	29.4054		TC	Turbochar¡SA	Semi-Automatic 6
19.7174	27.8048	22.6868		NA	Naturally ASAMS	Automated Manual- Selectable6
20.5496	25.7855	22.6161		TC	Turbochar¡SA	Semi-Automatic 6
20.3859	25.8136	22.5164		TC	Turbochar¡SA	Semi-Automatic 6
20.799	28.6879	23.7363		TC	Turbochar¡SA	Semi-Automatic 8
17.0411	22.7325	19.2048		NA	Naturally ASA	Semi-Automatic 8

8(e)(4) reasons] Please revise release date to the effective date when vehicles were relabeled.

Lockup Tc	Trans Cre	Drive Sys	Drive Des	Primary B	Max Ethar	Max Biodi	Range1 - I	Fuel Usag	Fuel Usag
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
MT with pad	dles)	F	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		422	GP	Gasoline (F
N	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		406	GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		422	GP	Gasoline (F
N	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV06.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		406	GP	Gasoline (F
Y	N	F	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		455	GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4		5	DU	Diesel, ultr
Y	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAT02.(	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
N	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
N	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV04.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV06.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F

Y	N	A	All Wheel IGVGAV06.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV04.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV06.	15		GP	Gasoline (F
Y	N	R	2-Wheel DGVGAV06.	15		GP	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV06.	15		GPR	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV06.	15		GPR	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV05.	15		GP	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV05.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
N	N	F	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV03.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	A	paddles) All Wheel IGVGAV02.	15		GP	Gasoline (F
N	N	A	All Wheel IGVGAV02.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV01.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV01.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV01.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	F	paddles) 2-Wheel DGVGAV03.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAT03.0NU2		5	DU	Diesel, ultr
Y	N	A	All Wheel IGVGAT03.(	15		G	Gasoline (F

Fuel Unit	Fuel Unit	Gas Guzz	Gas Guzz	2Dr Pass	2Dr Lugg	4Dr Pass	4Dr Lugg	Htchbk Pa	Htchbk Lu
MPG	miles per gal	Unleaded Recommended)	Not exempt			86	12		
MPG	miles per gal	Unleaded Recommended)	Not exempt	79	10				
MPG	miles per gal	Unleaded Recommended)	Not exempt	79	10				
MPG	miles per gal	Unleaded Recommended)	Not exempt			86	10		
MPG	miles per gal	Unleaded Recommended)	Not exempt			91	12		
MPG	miles per gal	Unleaded Recommended)	Not exempt			91	12		
MPG	miles per gal	Unleaded Recommended)	Not exempt			91	12		
MPG	miles per gal	Unleaded Recommended)	Not exempt	81	10				
MPG	miles per gal	Unleaded Recommended)	Not exempt	84	12				
MPG	miles per gal	Unleaded Recommended)	Not exempt	84	12				
MPG	miles per gal	Unleaded Recommended)	Not exempt			98	16		
MPG	miles per gal	Unleaded Recommended)	Not exempt			98	16		
MPG	miles per gal	Unleaded Recommended)	Not exempt			98	16		
MPG	miles per gal	ulfur (15 ppm maximum)	Not exempt			98	16		
MPG	miles per gal	Unleaded Recommended)	Not exempt					94	25
MPG	miles per gal	ulfur (15 ppm maximum)	Not exempt					94	25
MPG	miles per gal	ulfur (15 ppm maximum)	Not exempt			107	15		
MPG	miles per gal	Unleaded Recommended)	Not exempt			107	15		
MPG	miles per gal	Unleaded Recommended)	Not exempt			107	15		
MPG	miles per gal	Unleaded Recommended)	Not exempt			107	15		
MPG	miles per gal	Unleaded Recommended)	Not exempt			90	28		
MPG	miles per gal	Unleaded Recommended)	Not exempt					84	17
MPG	miles per gal	Unleaded Recommended)	Not exempt					84	17
MPG	miles per gal	Unleaded Recommended)	Truck						
MPG	miles per gal	ulfur (15 ppm maximum)	Truck						
MPG	miles per gal	Unleaded Recommended)	Truck						
MPG	miles per gal	Unleaded Recommended)	Truck						
MPG	miles per gal	Unleaded Recommended)	Not exempt					94	25
MPG	miles per gal	Unleaded Recommended)	Not exempt			86	10		
MPG	miles per gal	Unleaded Recommended)	Not exempt			90	13		
MPG	miles per gal	Unleaded Recommended)	Not exempt			90	13		
MPG	miles per gal	Unleaded Recommended)	Not exempt	84	13				
MPG	miles per gal	Unleaded Recommended)	Not exempt	84	13				
MPG	miles per gal	Unleaded Recommended)	Not exempt	81	10				
MPG	miles per gal	Unleaded Recommended)	Not exempt			98	16		
MPG	miles per gal	Unleaded Recommended)	Not exempt					94	25
MPG	miles per gal	Unleaded Recommended)	Not exempt			100	15		
MPG	miles per gal	Unleaded Recommended)	Truck						
MPG	miles per gal	Unleaded Recommended)	Not exempt	74	13				
MPG	miles per gal	Unleaded Recommended)	Not exempt						
MPG	miles per gal	Unleaded Recommended)	Not exempt	74	13				
MPG	miles per gal	Unleaded Recommended)	Not exempt	89	11				
MPG	miles per gal	Unleaded Recommended)	Not exempt	89	11				
MPG	miles per gal	Unleaded Recommended)	Not exempt	86	7				

Unleaded Recommended)							
MPG	miles per gN	Not exempt	86	7			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	102	13			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	102	13			
Unleaded Recommended)							
MPG	miles per gN	Not exempt			101	11	
Unleaded Required)							
MPG	miles per gN	Not exempt					
Unleaded Required)							
MPG	miles per gN	Not exempt					
Unleaded Recommended)							
MPG	miles per gN	Not exempt					
Unleaded Recommended)							
MPG	miles per gN	Not exempt					
Unleaded Recommended)							
MPG	miles per gN	Not exempt				85	15
Unleaded Recommended)							
MPG	miles per gN	Not exempt				85	15
Unleaded Recommended)							
MPG	miles per gN	Not exempt				85	15
Unleaded Recommended)							
MPG	miles per gN	Not exempt				85	15
Unleaded Recommended)							
MPG	miles per gN	Not exempt	81	7			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	81	7			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	81	7			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	94	13			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	94	13			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	94	13			
Unleaded Recommended)							
MPG	miles per gN	Not exempt	77	11			
Unleaded Recommended)							
MPG	miles per gN	Not exempt				93	16
Unleaded Recommended)							
MPG	miles per gN	Not exempt				93	16
Unleaded Recommended)							
MPG	miles per gN	Not exempt				93	16
Unleaded Recommended)							
MPG	miles per gN	Not exempt				93	16
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	30	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	30	
Unleaded Recommended)							
MPG	miles per gN	Not exempt				93	16
Unleaded Recommended)							
MPG	miles per gN	Not exempt				93	16
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			94	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			102	16	
Unleaded Recommended)							
MPG	miles per gN	Not exempt			102	16	
Unleaded Recommended)							
MPG	miles per gN	Truck					
Unleaded Recommended)							
MPG	miles per gN	Truck					
ulfur (15 ppm maximum)							
MPG	miles per gN	Truck					
Unleaded Recommended)							
MPG	miles per gN	Truck					

Annual Fu	EPA Calcu	Comment	City2 FE (H	Hwy2 Fue	Comb2 Fu	Low'd City	Low'd Hw	Low'd Cor	City2 Una
1650	1650	fuel costs corrected							
1600	1600	fuel costs corrected							
1750	1750	fuel cost corrections							
1650	1650	fuel cost corrections							
1850	1850								
2000	2000		15	22	18				19.5
1900	1900								
2050	2050		15	21	17				19
2000	2000		15	22	18				19.5
1900	1900								
1750	1750								
1900	1900	CO2 unrounded and rounded values corrected, typo. further CO2 corrections							
2050	2050								
1700	1700	release date change,added configuration after EPA confirmatory testing, corrected unadj unr							
2050	2050								
1700	1700	added configuration after EPA confirmatory testing to base level, corrected unadj unrnd com							
1800	1800								
2250	2250								
2250	2250	engine code correction, data sub used							
2900	2900								
2050	2050		15	21	17				19.2
2150	2150								
2150	2150								
2150	2150		14	19	16				17.4
1850	1850	corrected fuel economy rating							
2350	2350								
1900	1900								
2750	2750	50/50 weighting of best and worse (D&S) testing							
1900	1900								
2350	2350								
2500	2500								
2350	2350								
2500	2500								
2350	2350								
2350	2350	corrected typo adj unrounded city CO2 value.							
2350	2350								
2500	2500	voluntary relabeled with addition of 605 HP engine and configuration for the S8 Plus model (S							
2600	2600								
1750	1750	fuel costs correction							
1750	1750	fuel cost correction							
2000	2000								
2600	2600	engine configuration changed to 520 HP = #6, release date changed							
3300	3300	changed to a gasoline fueled label from flex fueled concept. 15% ethanol max							
2900	2900								

3300	3300	this is corrected to drop flex fueled concept for 2016; 15% ethanol max
2900	2900	
3300	3300	this is corrected to drop flex fueled concept for 2016, 15% ethanol max
3800	3800	Vehicle model equipped with cylinder deactivation with a switch. Active and inactive tests av
3800	3800	
4100	4100	corrected ETW with RLHP for SV
2900	2900	release date change
3100	3100	release date change
1600	1600	
1600	1600	5 YR FUEL SAVINGS CORRECTED
1650	1650	release date changed to 8/28, corrected typo rounded CO2 value, corrected unrounded CO2 c
1750	1750	
1600	1600	
1750	1750	release date changed
1750	1750	
2000	2000	
2000	2000	
2250	2250	recommended fuel correction
2000	2000	
1550	1550	fuel costs corrected
1500	1500	
2000	2000	new ETW for automatic
2000	2000	
1550	1550	
1550	1550	
1600	1600	fuel cost correction, 5 year cost correction, add equivalent engine codes data substitution use
1600	1600	fuel cost correction, add equivalent engine codes, data substitution used
1400	1400	
1350	1350	
1550	1550	gal/100 miles corrected
1550	1550	
1650	1650	combined typo unadjusted MPG value corrected, adjusted unrounded CO2 value corrected
1650	1650	adjusted unrounded CO2 values corrected
1100	1100	
1550	1550	release date change to Sept 21st
1950	1950	recommended fuel change correction, release date now Sept 21st
2150	2150	
2150	2150	
2100	2100	
2350	2350	

Hwy2 Unr	Comb2 Cr	Hwy2 Unr	Comb2 Unr	Range2 -	Fuel2 Usa	Fuel2 Usa	Fuel2 Unit	Fuel2 Unit
30.8	23.356	15.3563	21.9111	17.7451	304	E	Ethanol (E	MPG miles per g
30	22.7545	15.0024	21.384	17.3296	287	E	Ethanol (E	MPG miles per g
30.8	23.356	15.3563	21.9111	17.7451	304	E	Ethanol (E	MPG miles per g

nd combined CO2 value

bined CO2

28.8	22.5882	15.1507	20.5603	17.1855	287	E	Ethanol (E	MPG miles per g
27.1	20.7407	13.7947	19.3602	15.8444	317	E	Ethanol (E	MPG miles per g

OP wk45) no new carline.

eraged together at 50/50. Data substitution for engine code with lesser HP.

[redacted]

ity value

d

Alternative Fuel									
Fuel2 AltmCity	CO2 I	Hwy CO2	Comb CO	Fuel2 EPA	Descripto	Intake Val	Exhaust V	Carline Cl	Carline Cl
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
2150	400	281	347	2150	SIDI; FFV;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
2300	410	288	355	2300	SIDI; FFV;	2	2	3	Subcompa
2150	400	281	347	2150	SIDI; FFV;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
						2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
						2	2	5	Midsize Ca
						2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
2300	406	300	358	2300	SIDI; FFV;	2	2	7	Small Stati
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
2450	450	320	392	2450	SIDI; FFV;	2	2	31	Small SUV 4WD
						2	2	31	Small SUV 4WD
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
					SIDI; Unde	2	2	5	Midsize Ca
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	1	Two Seate
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
						2	2	4	Compact C
					SIDI;	2	2	3	Subcompa

	2	2	3	Subcompa
SIDI;	2	2	5	Midsize Ca
	2	2	5	Midsize Ca
	1	1	5	Midsize Ca
	2	2	1	Two Seate
	2	2	1	Two Seate
SIDI & PFI;	2	2	1	Two Seate
SIDI & PFI;	2	2	1	Two Seate
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	3	Subcompa
SIDI;	2	2	3	Subcompa
SIDI;	2	2	3	Subcompa
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	3	Subcompa
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI; Unde	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	7	Small Stati
SIDI;	2	2	7	Small Stati
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	4	Compact C
SIDI;	2	2	5	Midsize Ca
SIDI;	2	2	5	Midsize Ca
SIDI;	2	2	30	Small SUV 2WD
SIDI;	2	2	31	Small SUV 4WD
	2	2	33	Standard SUV 4W
SIDI;	2	2	33	Standard SUV 4W

SC	Car/Truck	Calc Appr	Sales	Release D	EPA FE Label Dataset	Unique La	Label Rec	Relabel	Relabel D
	car	Vehicle Specific 5-cycle	6/22/2015	18159		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18160		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18162		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18161		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18128		N	N		
	car	Derived 5-cycle label	6/22/2015	18103		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18121		N	N		
	car	Derived 5-cycle label	6/22/2015	18105		N	N		
	car	Derived 5-cycle label	6/22/2015	18104		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18122		N	N		
	car	Vehicle Specific 5-cycle	3/23/2015	17682		N	N		
	car	Derived 5-cycle label	3/23/2015	17714		N	N		
	car	Derived 5-cycle label	1/8/2015	17475		N	N		
	car	Vehicle Specific 5-cycle	3/30/2015	17658		N	N		
	car	Derived 5-cycle label	1/8/2015	17474		N	N		
	car	Vehicle Specific 5-cycle	3/30/2015	17659		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18062		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18055		N	N		
	car	Vehicle Specific 5-cycle	1/8/2015	17744		N	N		
	car	Vehicle Specific 5-cycle	7/13/2015	18361		N	N		
ons	car	Derived 5-cycle label	6/22/2015	18102		N	N		
	car	Derived 5-cycle label	6/22/2015	18130		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18131		N	N		
		Derived 5-cycle label	6/22/2015	18101		N	N		
		Vehicle Specific 5-cycle	6/22/2015	18088		N	N		
		Vehicle Specific 5-cycle	6/22/2015	18118		N	N		
		Vehicle Specific 5-cycle	6/22/2015	18216		N	N		
	car	Vehicle Specific 5-cycle	1/8/2015	17565		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18132		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18113		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18116		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18114		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18117		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18115		N	N		
	car	Vehicle Specific 5-cycle	3/23/2015	17715		N	N		
	car	Vehicle Specific 5-cycle	3/23/2015	17657		N	N		
el	economy label values on Previous Values were XX MPG city, XX MPG highway, and XX MPG combined;								
		Vehicle Specific 5-cycle	6/22/2015	18120		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18213		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18212		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18129		N	N		
	car	Vehicle Specific 5-cycle	5/25/2015	17559		N	N		
	car	Vehicle Specific 5-cycle	7/20/2015	18239		N	N		
	car	Vehicle Specific 5-cycle	5/25/2015	17560		N	N		

car	Vehicle Specific 5-cycle label	7/20/2015	18241		N	N	
car	Vehicle Specific 5-cycle label	5/25/2015	17561		N	N	
car	Vehicle Specific 5-cycle label	6/15/2015	18240		N	N	
car	Derived 5-cycle label	1/14/2015	17486		N	N	
car	Vehicle Specific 5-cycle label	5/1/2015	17766		N	N	
car	Vehicle Specific 5-cycle label	5/1/2015	17787		N	N	
car	Vehicle Specific 5-cycle label	9/14/2015	18710		N	N	
car	Vehicle Specific 5-cycle label	3/14/2016	18711		N	N	
car	Derived 5-cycle label	7/20/2015	18391		N	N	
car	Derived 5-cycle label	7/20/2015	18461		N	N	
car	Derived 5-cycle label	9/2/2015	18981		N	N	
car	Vehicle Specific 5-cycle label	7/20/2015	18398		N	N	
car	Derived 5-cycle label	7/20/2015	18392		N	N	
car	Vehicle Specific 5-cycle label	7/27/2015	18576		N	N	
car	Vehicle Specific 5-cycle label	7/20/2015	18399		N	N	
car	Vehicle Specific 5-cycle label	7/13/2015	18217		N	N	
car	Vehicle Specific 5-cycle label	7/13/2015	18218		N	N	
car	Vehicle Specific 5-cycle label	7/13/2015	18370		N	N	
car	Vehicle Specific 5-cycle label	7/13/2015	18307		N	N	
car	Derived 5-cycle label	7/13/2015	18183		N	N	
car	Derived 5-cycle label	7/13/2015	18185		N	N	
el economy label values on Previous values were XX MPG city, XX MPG highway, and XX MPG combined;							
car	Vehicle Specific 5-cycle label	6/22/2015	18134		N	N	
ons	Derived 5-cycle label	7/13/2015	18176		N	N	
ons	Derived 5-cycle label	7/13/2015	18179		N	N	
car	Vehicle Specific 5-cycle label	7/13/2015	18365		N	N	
car	Vehicle Specific 5-cycle label	7/13/2015	18366		N	N	
car	Derived 5-cycle label	8/17/2015	18665		N	N	
car	Derived 5-cycle label	10/26/2015	18905		N	N	
car	Derived 5-cycle label	7/20/2015	18462		N	N	
car	Derived 5-cycle label	7/30/2015	18714		N	N	
car	Derived 5-cycle label	7/20/2015	18570		N	N	
car	Vehicle Specific 5-cycle label	7/20/2015	18464		N	N	
car	Vehicle Specific 5-cycle label	8/17/2015	18676		N	N	
car	Derived 5-cycle label	9/21/2015	19016		N	N	
car	Vehicle Specific 5-cycle label	9/21/2015	19015		N	N	
	Derived 5-cycle label	7/13/2015	18215		N	N	
	Derived 5-cycle label	7/13/2015	18214		N	N	
D	Vehicle Specific 5-cycle label	7/13/2015	17922		N	N	
D	Derived 5-cycle label	7/27/2015	18591		N	N	

Suppress	Police/Em	Comment	Cyl Deact	Cyl Deact	Var Valve	Var Valve	Var Valve	Var Valve	Energy St
N	N	1.8L Engin	N		Y	CONTINUC	N		
N	N	1.8L Engin	N		Y	CONTINUC	N		
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	Electro/Hy	Y	Audi Valve System	
N	N	Engine Coc	N		Y	Electro/Hy	Y	Audi Valve System	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	N			N		N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	N			N		N		
N	N	N			N		N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	12 to 6 cyli	Y	Intake and	N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			N		N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVBattery(s)	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	CONTINUC	Y	Audi Valve System - Exhaust	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
ne decreased	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	INLET AND	N		
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	

N	N	Engine Coc	N	Y	INLET AND	N
N	N	Engine Coc	Y	Deactivatic	Y	Continuou Y Multi-lobe Int/Exh cam desig
N	N	Engine Coc	N	Y	INLET AND	N
N	N	Engine cod	Y	Cylinder d	Y	Variation c N
N	N	Engine Coc	Y	ELECTRON	Y	HYDRAULI N
N	N	Engine Coc	Y	ELECTRON	Y	HYDRAULI N
N	N	ENGINE CC	Y	Soft COD. !	Y	INLET AND Y Fixed 1: One Setting of Valve
Y	N	ENGINE CC	Y	Soft COD. !	Y	INLET AND Y Fixed 1: One Setting of Valve
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	N		Y	position of	N
N	N	N		Y	position of	N
N	N	N		Y	position of	N
N	N	N		Y	CONTINUC	N
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	Engine Coc	N	Y	CONTINUC	Y Audi Valve System - Exhaust
N	N	Engine Coc	N	Y	CONTINUC	Y Audi Valve System - Exhaust
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	1.8L Engin	N	Y	CONTINUC	N
N	N	2.0L Engin	N	Y	CONTINUC	Y Audi Valve System
N	N	2.0L Engin	N	Y	CONTINUC	Y Audi Valve System
N	N	Engine Coc	N	Y	MECHANIC	N
N	N	Engine Coc	N	Y	MECHANIC	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine Coc	N	Y	MECANICA	N
N	N	N		Y	MECANICA	N Battery(s)
N	N	Engine Coc	N	Y	MECANICA	N
N	N	Engine cod	N	Y	Electronic	N
N	N	N		Y	position of	N
N	N	N		Y	position of	N
N	N	Engine Coc	N	N		N
N	N	N		Y	INTAKE / E	N

evice Desc	# Batteries	Battery Ty	Battery Ty	Total Volt	Batt Ener	Batt Spec	Batt Char	Comment	# Capacit
Energy St									
R / EXHAUST									
R / EXHAUST									
R / EXHAUST									
R / EXHAUST									
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									
tolled and hydraulically adjusted.									
R / EXHAUST									
R / EXHAUST									
	1	Lithium Ion		266	5	37	On-Board		
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									
valves only									
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									
ECHANICAL-HYDRAULIC									
alves to a valve lift of zero (all valves are closed), the fuel injection and ignition are deactivated and the									

ECHANICAL-HYDRAULIC

alves on a single camshaft. The first valve lift profile is (all valves designed) for injection and ignition of reactive reactions as described

ECHANICAL-HYDRAULIC

aust valves on a single camshaft. No change in valve overlaps.

ONTINUOUSLY VVT

ONTINUOUSLY VVT

ECHANICAL-HYDRAULIC

ECHANICAL-HYDRAULIC

AMS

AMS

AMS

AMS

AMS

AMS

AMS

controlled and hydraulically adjusted

controlled and hydraulically adjusted

controlled and hydraulically adjusted

valves only

valves only

AND OUTLET CAMS

AND OUTLET CAMS

AMS

AMS

AMS

AMS

ND OUTLET CAMS 1 Lithium Ion 220 1100 27 On-Board

AMS

controlled and hydraulically adjusted

controlled and hydraulically adjusted

LICALLY AND CONTROLLED ELECTRONICALLY

Regen Bra	Regen Bra	Regen Bra	Driver Cnt	Fuel Cell I	Usable H2	Fuel Cell (	HEV-EV C	# Drive M	Motor Ger

est above 3rd gear or higher, ECT greater than 40C, engine speed 930 to 3500 RPM, vehicle speed greater than 25 km

Electrical RBRAKE PECFront WheY 1Other

Motor Ger	Rated Mot	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Cell V	Off Board	Camless V	Oil Viscosi
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
		40		GDI	Spark Ignit	N	N	N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignit	N		N	5W40
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				MFI	Multipoint	N		N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW

		MFI	Multipoint	N	N	5W30 VW
h		GDI	Spark Ignition Direct Injection		N	5W30 VW
		MFI	Multipoint	N	N	5W30 VW
		MFI	Multipoint/sequential fuel injection		N	0W40 / VW
		MFI	Multipoint/sequential fuel injection		N	5W30 VW
		MFI	Multipoint/sequential fuel injection		N	5W30 VW
		GDPI	Spark Ignition direct & ported injection		N	5W30 VW
		GDPI	Spark Ignition direct & ported injection		N	5W30 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W-40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 / VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignit	N	N	5W40
		GDI	Spark Ignit	N	N	5W40
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
3 PHASE PI	15	GDI	Spark Ignit	N	N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW
		CRDI	Common Rail Direct Diesel Injection		N	5W30 VW
		GDI	Spark Ignition Direct Injection		N	5W40 VW

Stop/Start	Stop/Start	Trans in FE	Trans as I	Model Typ	Charge De	Charge De	Charge Su	Charge Su	EPA Calcul
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AV-S	Auto(AV-S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Manual(M	Manual(M6)						
Y	Yes	Auto(AM-S	Auto(AM-S7)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y50700	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S6)	Auto(S6)						
N	No	Auto(S6)	Auto(S6)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(AM-S	Auto(AM-S	TT Coupe quattro					
N	No	Auto(AM-S	Auto(AM-S	TT Coupe quattro					
N	No	Auto(AM-S	Auto(AM-S6)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N50700	No	Auto(S8)	Auto(S8)						

N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	
Y	Yes	Auto(AM-S	Auto(AM-S7)	
Y	Yes	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(S6)	Auto(S6)	
N	No	Manual(M	Manual(M5)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Manual(M	Manual(M6)	
Y	Yes	Auto(AM-S	Auto(AM-S7)	
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(AM-S	Auto(AM-S6)	
N	No	Auto(S6)	Auto(S6)	Tiguan front
N	No	Auto(S6)	Auto(S6)	
N	No	Auto(S8)	Auto(S8)	
N	No	Auto(S8)	Auto(S8)	

[redacted]	EPA Calculated Gas G	[redacted]	[redacted] (GHG Ratin	#1 Smog R	#1 Mfr Sm	#1 EPA Sm	SmartWay
34.9	[redacted]	6	6	GVGAV02.	9		
36.2	[redacted]	7	7	GVGAV02.	9		
34.3	[redacted]	6	6	GVGAV02.	9		
35.2	[redacted]	6	6	GVGAV02.	9		
35.4	[redacted]	6	6	GVGAV02.	5		
32.3	[redacted]	6	6	GVGAJ02.(	5		
33.1	[redacted]	6	6	GVGAV02.	5		
31.4	[redacted]	5	5	GVGAJ02.(	5		
32.3	[redacted]	6	6	GVGAJ02.(	5		
33.1	[redacted]	6	6	GVGAV02.	5		
37.3	[redacted]	7	7	GVGAV02.	6		
33.7	[redacted]	6	6	GVGAV02.	6		
31	[redacted]	5	5	GVGAV03.	5		
38.2	[redacted]	7	6	GVGAJ03.(	5		
31	[redacted]	5	5	GVGAV03.	5		
38.2	[redacted]	7	6	GVGAJ03.(	5		
36.9	[redacted]	7	6	GVGAJ03.(	5		
28.8	[redacted]	5	5	GVGAV03.	5		
27.6	[redacted]	5	5	GVGAV04.	5		
21.1	[redacted]	3	3	GVGAV06.	5		
31.2	[redacted]	5	5	GVGAJ02.(	5		
30	[redacted]	5	5	GVGAV02.	5		
29.5	[redacted]	5	5	GVGAV02.	5		
29.6	[redacted]	5	5	GVGAJ02.(	5		
34.3	[redacted]	6	5	GVGAJ03.(	5		
27.2	[redacted]	5	5	GVGAJ03.(	5		
34	[redacted]	6	6	GVGAT02.(	5		
22.6	[redacted]	4	4	GVGAV04.	5		
33.2	[redacted]	6	6	GVGAV02.	5		
26.9	[redacted]	5	5	GVGAJ03.(	5		
23.5	[redacted]	4	4	GVGAJ03.(	5		
26.9	[redacted]	5	5	GVGAJ03.(	5		
23.5	[redacted]	4	4	GVGAJ03.(	5		
26.4	[redacted]	5	5	GVGAJ03.(	5		
26.8	[redacted]	5	5	GVGAV04.	5		
26.8	[redacted]	5	5	GVGAV04.	5		
24.7	[redacted]	4	4	GVGAV04.	5		
24.9	[redacted]	4	4	GVGAJ03.(	5		
33.5	[redacted]	6	6	GVGAV02.	9		
33.5	[redacted]	6	6	GVGAV02.	9		
31.9	[redacted]	6	6	GVGAV02.	5		
23.7	[redacted]	4	4	GVGAV04.	5		
19.5	[redacted]	2	2	GVGAV06.	5		
21.9	[redacted]	3	3	GVGAV04.	5		

18.3	[redacted]	2	2 GVGAV06.	5
21.9		3	3 GVGAV04.	5
18.3		2	2 GVGAV06.	5
17.3		1	1 GVGAV06.	5
16.4		1	1 GVGAV06.	5
15		1	1 GVGAV06.	5
20.8		3	3 GVGAV05.	5
20.4		3	3 GVGAV05.	5
37.1		7	7 GVGAV02.	7
37.4		7	7 GVGAV02.	7
35.4		6	6 GVGAV02.	7
33.7		6	6 GVGAV02.	7
37.1		7	7 GVGAV02.	7
34.2		6	6 GVGAV02.	7
33.7		6	6 GVGAV02.	7
32.2		6	6 GVGAV02.	7
31.6		6	6 GVGAV02.	7
24.8		4	4 GVGAV03.	5
32.4		6	6 GVGAV02.	5
38.9		7	7 GVGAV02.	9
39.3		7	7 GVGAV02.	9
32.6		6	6 GVGAV02.	5
31.2		6	6 GVGAV02.	5
38.6		7	7 GVGAV02.	9
38.1		7	7 GVGAV02.	9
35.9		7	7 GVGAV02.	9
35.8		7	7 GVGAV02.	9
43.8		8	8 GVGAV01.	5
44.8		8	8 GVGAV01.	5
39.4		7	7 GVGAV02.	7
38.9		7	7 GVGAV02.	7
36.4		6	6 GVGAV02.	7
34.9		6	6 GVGAV02.	7
60.8		9	9 GVGAV01.	7
39.1		7	7 GVGAV02.	7
28.5		5	5 GVGAV03.	5
29.7		5	5 GVGAJ02.(	5
29.6		5	5 GVGAJ02.(	5
30.6		5	4 GVGAT03.(	5
25		4	4 GVGAT03.(	5

#3 Smog R #3 Mfr Sm #3 EPA Sm SmartWay #4 Smog R #4 Mfr Sm

GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAJ02.[illegible]	5
GVGAJ02.[illegible]	5

GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5
GVGAV02.[illegible]	5

[illegible]	You Save $	You Spend $	City CO2	Hwy CO2	Comb CO2	CO2- Volu	CO2- Volu	CO2-Vol In
	750		379	267	328			
	1000		362	256	314			
	250		379	280	334			
	750		366	271	323			
		250	371	303	341			
		1000	415	295	361			
		500	397	276	343			
		1250	424	303	370			
		1000	415	295	361			
		500	397	276	343			
	250		357	252	310			
		500	398	269	340			
		1250	436	296	373			
	500		403	270	343			
		1250	436	296	373			
	500		403	270	343			
	0		426	280	360			
		2250	473	303	397			
		2250	492	310	410			
		5500	640	403	534			
		1250	420	317	373			
		1750	451	313	389			
		1750	446	316	387			
		1750	452	322	393			
		250	430	328	385			
		2750	496	347	429			
		500	369	298	337			
		4750	614	355	497			
		500	381	289	340			
		2750	488	321	413			
		3500	519	341	439			
		2750	488	321	413			
		3500	519	341	439			
		2750	500	341	428			
		2750	497	332	423			
		2750	505	331	427			
		3500	546	336	452			
		4000	528	373	458			
	250		373	290	336			
	250		373	290	336			
		1000	386	323	358			
		4000	580	347	475			
		7500	710	421	580			
		5500	638	370	517			

	7500	736	443	604
	5500	638	370	517
	7500	736	443	604
	10000	791	491	656
	10000	836	481	676
	11500	887	532	727
	5500	617	429	532
	6500	634	442	547
1000		360	263	316
1000		358	261	314
750		374	282	333
250		385	292	343
1000		360	263	316
250		383	288	340
250		385	292	343
	1000	403	283	349
	1000	426	279	360
	2250	523	351	446
	1000	405	292	354
1250		352	247	305
1500		350	240	300
	1000	388	298	347
	1000	406	289	354
1250		348	253	305
1250		358	248	309
1000		358	271	319
1000		355	258	311
2000		321	228	279
2250		311	221	271
1250		350	245	302
1250		353	241	303
750		370	265	323
750		383	273	333
3500		212	184	200
1250		355	236	302
	750	449	319	390
	1750	431	344	392
	1750	435	344	394
	1500	502	356	437
	2750	520	391	462

[illegible]	[illegible]	[illegible]	[illegible]	240V Char	120V Char	PHEV Tota
309	191	255.9	378.7	267.1	328.5
289	188	243.6	362.1	255.5	314.1
305	200	257.8	378.6	280.1	334.3
294	198	250.8	366	271	323.2
292	199	250.2	371.2	303.3	340.6
327	210	274.4	415	295	361
320.1	202	267	396.8	276.4	342.5
335	216	281.4	424.4	303.1	369.8
327	210	274.4	415	295	361
320.1	202	267	396.8	276.4	342.5
278.5	178	233.3	357.1	251.9	309.8
312.5	191	257.8	397.9	269.4	340.1
345	211	284.7	436.2	296.4	373.3
326.3	193.3	266.4	402.7	270.5	343.2
345	211	284.7	436.2	296.4	373.3
326.3	193.3	266.4	402.7	270.5	343.2
339	198	275.6	425.6	280.1	360.1
376.5	225	308.3	473.4	302.9	396.7
396	226	319.5	492.3	309.7	410.1
515	310	422.8	640.3	403.3	533.6
331	226	283.8	419.7	316.6	373.3
357.5	223	297	451	312.5	388.7
357	230	299.9	445.6	315.7	387.1
358	230	300.4	451.6	321.9	393.2
348	231	295.4	430.5	328.5	384.6
390	251	327.4	496	347	429
380	223	309.4	369	298	337
499.5	269.5	396	613.8	354.8	497.3
311	214	267.4	381.4	289.2	339.9
396	248	329.4	488	321	412.8
443	266	363.4	519	341	438.9
396	248	329.4	488	321	412.8
443	266	363.4	519	341	438.9
401	256	335.8	500	341	428.4
403.5	241	330.4	496.9	331.8	422.6
407.5	238	331.2	505.4	331.1	427
446.1	251.6	358.6	546	336.3	451.6
427	269	355.9	528	372.7	458.1
307.9	216.6	266.8	373.4	289.6	335.6
307.9	216.6	266.8	373.4	289.6	335.6
314	233	277.6	385.7	323.4	357.7
462	263	372.4	580	347	475.2
576	314	458.1	709.5	420.8	579.6
511	278	406.2	638.3	369.6	517.4

617	333	489.2	736.3	442.9	604.3
511	278	406.2	638.3	369.6	517.4
617	333	489.2	736.3	442.9	604.3
645.5	355.5	515	791	490.9	656
705	353	546.6	836	481	676.2
756.1	403.3	597.3	887.1	532.1	727.4
512	328	429.2	616.6	428.8	532.1
521	336	437.8	633.8	441.8	547.4
280.8	185.9	238.1	360.4	262.6	316.4
278.4	185	236.4	357.6	261.3	314.3
292.5	200	250.9	374.2	281.5	332.5
309.3	204.2	262	384.6	292.2	343
280.8	185.9	238.1	360.4	262.6	316.4
299.7	204.7	257	382.8	287.9	340
309.3	204.2	262	384.6	292.2	343
327.3	207.8	273.5	402.7	282.8	348.8
346.5	203.1	282	426	279.1	359.9
434	265	358	523	351	445.6
321	213	272.4	404.7	291.7	353.9
274	174	229	352.4	246.5	304.7
272	169	225.6	350.1	239.8	300.5
315	218	271.4	388	297.7	347.4
334	223	284	406.3	289.2	353.6
270	179	229	347.7	253.3	305.2
279	175	232.2	358.3	247.9	308.6
288	195	246.2	358	270.7	318.7
294	191	247.7	354.6	257.9	311.1
245	154	204.1	320.6	227.7	278.8
237	149	197.4	311.3	221.2	270.8
271.8	172.5	227.1	349.8	244.5	302.4
274.4	170	227.4	352.9	241.2	302.6
288.6	188	243.3	369.7	265.4	322.8
305.8	189.6	253.5	382.9	272.9	333.4
155	136	146.4	212.1	184.3	199.6
276.4	166.4	226.9	355.3	236.3	301.8
372	238	311.7	449	319	390.5
340.8	246.4	298.3	431.3	344	392
343.8	246.3	299.9	434.9	343.9	393.9
401	248	332.2	502.3	356.5	436.7
416	281	355.2	520.1	390.6	461.8

[illegible]	[illegible]	[illegible]	Comb Vol Higher	Final Label	EPA_FUEL	EPA_GHG	EPA_AMT
	N		3.7	3.7			
	N		3.6	3.6			
	N		3.8	3.8			
	N		3.7	3.7			
	N		3.7	3.7			
	N		4	4			
	N		3.8	3.8			
	N		4.2	4.2			
	N		4	4			
	N		3.8	3.8			
	Y		3.6	3.6			
	Y		3.8	3.8			
	N		4.2	4.2			
	N		3.3	3.3			
	N		4.2	4.2			
	N		3.3	3.3			
	N		3.6	3.6			
	N		4.5	4.5			
	N		4.5	4.5			
	N		5.9	5.9			
	N		4.2	4.2			
	N		4.3	4.3			
	N		4.3	4.3			
	N		4.3	4.3			
	N		3.7	3.7			
	N		4.8	4.8			
	N		3.8	3.8			
	N		5.6	5.6			
	N		3.8	3.8			
	N		4.8	4.8			
	N		5	5			
	N		4.8	4.8			
	N		5	5			
	N		4.8	4.8			
	N		4.8	4.8			
	N		4.8	4.8			
	N		5	5			
	N		5.3	5.3			
	N		3.8	3.8			
	N		3.8	3.8			
	N		4	4			
	N		5.3	5.3			
	N		6.7	6.7			
	N		5.9	5.9			

N	6.7	6.7
N	5.9	5.9
N	6.7	6.7
N	7.7	7.7
N	7.7	7.7
N	8.3	8.3
N	5.9	5.9
N	6.2	6.2
N	3.6	3.6
N	3.6	3.6
N	3.7	3.7
N	3.8	3.8
N	3.6	3.6
N	3.8	3.8
N	3.8	3.8
N	4	4
N	4	4
N	5	5
N	4	4
N	3.4	3.4
N	3.3	3.3
N	4	4
N	4	4
N	3.4	3.4
N	3.4	3.4
N	3.6	3.6
N	3.6	3.6
Y	3.1	3.1
Y	3	3
N	3.4	3.4
N	3.4	3.4
N	3.7	3.7
N	3.7	3.7
N	2.3	2.3
N	3.4	3.4
N	4.3	4.3
N	4.3	4.3
N	4.3	4.3
N	4.2	4.2
N	5.3	5.3

| [illegible] | [illegible] | [illegible] |

Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
[redacted]
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr

mined)

To: 'a.gusarov@autorc.ru'['a.gusarov@autorc.ru']; 'acelas@tin.it'['acelas@tin.it']; Adam, Thomas, Dr. (I/EA-524)[Thomas1.Adam@AUDI.DE]; 'adolfo.perujo@ec.europa.eu'['adolfo.perujo@ec.europa.eu']; 'aeeda@depollauto.fr'['aeeda@depollauto.fr']; 'aganguli@siam.in'['aganguli@siam.in']; 'alain.e.petit@renault.com'['alain.e.petit@renault.com']; 'aldo.bassi@sintesiab.it'['aldo.bassi@sintesiab.it']; 'alessandro.marotta@jrc.ec.europa.eu'['alessandro.marotta@jrc.ec.europa.eu']; 'alexander.bergmann@avl.com'['alexander.bergmann@avl.com']; 'alin.rosca@rarom.ro'['alin.rosca@rarom.ro']; 'alois.krasenbrink@jrc.it'['alois.krasenbrink@jrc.it']; 'ambujsharma@hotmail.com'['ambujsharma@hotmail.com']; 'amourfi_cn@sina.com'['amourfi_cn@sina.com']; 'anders.roj@volvo.com'['anders.roj@volvo.com']; andrea.demaria@fptindustrial.com[andrea.demaria@fptindustrial.com]; 'Andreas.EA.Eder@bmw.de'['Andreas.EA.Eder@bmw.de']; 'antonio.erario@mit.gov.it'['antonio.erario@mit.gov.it']; 'apetrofs@volvocars.com'['apetrofs@volvocars.com']; 'ARijnders@rdw.nl'['ARijnders@rdw.nl']; 'arjan.dijkhuizen@toyota-europe.com'['arjan.dijkhuizen@toyota-europe.com']; 'arnaud.duvielguerbigny@aegpl.be'['arnaud.duvielguerbigny@aegpl.be']; 'aurelia.buzgan@rarom.ro'['aurelia.buzgan@rarom.ro']; 'b07@mfa.gr'['b07@mfa.gr']; 'beatrice.lopez@utac.com'['beatrice.lopez@utac.com']; Behlau, Kai (EGNT/2)[kai.behlau@volkswagen.de]; Bergmann, Markus, Dr. (I/EA-524)[Markus.Bergmann@AUDI.DE]; 'bernd.fusshoeller@delphi.com'['bernd.fusshoeller@delphi.com']; 'bertrand.mercier@mpsa.com'['bertrand.mercier@mpsa.com']; 'Bradish.Tracey@epamail.epa.gov'['Bradish.Tracey@epamail.epa.gov']; 'bungo.kawaguchi@toyota-europe.com'['bungo.kawaguchi@toyota-europe.com']; adrien.burrows@dft.gsi.gov.uk[adrien.burrows@dft.gsi.gov.uk]; Carli, Stefan, Dr. (K-GQA/2)[Stefan.Carli@volkswagen.de]; 'Cecile.Favre@aecc.be'['Cecile.Favre@aecc.be']; 'celine.vallaude@utac.com'['celine.vallaude@utac.com']; cha1052@ts2020.kr[cha1052@ts2020.kr]; 'Charmley.William@epamail.epa.gov'['Charmley.William@epamail.epa.gov']; 'chenqs@tsinghua.edu.cn'['chenqs@tsinghua.edu.cn']; 'chosier@ford.com'['chosier@ford.com']; 'christian.bach@empa.ch'['christian.bach@empa.ch']; 'Christian.Gruen@ateel.lu'['Christian.Gruen@ateel.lu']; 'christian.hartmann@maha.de'['christian.hartmann@maha.de']; 'Christian.Vavra@maha.de'['Christian.Vavra@maha.de']; 'christoph.albus@bmvbs.bund.de'['christoph.albus@bmvbs.bund.de']; 'Christoph.Lueginger@bmw.de'['Christoph.Lueginger@bmw.de']; 'Christoph.MC.Mayer@bmw.de'['Christoph.MC.Mayer@bmw.de']; colinjii@ts2020.kr[colinjii@ts2020.kr]; 'cornetti@iol.it'['cornetti@iol.it']; 'costanza.testino@libero.it'['costanza.testino@libero.it']; 'covadonga.astorga-llorens@jrc.ec.europa.eu'['covadonga.astorga-llorens@jrc.ec.europa.eu']; D.VARTHOLOMAIOS@denso.be[D.VARTHOLOMAIOS@denso.be]; 'daniel.scherret@de.opel.com'['daniel.scherret@de.opel.com']; 'danitza.fedeli@delphi.com'['danitza.fedeli@delphi.com']; 'de_theux_frederic@cat.com'['de_theux_frederic@cat.com']; 'detlef.stendel@volkswagen.de'['detlef.stendel@volkswagen.de']; 'didier.pingal@utac.com'['didier.pingal@utac.com']; 'director@araiindia.com'['director@araiindia.com']; 'Dirk.Bosteels@aecc.eu'['Dirk.Bosteels@aecc.eu']; 'dirk.d.baeuchle@daimler.com'['dirk.d.baeuchle@daimler.com']; 'dleveratto@oica.net'['dleveratto@oica.net']; 'donald.nagy@gm.com'['donald.nagy@gm.com']; 'e.bastiaensen@immamotorcycles.org'['e.bastiaensen@immamotorcycles.org']; 'ed.crupi@ec.gc.ca'['ed.crupi@ec.gc.ca']; 'efernandez@appluscorp.com'['efernandez@appluscorp.com']; 'elisa.dumitrescu@unep.org'['elisa.dumitrescu@unep.org']; 'eric.donati@mpsa.com'['eric.donati@mpsa.com'];

Ex. 7

ernst_peter.weidmann@daimler.com[ernst_peter.weidmann@daimler.com]; 'erwin.segers@honda-eu.com'['erwin.segers@honda-eu.com']; 'espena@vegvesen.no'['espena@vegvesen.no']; 'euan.macdonald@logos-eu.com'['euan.macdonald@logos-eu.com']; 'eva.iverfeldt@scania.com'['eva.iverfeldt@scania.com']; 'fakmadza@hyundai-europe.com'['fakmadza@hyundai-europe.com']; 'fcagnolati@landi.it'['fcagnolati@landi.it']; 'Felix.Reutimann@bafu.admin.ch'['Felix.Reutimann@bafu.admin.ch']; 'felix.wellmann@daimler.com'['felix.wellmann@daimler.com'];

'ferenc.pekar@ec.europa.eu'['ferenc.pekar@ec.europa.eu'];
Annette.feucht@bmw.de[Annette.feucht@bmw.de];
flavioa.mariani@gmail.com[flavioa.mariani@gmail.com]; 'gascar@korea.ac.kr'['gascar@korea.ac.kr'];
'georges.verdon@bluewin.ch'['georges.verdon@bluewin.ch'];
'gerben.passier@tno.nl'['gerben.passier@tno.nl'];
'Giorgio.billi@fptindustrial.com'['Giorgio.billi@fptindustrial.com'];
'giorgio.martini@jrc.ec.europa.eu'['giorgio.martini@jrc.ec.europa.eu'];
'giorgio.martini@jrc.it'['giorgio.martini@jrc.it']; 'giovanni.de-santi@ec.europa.eu'['giovanni.de-santi@ec.europa.eu']; 'giovanni.durbano@bafu.admin.ch'['giovanni.durbano@bafu.admin.ch'];
'giovanni.margaria@iveco.com'['giovanni.margaria@iveco.com'];
'gk.sharma@natrip.in'['gk.sharma@natrip.in'];
'greg.archer@transportenvironment.org'['greg.archer@transportenvironment.org'];
'guenter.hoermandinger@ec.europa.eu'['guenter.hoermandinger@ec.europa.eu'];
'hager@hol.gr'['hager@hol.gr']; hans.holdik@bmvi.bund.de[hans.holdik@bmvi.bund.de]; 'hans-rudolf.hein@bridgestone.eu'['hans-rudolf.hein@bridgestone.eu']; 'hathai@tisi.go.th'['hathai@tisi.go.th'];
heather.hamje@concawe.org[heather.hamje@concawe.org];
'heiko.esser@ateel.lu'['heiko.esser@ateel.lu'];
'Heinz.Berger@astra.admin.ch'['Heinz.Berger@astra.admin.ch']; 'Heinz.Steven@t-online.de'['Heinz.Steven@t-online.de']; heinz.steven@o2online.de[heinz.steven@o2online.de];
'henk.baarbe@minienm.nl'['henk.baarbe@minienm.nl']; 'henk.j.dekker@tno.nl'['henk.j.dekker@tno.nl'];
'heyuntang@catarc.ac.cn'['heyuntang@catarc.ac.cn']; 'highband@ts2020.kr'['highband@ts2020.kr'];
'hirachan@nrcs.org.za'['hirachan@nrcs.org.za']; Werner.Hofegger@avl.com[Werner.Hofegger@avl.com];
'hschmidt@tuev-nord.de'['hschmidt@tuev-nord.de']; 'hted@bis.org.in'['hted@bis.org.in'];
'hua.lukarlsson@scania.com'['hua.lukarlsson@scania.com']; 'h-yamada@ntsel.go.jp'['h-yamada@ntsel.go.jp']; 'hypark@katech.re.kr'['hypark@katech.re.kr'];
'ian.hodgson@ec.europa.eu'['ian.hodgson@ec.europa.eu'];
'ian.marshall@aeat.co.uk'['ian.marshall@aeat.co.uk']; 'iangv@iangv.org'['iangv@iangv.org'];
'iddo@sidekickprojects.nl'['iddo@sidekickprojects.nl']; 'ih@acea.be'['ih@acea.be'];
ikeda@ntceb.be[ikeda@ntceb.be]; 'ikeda@ntceb.be'['ikeda@ntceb.be'];
'info@federmetano.it'['info@federmetano.it'];
'isabelle.guerin@renault.com'['isabelle.guerin@renault.com']; 'ishii@ntsel.go.jp'['ishii@ntsel.go.jp'];
'j.bozewicz@tdt.pl'['j.bozewicz@tdt.pl']; 'jacek.rostkowski@ec.gc.ca'['jacek.rostkowski@ec.gc.ca'];
'jackson.cleophas@epa.gov'['jackson.cleophas@epa.gov'];
'jacques.dartoy@total.com'['jacques.dartoy@total.com'];
'jacques.marmy@iru.org'['jacques.marmy@iru.org']; 'janghyokko@syu.ac.kr'['janghyokko@syu.ac.kr'];
'jasic@jasic.org'['jasic@jasic.org']; javier.lebrato@ngvaeurope.eu[javier.lebrato@ngvaeurope.eu];
'jcsarbach@fiev.fr'['jcsarbach@fiev.fr']; 'jean-francois.roy@ec.gc.ca'['jean-francois.roy@ec.gc.ca'];
'jens.huegel@iru.org'['jens.huegel@iru.org']; 'jiaquanli2008@163.com'['jiaquanli2008@163.com'];
'jkubsh@meca.org'['jkubsh@meca.org']; 'jmandel@emamail.org'['jmandel@emamail.org'];
'johan.renders@ec.europa.eu'['johan.renders@ec.europa.eu'];
'jon.andersson@ricardo.com'['jon.andersson@ricardo.com'];
'jon.real@infrastructure.gov.au'['jon.real@infrastructure.gov.au'];
'jps@cambustion.com'['jps@cambustion.com'];
'jseisler@cleanfuelsconsulting.org'['jseisler@cleanfuelsconsulting.org'];
'juhani.laurikko@vtt.fi'['juhani.laurikko@vtt.fi']; 'jwlee@kotsa.or.kr'['jwlee@kotsa.or.kr']; 'ka-koba@shinsa.ntsel.go.jp'['ka-koba@shinsa.ntsel.go.jp'];
'kamal.charafeddine@porsche.de'['kamal.charafeddine@porsche.de'];
'karale.dirspa@araiindia.com'['karale.dirspa@araiindia.com'];
'karsten.strobl@de.gm.com'['karsten.strobl@de.gm.com']; 'katrieng@ts2020.kr'['katrieng@ts2020.kr'];
'kkgandhi@siam.in'['kkgandhi@siam.in']; 'klaus.burger@maha.de'['klaus.burger@maha.de'];
klaus.land@daimler.com[klaus.land@daimler.com]; Kolesa, Konrad, Dr. (I/EA-52)[Konrad.Kolesa@AUDI.DE]; 'komarov@niiat.ru'['komarov@niiat.ru'];
'kurt.engeljehringer@avl.com'['kurt.engeljehringer@avl.com'];
martin.lange@uba.de[martin.lange@uba.de]; 'laroo.chris@epa.gov'['laroo.chris@epa.gov'];
'Laroo.Chris@epamail.epa.gov'['Laroo.Chris@epamail.epa.gov'];
'laura.bigi@mpsa.com'['laura.bigi@mpsa.com'];

'lennart.erlandsson@avl.com'['lennart.erlandsson@avl.com']; 'les.hill@horiba.com'['les.hill@horiba.com'];
'lianne.noseworthy@ec.gc.ca'['lianne.noseworthy@ec.gc.ca']; 'liuxin@tju.edu.cn'['liuxin@tju.edu.cn'];
'liwl@petrochina.com.cn'['liwl@petrochina.com.cn']; 'llezhnev@nami.ru'['llezhnev@nami.ru'];
'lubos.trnka@tuv-sud.cz'['lubos.trnka@tuv-sud.cz']; 'luhongyu@catarc.ac.cn'['luhongyu@catarc.ac.cn'];
'm.seifert@svgw.ch'['m.seifert@svgw.ch']; 'm.vaysblum@autorc.ru'['m.vaysblum@autorc.ru'];
'Maciej.SZYMANSKI@ec.europa.eu'['Maciej.SZYMANSKI@ec.europa.eu'];
'mafh@tsinghua.edu.cn'['mafh@tsinghua.edu.cn'];
'magnus.lindgren@trafikverket.se'['magnus.lindgren@trafikverket.se'];
'manuel.schuster@daimler.com'['manuel.schuster@daimler.com'];
'marc.kwanten@mobilit.fgov.be'['marc.kwanten@mobilit.fgov.be'];
'marc.steen@ec.europa.eu'['marc.steen@ec.europa.eu']; 'maria.spiliopoulou-
kaparia@ec.europa.eu'['maria.spiliopoulou-kaparia@ec.europa.eu'];
'martin.gerstl@de.bosch.com'['martin.gerstl@de.bosch.com'];
'martin.koubek@dot.gov'['martin.koubek@dot.gov'];
'martin.openshaw@aftonchemical.com'['martin.openshaw@aftonchemical.com'];
'martin.schiess@bafu.admin.ch'['martin.schiess@bafu.admin.ch'];
'martin.sommer@porsche.de'['martin.sommer@porsche.de'];
'massimo.carriero@jrc.it'['massimo.carriero@jrc.it']; masui-s559h@mlit.go.jp[masui-s559h@mlit.go.jp];
'matthias.hartmann@bmw.de'['matthias.hartmann@bmw.de'];
'matthias.maedge@ngvaeurope.eu'['matthias.maedge@ngvaeurope.eu']; Naegeli, Matthias
(EAMG/1)[matthias.naegeli@volkswagen.de];
'Matthias.Tappe@de.bosch.com'['Matthias.Tappe@de.bosch.com'];
'maurizio.parca@bridgestone.eu'['maurizio.parca@bridgestone.eu'];
'mguenthe@ford.com'['mguenthe@ford.com'];
'michael.frank@de.bosch.com'['michael.frank@de.bosch.com'];
'michael.hygrell@volvo.com'['michael.hygrell@volvo.com'];
'michel.loccufier@mobilit.fgov.be'['michel.loccufier@mobilit.fgov.be'];
'mky@chrysler.com'['mky@chrysler.com']; morita-s263@mlit.go.jp[morita-s263@mlit.go.jp];
'nakhawa.ecl@araiindia.com'['nakhawa.ecl@araiindia.com']; 'nalinee@tisi.go.th'['nalinee@tisi.go.th'];
'Nam.Ed@epamail.epa.gov'['Nam.Ed@epamail.epa.gov']; 'nan@fstyr.dk'['nan@fstyr.dk'];
'narusawa@ntsel.go.jp'['narusawa@ntsel.go.jp']; Nico.Schuetze@bmw.de[Nico.Schuetze@bmw.de];
'niikuni@ntsel.go.jp'['niikuni@ntsel.go.jp']; nbear@ford.com[nbear@ford.com];
'nikolaus.steininger@ec.europa.eu'['nikolaus.steininger@ec.europa.eu'];
'nlebigot@ccfa.fr'['nlebigot@ccfa.fr']; 'nls8@chrysler.com'['nls8@chrysler.com'];
'noriyuki_ichikawa@mail.toyota.co.jp'['noriyuki_ichikawa@mail.toyota.co.jp'];
'oberg2@volvocars.com'['oberg2@volvocars.com'];
'olechiw.michael@epa.gov'['olechiw.michael@epa.gov'];
oliver.eberhardt@bmub.bund.de[oliver.eberhardt@bmub.bund.de];
'oliver.moersch@daimler.com'['oliver.moersch@daimler.com']; 'p.flanker@denso.nl'['p.flanker@denso.nl'];
'p.laurent@clepa.be'['p.laurent@clepa.be']; 'paibanez@mityc.es'['paibanez@mityc.es'];
'panagiota.dilara@jrc.it'['panagiota.dilara@jrc.it']; 'patrik.soltic@empa.ch'['patrik.soltic@empa.ch'];
'paul.adams@volvo.com'['paul.adams@volvo.com'];
'per.ohlund@transportstyrelsen.se'['per.ohlund@transportstyrelsen.se'];
p.flanker@denso.nl[p.flanker@denso.nl]; 'peter.scherm@vdma.org'['peter.scherm@vdma.org'];
'peter.smeds@trafikverket.se'['peter.smeds@trafikverket.se']; 'peter@theicct.org'['peter@theicct.org'];
'pg@acea.be'['pg@acea.be']; 'philip.r.horton@gm.com'['philip.r.horton@gm.com'];
'pierre.bonnel@jrc.it'['pierre.bonnel@jrc.it']; pierre.cognet1@mpsa.com[pierre.cognet1@mpsa.com];
'pilar.perez@ngvaeurope.eu'['pilar.perez@ngvaeurope.eu']; 'pjhy98@korea.kr'['pjhy98@korea.kr'];
'pollak.ivan@kti.hu'['pollak.ivan@kti.hu']; 'PPRICE40@ford.com'['PPRICE40@ford.com'];
'ptinakon@hotmail.com'['ptinakon@hotmail.com']; 'qinkongjian@catarc.ac.cn'['qinkongjian@catarc.ac.cn'];
'ragnarsson@eaa.be'['ragnarsson@eaa.be'];
'rajendra.petkar@tatatechnologies.com'['rajendra.petkar@tatatechnologies.com'];
'ralph.kellermann@diplo.de'['ralph.kellermann@diplo.de']; Ramacher, Bjoern, Dr. (K-
GQA/4)[bjoern.ramacher@volkswagen.de];
'ravchoda@immamotorcycles.org'['ravchoda@immamotorcycles.org'];
raymond.petrovan@de.opel.com[raymond.petrovan@de.opel.com];

'rdey@ccsglobalgroup.com'['rdey@ccsglobalgroup.com']; 'rene.nulens@toyota-europe.com'['rene.nulens@toyota-europe.com']; 'rjohannsen@tuev-nord.de'['rjohannsen@tuev-nord.de']; 'rlabza@hyundai-europe.com'['rlabza@hyundai-europe.com']; 'rob.cox@ipieca.org'['rob.cox@ipieca.org']; rob.cuelenaere@tno.nl[rob.cuelenaere@tno.nl]; 'robert.thielgen@ateel.lu'['robert.thielgen@ateel.lu']; 'Romain.Hubert@unece.org'['Romain.Hubert@unece.org']; 'romain.lamberty@snch.lu'['romain.lamberty@snch.lu']; 'rsantafe@idiada.com'['rsantafe@idiada.com']; 'rudi.valgaeren@eur.bosal.com'['rudi.valgaeren@eur.bosal.com']; 's.piccolo@federchimica.it'['s.piccolo@federchimica.it']; 'saenzejc@inta.es'['saenzejc@inta.es']; 'saluck@tisi.go.th'['saluck@tisi.go.th']; 'samarendra.tripathy@renault.com'['samarendra.tripathy@renault.com']; 'Sanchez.James@epamail.epa.gov'['Sanchez.James@epamail.epa.gov']; 'Schrodt.Thomas@epamail.epa.gov'['Schrodt.Thomas@epamail.epa.gov']; 'Seiler@vda.de'['Seiler@vda.de']; 'serge.dubuc@t-online.de'['serge.dubuc@t-online.de']; 'shirish.a.shimpi@cummins.com'['shirish.a.shimpi@cummins.com']; silvia.ricchiuto@fiat.com[silvia.ricchiuto@fiat.com']; 'simlaoz@mfa.gov.tr'['simlaoz@mfa.gov.tr']; 'simon.davies@dft.gsi.gov.uk'['simon.davies@dft.gsi.gov.uk']; 'Simon.Karl@epamail.epa.gov'['Simon.Karl@epamail.epa.gov']; 'singh.ecl@araiindia.com'['singh.ecl@araiindia.com']; somnuek.j@pttplc.com[somnuek.j@pttplc.com]; 'spark@korea.ac.kr'['spark@korea.ac.kr']; 'spetrovic@mas.bg.ac.rs'['spetrovic@mas.bg.ac.rs']; 'srmarathe@araiindia.com'['srmarathe@araiindia.com']; 'stanislaw.radzimirski@its.waw.pl'['stanislaw.radzimirski@its.waw.pl']; Stendel, Detlef (K-GQA/1)[detlef.stendel@volkswagen.de]; 'stephan.hartmann@volkswagen.de'['stephan.hartmann@volkswagen.de']; stephan.redmann@bmvi.bund.de[stephan.redmann@bmvi.bund.de]; 'sylvie.gingras@bnq.qc.ca'['sylvie.gingras@bnq.qc.ca']; 't.hisler@ccfa.fr'['t.hisler@ccfa.fr']; 'Takakazu.Fukuoka@toyota-europe.com'['Takakazu.Fukuoka@toyota-europe.com']; Takashi_Fujiwara@n.t.rd.honda.co.jp[Takashi_Fujiwara@n.t.rd.honda.co.jp]; Tatsumori_A_Matsushita@hm.honda.co.jp[Tatsumori_A_Matsushita@hm.honda.co.jp]; 'tce@jama-e.be'['tce@jama-e.be']; 'technique@ccfa.fr'['technique@ccfa.fr']; 'techsec@clepa.be'['techsec@clepa.be']; 'thachapongt@yahoo.com'['thachapongt@yahoo.com']; thaniu@jari.or.jp[thaniu@jari.or.jp]; 'thaniu@jari.or.jp'['thaniu@jari.or.jp']; 'thomas.goldbach@gm.com'['thomas.goldbach@gm.com']; thomas.vogel@de.opel.com[thomas.vogel@de.opel.com]; 'thorsten.leischner@daimler.com'['thorsten.leischner@daimler.com']; 'TKOSMEHL@ford.com'['TKOSMEHL@ford.com']; 'tmayer4@ford.com'['tmayer4@ford.com']; toba@jasic.org[toba@jasic.org]; 'toba@jasic.org'['toba@jasic.org']; 'toni.lehn@delphi.com'['toni.lehn@delphi.com']; toshihisa_yamaguchi@hm.honda.co.jp[toshihisa_yamaguchi@hm.honda.co.jp]; 'tstoffels@rdw.nl'['tstoffels@rdw.nl']; 'ueda-j2kt@mlit.go.jp'['ueda-j2kt@mlit.go.jp']; 'uhlik.krisztian@kti.hu'['uhlik.krisztian@kti.hu']; 'uklein@ford.com'['uklein@ford.com']; 'ulrich.beutke@mtu-online.com'['ulrich.beutke@mtu-online.com']; 'ulrich.gottwick@de.bosch.com'['ulrich.gottwick@de.bosch.com']; 'uwe.thien@magnasteyr.com'['uwe.thien@magnasteyr.com']; 'volker.blum@daimler.com'['volker.blum@daimler.com']; 'volker.rothe@de.opel.com'['volker.rothe@de.opel.com']; 'vustymenko@insat.org.ua'['vustymenko@insat.org.ua']; wouter.vandermeulen@daimler.com[wouter.vandermeulen@daimler.com]; 'Werner.Tober@ifa.tuwien.ac.at'['Werner.Tober@ifa.tuwien.ac.at']; 'william.coleman@volkswagen.de'['william.coleman@volkswagen.de']; 'Wim.van.der.Borght@toyota-europe.com'['Wim.van.der.Borght@toyota-europe.com']; 'winfried.hartung@de.gm.com'['winfried.hartung@de.gm.com']; 'woitsch@dekra-automobil.cz'['woitsch@dekra-automobil.cz']; 'wolfgang.schindler@avl.com'['wolfgang.schindler@avl.com']; 'wuxf@craes.org.cn'['wuxf@craes.org.cn']; y-katsumata@mail.nissan.co.jp[y-katsumata@mail.nissan.co.jp]; 'y-katsumata@mail.nissan.co.jp'['y-katsumata@mail.nissan.co.jp']; 'youlinhua@catarc.ac.cn'['youlinhua@catarc.ac.cn']; 'yphou@tongji.edu.cn'['yphou@tongji.edu.cn']; 'yssong@katech.re.kr'['yssong@katech.re.kr']; 'yu.jia@uaes.com'['yu.jia@uaes.com']; 'yuanying@craes.org.cn'['yuanying@craes.org.cn'];

'zisis@auth.gr'['zisis@auth.gr']
From: Kolesa, Konrad, Dr. (I/EA-52)
Sent: Thur 11/5/2015 6:36:18 PM
Subject: Uploaded text of gtr #15

Dear followers of WLTP IWG,

For your information - please find below the link to the uploaded version of gtr 15.

With best regards

Konrad Kolesa
Executive Manager

Emission Certification and Vehicle Test Benches

AUDI AG
I/EA-52
85045 Ingolstadt
Tel. +49-841-89-32175

Mobile +49-841-89-53970
mailto:konrad.kolesa@audi.de
www.audi.com

Von: Serge M. Dubuc [mailto:serge.dubuc@t-online.de]
Gesendet: Donnerstag, 5. November 2015 10:44
An: Kolesa, Konrad, Dr. (I/EA-52)
Cc: Nikolaus.Steininger@ec.europa.eu; NORIYUKI ICHIKAWA; Redmann, Stephan
Betreff: gtr #15

Dear Konrad,

Because Stephan Redmann is currently occupied with subjects other than the GTR, may I kindly ask you to distribute a message to all interested parties, that GTR #15 was uploaded to the UN ECE server on November 3, 2015?

It can be found under the following URL:

http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/grpedoc_2016.html

and then under the following:

ECE/TRANS/WP.29/GRPE/2016/3 - (Informal Working Group on Worldwide harmonized Light vehicles Test Procedure (WLTP)) Proposal for amendments to global technical regulation No. 15 on Worldwide harmonized Light vehicles Test Procedure (WLTP)

English	DOC (Track changes)	PDF (Track changes)	DOC (Clean)	PDF (Clean)

Best regards,

Serge

Serge M. Dubuc

WLTP GTR Drafting Coordinator

Tel.: +49-7044-33056

Mobile: **+49-151-4250-3420 (new)**

Fax: +49-3-2222-44-6790

ECE/TRANS/WP.29/GRPE/2016/3 - (Informal Working Group on Worldwide harmonized Light vehicles Test Procedure (WLTP)) Proposal for amendments to global technical regulation No. 15 on Worldwide harmonized Light vehicles Test Procedure (WLTP)

English	DOC (Track changes)	PDF (Track changes)	DOC (Clean)	PDF (Clean)

To: McCabe, Janet[McCabe.Janet@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Shinkman, Susan[Shinkman.Susan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]
From: Giles-AA, Cynthia
Sent: Fri 11/6/2015 3:07:04 PM
Subject: FW: WSJ VW story

Sent from my Windows Phone

From: Conger, Nick
Sent: 11/6/2015 9:54 AM
To: Giles-AA, Cynthia
Subject: FW: WSJ VW story

From: Spector, Mike [mailto:Mike.Spector@wsj.com]
Sent: Friday, November 06, 2015 9:48 AM
To: Conger, Nick <Conger.Nick@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>
Subject: WSJ VW story

Nick/Laura,

I wanted to give you a heads up on facts below that may or may not appear in an upcoming WSJ story. Please let me know if you'd like to comment on or dispute any of the below. The timing on this story remains in flux, though it's possible it publishes later in the day today. You may also receive additional emails from me with other items but wanted to get the ball rolling now. Please let me know if you'd like to make anyone from EPA named below available to comment. Some of this isn't totally related to EPA but much of it is. Thanks.

1) Volkswagen didn't support the Obama administration's fuel-economy targets unveiled in 2011 in part because the regulations didn't give diesel models special credit that electric vehicles received.

2) Volkswagen was among the only car makers that didn't send a representative to join President Obama when he unveiled the new fuel-economy targets in July 2011.

3) In October 2014, **Ex. 7** in Auburn Hills, Mich.,

held a conference call with California regulators to respond to the results of tests conducted by West Virginia University that showed VW diesel models emitting more on the road than during laboratory tests. The call was for Ex. 7 and others at VW to share the results of VW's own tests. At this time, VW told regulators the discrepancies stemmed from technical issues.

4) In November 2014, Ex. 7 invited four California regulators to an hour-long presentation on fuel-cell vehicles that use hydrogen for fuel during the Los Angeles Auto Show at the Los Angeles convention center. This was in part an attempt to share VW's environmental efforts with regulators, or, put another way, show the company's environmental bona fides.

5) In December 2014, VW recalled nearly a half million diesel models to address emissions discrepancies but regulatory tests the following year showed the recall repairs didn't address the problem.

6) In early August, VW's Ex. 7 previously a senior regulatory affairs official in the Auburn Hills, Mich., office, flew from Germany to Traverse City, Mich., to meet with Ex. 7 Ex. 7 and Ex. 7 again told Ex. 7 that emissions discrepancies were the result of technical glitches. They also conveyed that later-year model diesel vehicles could be fixed.

7) Around this time, VW officials were insisting to EPA and CARB that the agencies certify 2016 diesel models. VW told them dealers were running out of older models and newer ones were piling up at ports.

8) Regulators later learned that VW had lots of unsold older diesel models.

9) In late August, Ex. 7 told Ex. 7 that VW was using defeat devices on diesel models. Ex. 7 separately made the same admission to the EPA's Christopher Grundler. This was at a transportation conference in Pacific Grove, Calif.

10) VW officials, even after acknowledging the use of defeat devices, still insisted to EPA and CARB that they should certify 2016 diesel models.

11) VW has hired three public relations firms: Hering Schuppener in Germany; Finsbury in the U.K. and Kekst and Co. in the U.S.

12) On Oct. 7, VW revealed in Ex. 7 prepared testimony posted by the House Energy and Commerce Committee Subcommittee on Oversights and Investigations that the company had withdrawn a request for certification of 2016 diesel models because they contained an auxiliary emissions control device that wasn't disclosed to regulators. There isn't evidence that the AECD can game emissions tests. VW has said that the AECD's function is to warm up the engine.

13) The week of Ex. 7 testimony, the EPA expected to receive an explanation from VW of the 2016 2.0L diesel engine AECD's capabilities. It didn't. Calls between EPA and VW were cancelled because VW couldn't make the right people available to EPA.

14) In late October, senior EPA officials, including Ex. 7 expressed frustration to the German Transport Minister about what they viewed as VW's lackluster communications with the agency.

15) A VW spokesman rejects suggestions that communications with EPA are lackluster, saying the company has senior engineers interacting with agency daily.

16) As of late October, VW still hadn't fully explained the AECD on the 2016 2.0L diesel-engine models to EPA.

17) Communications between VW and EPA begun to slightly improve in late October, with knowledgeable VW executives starting to talk to EPA officials.

18) In November, VW stopped previous contrition and disputed new allegations from EPA that additional models with 3.0L diesel engines contained defeat devices.

19) A VW spokesman said the company had no intention of halting sale of the implicated 3.0L diesel models.

20) VW overnight Tuesday and into Wednesday reversed course and halted sales of the implicated 3.0L diesel models and additional diesel models.

21) VW's "Diesel Information" website doesn't yet tell consumers there is a stop-sale order on those other models. It only has information about the 2.0L models.

22) Charles Taylor, a 74-year-old retired athletic director in Brevard, N.C., leased a 2015 Audi TDI Q7 from Harmony Motors of Asheville, N.C. last week. He now wants the dealership to take back the vehicle and make him whole. He is concerned the residual value will suffer as a result of the stop-sale order and feels Audi should have taken the vehicle off the market months ago. He expects to take a loss on the lease and doesn't feel he should.

23) Many experts and other observers fault VW for the way it has responded to the crisis thus far, including for mixed and incomplete messages and tussling with government officials. The response has left regulators, lawmakers, investors and customers around the world exasperated.

24) The U.S. Justice Department cited GM for cooperating in its investigation of a defective ignition switch linked to more than 100 deaths and noted it conducted a swift and robust internal probe, fired wrongdoers and furnished prosecutors with unvarnished facts, including volunteering documents ordinarily protected by attorney client privilege. Prosecutors also noted a compensation fund that doled out hundreds of millions of dollars to victims.

25) Investors are questioning VW's longstanding corporate governance, which features a board dominated by VW workers and the Porsche and Piech families. The newly appointed board chairman is also VW's finance chief. The extended family of the grandson of VW's founder still controls most decisions.

I know that's a long list but want to ensure you aren't surprised. More as things develop.

Best,

Mike

Mike Spector

The Wall Street Journal

1211 Avenue of the Americas

5th Floor

New York, NY 10036

(212) 416-2572 (office)

(313) 320-7388 (cell)

mike.spector@wsj.com

To: Good, David[good.david@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Fri 11/6/2015 4:49:21 PM
Subject: Audi A3 e-tron August Presentation
Presentation_MQB_PHEV_2015_EPA.pdf

Hi Dave;

I received your voice mail and have attached the August presentation used in the phone discussion with EPA. I'm not sure if you were there, but I know Jim was on the line. We tested the PHEV in the EV mode (default mode) both in Wolfsburg and at EPA. Perhaps you can discuss this with Jim for further notes.

If you can call, when you have a minute, we can discuss.

Thanks,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Good, David[good.david@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Fri 11/6/2015 4:49:21 PM
Subject: Audi A3 e-tron August Presentation
Presentation_MQB_PHEV_2015_EPA.pdf

Hi Dave;

I received your voice mail and have attached the August presentation used in the phone discussion with EPA. I'm not sure if you were there, but I know Jim was on the line. We tested the PHEV in the EV mode (default mode) both in Wolfsburg and at EPA. Perhaps you can discuss this with Jim for further notes.

If you can call, when you have a minute, we can discuss.

Thanks,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Brooks, Phillip[Brooks.Phillip@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]
Cc: Folkemer, Nathaniel[Folkemer.Nathaniel@epa.gov]; Nguyen, Loan[Nguyen.Loan@epa.gov]
From: Emmerson, Caroline
Sent: Sun 11/8/2015 9:44:57 PM
Subject: Fwd: REVIEW: Preliminary Transcript 10/8 O&I Subcommittee Hearing
100815 O&I (VW Emissions) Panel 2 Preliminary Transcript.docx
ATT00001.htm

All,

Please see Carolyn Levine's message below about the attached VW hearing transcript and let me know if you have any edits by 1 p.m., Tuesday, November 10th. We will also review and let you know if we spot any issues.

Thanks,

Caroline

Sent from my iPhone

Begin forwarded message:

From: "Levine, Carolyn" <Levine.Carolyn@epa.gov>
Date: November 6, 2015 at 3:47:54 PM EST
To: "Sutton, Tia" <sutton.tia@epa.gov>, "Emmerson, Caroline" <Emmerson.Caroline@epa.gov>, "Folkemer, Nathaniel" <Folkemer.Nathaniel@epa.gov>, "Haman, Patricia" <Haman.Patricia@epa.gov>
Cc: "Nguyen, Loan" <Nguyen.Loan@epa.gov>
Subject: REVIEW: Preliminary Transcript 10/8 O&I Subcommittee Hearing

Hi all,

Attached is the preliminary transcript from the October 8, 2015, House Energy and Commerce/Oversight and Investigations Subcommittee VW hearing. The Committee is asking for any edits to correct technical, grammatical, and typographical errors to EPA's part of the transcript,

Pat and I wanted to give OECA and OAR and/or the witnesses the opportunity to review and provide us the edits. Please send any edits (in red) via pdf or hard copy to both Pat and me by 3pm Tuesday, November 10, 2015.

Thank you!

Carolyn and Pat

Carolyn Levine

Office of Congressional and Intergovernmental Relations

U.S. EPA

(202) 564-1859

levine.carolyn@epa.gov

To: Ex. 6
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Tue 11/10/2015 11:26:45 AM
Subject: FW: Confirmation of Certification Fees Payment

Hi Ex. 6

I opened up this mail this morning to my surprise. Payment of $80,223 was electronically transferred on Friday, November 6th for three Audi test groups: HVGAJ02.0AAC, HVGAT03.0AUT and HVGAV05.2NLE. I did not file any fee filing form for this HVGAJ02.0AAC test group.

My understanding was that the fee filing form must now be created/filed on the pay.gov website as outlined in CD-15-08 of April 20, 2015 with an effective date of October 1, 2015. Is that correct?

Have the other two test groups been in receipt of payment now too, or should I file a fee filing form on pay.gov for the other two test groups or all three?

Thanks for your help.

Best regards,
Richard

Richard E. Thomas
Senior Emission Certification Specialist
Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326

Phone: 248 754 4213
Fax: 248 754 4207
mailto: Richard.Thomas@VW.com

-----Original Message-----
From: fees@epa.gov [mailto:fees@epa.gov]
Sent: Monday, November 09, 2015 2:39 PM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Subject: Confirmation of Certification Fees Payment

To the representative for Volkswagen Group of America, Inc.:

Your certification Fee Filing Form(s) submitted for the following family or test group(s) and the associated financial documentation for your payment of $26741.00 were received on 11/09/2015.

- HVGAJ02.0AAC

This message indicates only that EPA has received record of your payment and form(s) for the above certification fee. It does not constitute the granting of a Certificate of Conformity by EPA or convey any information about the status of your certification application for the subject family or test group(s).

Please do not respond to this email. If you have any questions regarding certification of the family or test group(s), please contact your EPA Certification Representative; for questions on fees, contact

Fees@epa.gov.

To: Pidgeon, Bill[pidgeon.bill@epa.gov]; Snyder, Jim[Snyder.Jim@epa.gov]
From: Glas, Tobias
Sent: Tue 11/10/2015 3:23:28 PM
Subject: RE: IUVP Waver CY 2015
IUVP Waver request3.pdf

Hi Bill, hi Jim,

Here is one more waver for the High Altitude testing, please let me know if these wavers are acceptable and we will continue with the testing.

Best regards

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Glas, Tobias

Sent: Friday, October 30, 2015 4:43 PM
To: 'Pidgeon, Bill' <pidgeon.bill@epa.gov>; 'Snyder, Jim' <Snyder.Jim@epa.gov>
Subject: IUVP Waver CY 2015

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

IUVP Waver request

Volkswagen Group of America

Waver for testing a vehicle with lower mileage

Test group: AVWXV02.5257

Emission Standard: Bin 3 / PZEV

Vehicles in test group: New Beetle / New Beetle Convertible

Sales US: **Ex. 4 - CBI**

Sales Procurement state: CO

Vehicles tested: 2 HM cars tested

Number of mailing campaigns: 2

Letters per campaign: 1st: 15 / 2nd: 15

Incentive: $500

Response: We received 2 return cards but none with 50 K mi.

Comment: We will test the car with the highest mileage available.

To: Haynes, Ben[haynes.ben@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Giles, Michael (EEO)[michael.giles@vw.com]; Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Thomas, Richard (EEO)[Richard.Thomas@vw.com]
From: Rodgers, William (EEO)
Sent: Tue 11/10/2015 4:08:40 PM
Subject: Audi - VID HUT-Q7A Test Date

Hello Ben,

As discussed on the phone the supplemental information has been input to Verify for the Audi Q7 test vehicle HUT-Q7A. The date we are requesting for the delivery to EPA is November 30th 2015, with testing to take place that week.

Regards,

Bill Rodgers

EEO

To: Pidgeon, Bill[pidgeon.bill@epa.gov]
From: Glas, Tobias
Sent: Tue 11/10/2015 8:18:55 PM
Subject: RE: IUVP Waver CY 2015

Hi Bill,

thanks for the response and sorry for the confusion. Here is more information:

to 1. No, this is what we'd like to do if we get the approval on the wavers. That's why I left a message on Jim's voicemail today to figure out if the wavers are approved.

There will be no testing until I get an approval in any from EPA.

to 2. Yes, I am aware of the incentives used by Porsche and Mercedes which are higher, we do the same thing for newer luxury class too. Our number of cars we don't find is very low because we try very hard to find cars and even managed to get the requested Bentley last year.

However on all these test groups we got response cards (between 2 and 20) so customer participation is not the problem, but we don't have responses over 75% FUL.

to 3. Yes, I read the document and provided the information how many mailings we did and what the incentive was. If you need more information, please let me know.

To 4. I am aware of the regulation and we **are not trying to lower the requested test group size**. We will test the required test group size but have problems finding cars over %75 FUL and would like to test the car with the highest mileage we can find instead, so the number of tested cars will not be affected.

We have a very good track record of finding the cars needed and very rarely miss to find the required cars but High Mileage cars with 75 % are very hard to come by.

Please let me know if you need any more information.

Best regards

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Pidgeon, Bill [mailto:pidgeon.bill@epa.gov]
Sent: Tuesday, November 10, 2015 2:29 PM
To: Glas, Tobias <Tobias.Glas@vw.com>
Subject: RE: IUVP Waver CY 2015

Hi Tobias,

I'm concerned with the attachment you sent with waiver requests for six test groups,

each of which the following comment:

"We will test the car with the highest mileage available."

Hopefully I'm misunderstanding your comment and it leads to two questions.

1. Does this mean that VW assigned itself IUVP waivers, and tested or will test six vehicles that do not meet the regulatory requirements?

2. Do you have knowledge of the incentives used by competing manufacturers, so that a level playing field can be maintained, to avoid providing a competitive advantage to select manufacturers?

3. Did you read the document I sent you in my email of Tue 4/28/2015 2:44 PM, on the type of information I need determine whether a waiver should be granted?

4. Are you familiar with the following regulatory requirement?

86.1845-04 (c) (3):

The approval of any such request, and the substitution of an alternative sample size requirement for the test group, will be based on a review of the procurement efforts made by the manufacturer to determine if all reasonable steps have been taken to procure the required test group size."

I know the IUVP program is extensive and requires a lot of work, and it can be frustrating when owners won't participate. But as the document I sent you in April explains, there a many variables that have to be considered to do it right.

I hope to get back to you on Thursday with IUVP waiver decisions, but you haven't given me much evidence "to determine if all reasonable steps have been taken to procure the required test group size."

Best wishes,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Friday, October 30, 2015 4:43 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: IUVP Waver CY 2015

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Glas, Tobias[Tobias.Glas@vw.com]
From: Pidgeon, Bill
Sent: Tue 11/10/2015 9:18:16 PM
Subject: RE: IUVP Waver CY 2015

Hi Tobias,

Thanks for the quick reply, I'm off Friday, so I'll try hard to get back to you on Thursday.

Best wishes,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Tuesday, November 10, 2015 3:19 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>
Subject: RE: IUVP Waver CY 2015

Hi Bill,

thanks for the response and sorry for the confusion. Here is more information:

to 1. No, this is what we'd like to do if we get the approval on the wavers. That's why I left a message on Jim's voicemail today to figure out if the wavers are approved.

There will be no testing until I get an approval in any from EPA.

to 2. Yes, I am aware of the incentives used by Porsche and Mercedes which are higher, we do the same thing for newer luxury class too. Our number of cars we don't find is very low because we try very hard to find cars and even managed to get the requested Bentley last year.

However on all these test groups we got response cards (between 2 and 20) so customer

participation is not the problem, but we don't have responses over 75% FUL.

to 3. Yes, I read the document and provided the information how many mailings we did and what the incentive was. If you need more information, please let me know.

To 4. I am aware of the regulation and we **are not trying to lower the requested test group size**. We will test the required test group size but have problems finding cars over %75 FUL and would like to test the car with the highest mileage we can find instead, so the number of tested cars will not be affected.

We have a very good track record of finding the cars needed and very rarely miss to find the required cars but High Mileage cars with 75 % are very hard to come by.

Please let me know if you need any more information.

Best regards

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Pidgeon, Bill [mailto:pidgeon.bill@epa.gov]
Sent: Tuesday, November 10, 2015 2:29 PM
To: Glas, Tobias <Tobias.Glas@vw.com>
Subject: RE: IUVP Waver CY 2015

Hi Tobias,

I'm concerned with the attachment you sent with waiver requests for six test groups, each of which the following comment:

"We will test the car with the highest mileage available."

Hopefully I'm misunderstanding your comment and it leads to two questions.

1. Does this mean that VW assigned itself IUVP waivers, and tested or will test six vehicles that do not meet the regulatory requirements?

2. Do you have knowledge of the incentives used by competing manufacturers, so that a level playing field can be maintained, to avoid providing a competitive advantage to select manufacturers?

3. Did you read the document I sent you in my email of Tue 4/28/2015 2:44 PM, on the type of information I need determine whether a waiver should be granted?

4. Are you familiar with the following regulatory requirement?

86.1845-04 (c) (3):

The approval of any such request, and the substitution of an alternative sample size requirement for the test group, will be based on a review of the procurement efforts made by the manufacturer to determine if all reasonable steps have been taken to procure the required test group size."

I know the IUVP program is extensive and requires a lot of work, and it can be frustrating when owners won't participate. But as the document I sent you in April explains, there a many variables that have to be considered to do it right.

I hope to get back to you on Thursday with IUVP waiver decisions, but you haven't given me much evidence "to determine if all reasonable steps have been taken to procure the required test group size."

Best wishes,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Friday, October 30, 2015 4:43 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: IUVP Waver CY 2015

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: Spieth, John
Sent: Tue 11/10/2015 9:57:18 PM
Subject: Fwd: NY Times article on PEMS testing and VW

Linc,

I thought you might like the quote about finding defeat devices, "it will take several weeks for all makes and models to be tested...."

John

Sent from my iPhone

Begin forwarded message:

From: "Haugen, David" <haugen.david@epa.gov>
Date: November 10, 2015 at 12:22:56 PM EST
To: OAR-OTAQ-TATD Managers <OAROTAQTATD_Managers@epa.gov>
Subject: NY Times article on PEMS testing and VW

From: Haugen, David
Sent: Monday, November 09, 2015 1:05 PM
To: CarlR Fulper <Fulper.Carlr@epa.gov>; Caldwell, Robert (Caldwell.Robert@epa.gov) <Caldwell.Robert@epa.gov>; Ethan Schauer <Schauer.Ethan@epa.gov>
Cc: Angela Cullen <Cullen.Angela@epa.gov>; Peralta, Maria (Peralta.Maria@epa.gov) <Peralta.Maria@epa.gov>; Sterling Imfeld <Imfeld.Sterling@epa.gov>; Matt Brusstar <Brusstar.Matt@epa.gov>
Subject: http://www.nytimes.com/2015/11/09/business/energy-environment/epa-expands-on-road-emissions-testing-to-all-diesel-models.html?ref=todayspaper&_r=0

Great work getting the PEMS unit on the Tourag last week. It added both “color” and substance to an EPA positive article.

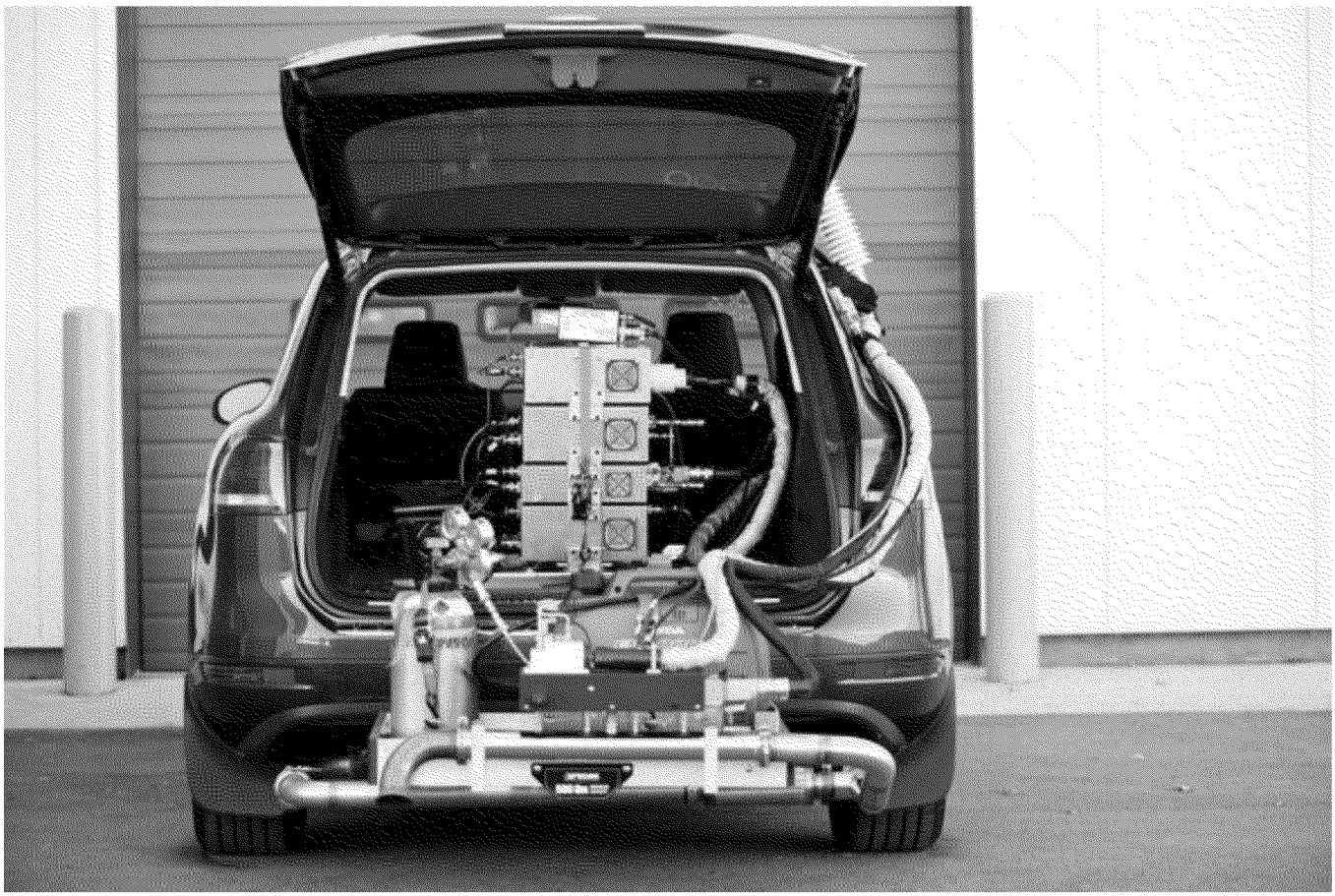
Thanks so much for the scramble.

David

nytimes.com

Galvanized by VW Scandal, E.P.A. Expands On-Road Emissions Testing

Danny Hakim and Jad Mouawad



A Rube Goldberg-type machine is being used as the United States and Canada try to catch emissions cheaters. Laura McDermott for The New York Times

Concerned that cheating on vehicle emissions could be prevalent across the automobile industry, regulators in the United States and Canada are significantly expanding their on-the-road emissions tests to cover all makes and models of diesel cars.

The tests, which come in the wake of Volkswagen's admission that it installed software on more than 11 million cars to evade emissions standards, are being conducted randomly and

in real-world conditions, rather than in traditional laboratory settings, to increase the odds of catching cheaters.

"We are very anxious to find out if there are any other programs out there," said Christopher Grundler, director of the office of transportation and air quality at the Environmental Protection Agency.

The first tests on brands manufactured by Volkswagen, completed last week, found the cheating software on about 10,000 VW, Audi and Porsche models not previously disclosed by the German manufacturer. Volkswagen disputes the E.P.A.'s claim, saying the software recently uncovered was not intended to thwart emissions testing.

A 2014 Volkswagen Touareg TDI with emissions testing equipment. VW disputes the E.P.A.'s latest findings of illegal software. Laura McDermott for The New York Times

Since then, no other automobile company has been found to have installed so-called defeat software, although it will take several weeks for all makes and models to be tested.

Mr. Grundler declined to describe the tests, except to say they will focus on 2015 and 2016 model year diesel cars. They will also be performed on all new cars that manufacturers seek to certify, he said.

The move by the E.P.A. is a significant expansion of its testing regimen, which previously

did road testing for pollutants mainly on large trucks. It also makes road-test spot checks of older cars to ensure that their pollution-control mechanisms are still effective. Tests are also being performed in cooperation with regulators in Canada and California.

But Volkswagen's scandal has highlighted deficiencies in the existing lab tests in both North America and Europe.

"Regulators must think more like the cheaters," said Luke Tonachel, a specialist in auto emissions for the Natural Resources Defense Council. "E.P.A. is starting to use new tests that can't be readily gamed by manufacturers."

An official with the trade group the Alliance of Automobile Manufacturers said it supported the E.P.A. expansion of road testing.

Europe has been planning its own real-world testing for several years, though those tests will not start until 2017. Other countries, including South Korea, China, India and Mexico, have announced or are considering road tests.

The new and more unpredictable testing represents a sea change from the traditional, highly controlled lab setting where vehicles are put on a treadmill, wired with sensors and run through a standardized and familiar routine.

"Manufacturers have asked us what the test conditions would be, and we've told them that they don't have a need to know," Mr. Grundler said. "It will be random."

The road testing could dim the future for diesels, which have higher pollution emissions, making electric and hybrid vehicles more attractive in terms of their effect on the environment.

American regulators believe that road testing is relatively crude and cannot match the precision of lab results at detecting nitrogen oxide and other fine particles and pollutants. Rather, the aim of their road tests is to help validate lab findings by catching cars whose road performance reveals higher emissions readings.

Road testing involves capturing exhaust gases with a Rube Goldberg-type machine the size of a pair of large suitcases that fits in the trunk of most cars, with a few pieces hanging off the back. The technology, which was developed by an E.P.A. engineer, is decades old but until now has been used mostly to test diesel trucks.

To obtain test vehicles, the E.P.A. gets cars directly from manufacturers or sometimes requests loaners from dealers. It also uses rental cars and even reaches out to ordinary drivers to obtain the specific make and model needed for testing. In those cases, the car owner is offered $20 a day and a loaner car in exchange for the use of the vehicle for a couple of weeks. Once the tests are done, the cars are returned cleaned, with a full tank of fuel and an oil change.

Lab testing in Europe is done exclusively by automakers and their contractors, and they are permitted to use preproduction vehicles that will never be sold. The rules also allow them to modify the cars in various ways, for instance, by stripping out back seats to make them lighter, taping up the doors and grilles to make them more aerodynamic and fully charging the battery to put less stress on the engine.

The United States has a more robust lab-testing system. Regulators perform their own lab emissions tests to check manufacturers' claims. American regulators test preproduction vehicles and those that are already on the road.

As the United States and Europe incorporate road tests, their regulatory regimens are diverging further. Thus far, American regulators are using road tests to catch illegal cheating strategies, known as defeat devices, but they will continue to rely on tests in laboratories.

Europe plans to test in a different way. In addition to lab tests, cars sold in Europe will have to pass separate emissions tests on the road with a new set of maximum emissions of nitrogen oxides.

Europe's road tests as currently proposed will still not be performed by regulators. They will also continue to involve preproduction vehicles, according to John German, a former E.P.A. official and a senior fellow at the International Council on Clean Transportation, an environmental group that played a pivotal role in uncovering Volkswagen's cheating.

Mr. German also said the proposed European road test "does not include cold starts" of the engine, which is when most emissions occur.

The European plan, under development since 2011, still faces what could be a contentious fight in the European Parliament, amid criticism that policy makers have watered down earlier proposals.

Automakers say they need to be allowed to exceed Europe's existing nitrogen oxide standards significantly in the new road tests, which are performed under less predictable conditions than lab tests.

Environmental groups disagree and were angered last week after a review panel appeared to side with automakers.

Under the latest European plan, the road tests, which begin to take effect in 2017, would initially allow automakers to emit more than twice the current European limits on nitrogen oxides. The requirements would become tougher by 2021, when all new cars would be required to emit a level of nitrogen oxides in road tests that is no more than 50 percent above current limits.

European regulators previously sought to allow automakers to exceed the current regulatory limit by less than 20 percent. Environmental groups want automakers to eventually meet the

same number on the road that they do in the lab.

Lucia Caudet, a spokeswoman for the European Commission, the European Union's executive branch, said that since diesel cars, in practice, were already emitting far more nitrogen oxides than permitted by European standards, the new tests would still be a substantial improvement. "We consider this agreement progress," she said, "although of course ideally we would like to see real driving emission reduced further."

American regulators have chosen a different approach because the E.P.A. doesn't think emissions tests conducted on the road are accurate enough to measure to a specific emissions standard. "We think they are much better suited for these screening purposes and looking for defeat devices," Mr. Grundler said.

The auto industry has publicly embraced the coming European tests, while lobbying to make them less demanding.

At a hearing last month, a member of the British Parliament asked Mike Hawes, the chief executive of the leading auto-industry trade group in Britain, how the industry could restore consumer confidence.

"The fix for this will be the introduction of so-called real-world driving emissions," Mr. Hawes said.

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Sweet, Andrew[Sweet.Andrew@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Thur 11/12/2015 4:52:08 PM
Subject: Air & Radiation Law News for November 12, 2015

Air & Radiation Law News for November 12, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

D.C. Circuit Won't Revisit Chromium Litigation

A federal appeals court will not rehear arguments over the legality of the Environmental Protection Agency's national hazardous air pollutant standards covering chromium electroplating facilities (Nat'l Ass'n for Surface...

Air Pollution

EPA Regional Consistency Rule Questioned by Industry

An Environmental Protection Agency proposal to update its regional consistency regulations would be illegal under the Clean Air Act and conflict with more than 40 years of agency policy, a variety of industry

associations said....

Air Pollution

EPA Seeks to Block McCarthy Deposition in Jobs Lawsuit

The Environmental Protection Agency is asking a federal appellate court for a writ of mandamus to prevent Administrator Gina McCarthy from being deposed in a coal company's lawsuit seeking to force the agency to review the impact its Clean...

Air Pollution

EU Council Finalizes Directive on Combustion Plant Emissions

European Union member states represented in the Council of the EU Nov. 10 approved a directive that will set for the first time at the EU level minimum air pollution control standards for medium-size combustion plants....

Climate Change

Oil Price Drop Threatens Efforts to Cut Carbon Emissions

The plunge in oil prices risks undermining efforts to reduce carbon pollution blamed for climate change, especially projects designed to wring more from each barrel of oil, the International Energy Agency concluded in its annual assessment...

Climate Regulation

State Field Likely Set for Clean Power Plan Legal Fray

Just five states are not currently involved with litigation on the Environmental Protection Agency's Clean Power Plan and at least two of those—Pennsylvania and Nevada—don't plan to enter the legal fray....

Energy Efficiency

Natural Gas Groups Criticize Residential Furnace Rule

The natural gas industry criticized the Energy Department for not providing additional analysis of the cost impacts of the proposed energy efficiency standards for non-weatherized gas residential furnaces....

International Climate

Ministerial Meetings Mark Progress Before Paris Climate Talks

Three days of ministerial-level consultations in Paris concluded Nov. 10 with progress on several key issues negotiators will face at the United Nations climate summit, which starts in less than three weeks, the French foreign minister announced....

International Climate

Sanders Eyes Trip to Paris to Back Global Climate Deal

Democratic presidential candidate Sen. Bernie Sanders (I-Vt.) told Bloomberg BNA he is considering a trip to Paris to back U.S. efforts to get the first truly global climate deal agreed to there....

International Climate

U.S. Favors Hybrid Climate Agreement in Paris: Official

The U.S. supports a New Zealand proposal for a "partially legally binding" global climate deal that could come out of the upcoming Paris climate summit, but not a fully binding agreement, a U.S. official said....

International Climate

U.S. to Integrate Climate Analyses Into Embassy Plans

Secretary of State John Kerry said Nov. 10 that he is convening a task force of senior government officials to integrate analyses of the national security and other threats posed by climate change into all U.S. foreign policy planning and priority-setting....

Motor Vehicles

EU Lawmakers Could Block Exhaust Emissions Rule

A controversial rule that would give car manufacturers leeway to exceed exhaust pollution limits laid down in European Union legislation should be blocked, several European Parliament lawmakers said Nov. 10....

Regulatory Policy

Chevron Doctrine Ingrained in U.S., Official Says

The Justice Department's top environmental attorney said the Chevron doctrine—which established that courts should defer to a federal agency if they determine the agency's interpretation of an ambiguous statute is reasonable—is...

Renewable Energy

California Desert Renewable Energy Document Released

California and federal officials released the final environmental document Nov. 10 for a plan to guide and streamline development of utility-scale renewable energy projects on 10 million acres of federal land in the California desert....

Inside EPA's **Weekly Report**, 11/13/2015

http://insideepa.com/newsletters/inside-epa

Inside EPA's **Environmental Policy Alert**, 11/11/2015

http://insideepa.com/newsletters/environmental-policy-report

Latest News

EPA 'Exceptional' Air Policy Overhaul Could Ease States' Rule Compliance

EPA is proposing to overhaul its policy on when states can discount air pollution associated with "exceptional events" such as dust storms and wildfires from their compliance with Clean Air Act programs, potentially boosting several states as they aim to meet stricter rules including the agency's recently tightened ozone ambient air limit.

Following Citizen Suit Defeats, Advocates Increase Scrutiny Of Air Permits

The Environmental Integrity Project (EIP), a group that has championed citizen suits against industrial polluters to curb their emissions, is planning to place a heavier emphasis on getting EPA to challenge plants' state air permits in future actions, following some defeats in citizen actions seeking to directly enforce permit and other limits.

States, Industry Raise Policy, Legal Fears Over New EPA Interstate Air Rule

States, industry groups and environmentalists are raising serious -- and sometimes contradictory -- concerns over EPA's latest attempt to craft a rule to mitigate interstate air pollution transport, even as the proposed measure is under White House Office of Management and Budget (OMB) review before its expected release sometime this fall.

EPA Data Notice On Interstate Air Transport Prompts Disparate Concerns

EPA's notice of data availability (NODA) on interstate air pollution is prompting disparate concerns from states and industry groups over the accuracy and legality of the agency's technical approach, which could complicate efforts to use the data to plan "good neighbor" efforts to curb one state's pollution hindering air quality in another state.

News Briefs

EPA Asks 4th Circuit To Bar McCarthy Deposition In 'Jobs' Suit

EPA is again asking the U.S. Court of Appeals for the 4th Circuit to intervene in ongoing coal industry litigation seeking to force the agency to review the employment impacts of its air and climate rules, filing a new petition that asks the appellate court to rule that Administrator Gina McCarthy cannot be forced to testify in the case.

EPA Touts New Federal Plan To Reduce Radon Risk

EPA is touting a new federal strategy that aims to reduce human exposures to the radioactive gas radon by requiring testing and mitigation technologies in millions of homes and school, making the precautionary measures standard practice in housing finance and insurance programs, as well as in building code requirements.

Greenwire

COAL:

EPA begs appeals court to block McCarthy deposition

Manuel Quiñones, E&E reporter

Published: Wednesday, November 11, 2015

U.S. EPA is turning to a federal appeals court for a second time in recent months to shield the agency in litigation by Murray Energy Corp.

Murray sued EPA last year in U.S. District Court for the Northern District of West Virginia, accusing the agency of not taking enough account of the economic impacts of regulatory actions affecting coal-fired power plants.

Yesterday, the agency asked the 4th U.S. Circuit Court of Appeals for an order preventing Murray attorneys from deposing Administrator Gina McCarthy.

Justice Department attorneys representing EPA wrote in a filing, "It is well settled that 'top executive department officials should not, absent extraordinary circumstances, be called to testify regarding their reasons for taking official actions.'"

The administration asked U.S. District Court Judge John Preston Bailey for relief in October (*E&ENews PM*, Oct. 19). But he has yet to rule on the motion to block McCarthy's planned deposition later this month.

Murray attorneys have expressed willingness to scrap the deposition if the agency turns over certain information. At the same time, they have defended their request to require her to testify.

Murray attorneys say "she has unique and superior personal knowledge of the key facts involved," not only as administrator but as former head of EPA's air office.

But administration attorneys told the appeals court that Murray "did not come close to identifying extraordinary circumstances that could justify compelling the deposition of Administrator McCarthy, a Cabinet-rank officer. It is utterly inconceivable that her testimony could be relevant (much less necessary) to Murray's straightforward nondiscretionary-duty claim."

Earlier this year, a three-judge panel of the same appeals court rejected EPA's request to limit the scope of discovery (*Greenwire*, July 14). The administration said EPA has turned over more than 130,000 documents and made midlevel officials available for deposition.

CAMPAIGN 2016:

Republicans slam Obama climate rule in 5th debate

Jennifer Yachnin, E&E reporter

Published: Wednesday, November 11, 2015

If a Republican presidential debate takes place and South Carolina Sen. Lindsey Graham isn't invited, do moderators still ask any questions about climate change policy?

The answer last night in Milwaukee was yes.

A dozen Republican presidential contenders faced off as the GOP held its fourth primary debate -- with eight candidates in the prime-time debate and four contenders in the undercard session -- primarily focusing on issues including tax plans and foreign policy.

But the main debate also briefly veered into a discussion over carbon emissions regulations, when Kentucky Sen. Rand Paul fielded a moderator's question about whether domestic energy production could be balanced with climate change policy.

Paul, whose flagging campaign makes him a long-shot bid for the White House, criticized the Obama

administration's efforts to reduce power-sector carbon emissions and vowed to repeal the Clean Power Plan if elected.

"The first thing I would do as president is repeal the regulations that are hampering our energy that the president has put in place, including the Clean Power Act," Paul said.

That promise puts Paul in line with other would-be GOP presidential nominees who have promised to undo the regulations if elected, including Florida Sen. Marco Rubio, former Florida Gov. Jeb Bush and former Hewlett-Packard CEO Carly Fiorina. Retired neurosurgeon Ben Carson has also told *E&E Daily* that he opposes the regulations, while Louisiana Gov. Bobby Jindal said last night that he would "rein in the EPA" (*E&E Daily*, Nov. 3).

During his response, Paul also sought to walk back his support for a Senate amendment earlier this year acknowledging that human activity contributes to global warming.

"While I do think man may have a role in our climate, I think nature also has a role. The planet is 4.5 billion years old; we've been through geologic age after geologic age. We've had times when the temperature's been warmer; we've had times when the temperature's been colder. We've had times when the carbon in the atmosphere has been higher," Paul said. "I think we need to look before we leap."

He went on to criticize the Obama administration, asserting that the president "has devastated my state."

"I say the president is not only destroying Kentucky, he's destroying the Democratic Party down there, because no one wants to associate with him," Paul said, an apparent allusion to Republican businessman Matt Bevin's unexpected win in the state's gubernatorial contest last week (*E&E Daily*, Nov. 4).

Bush, who disparaged Democratic front-runner Hillary Clinton for her opposition to the recently rejected Keystone XL pipeline, also criticized the Obama administration over its focus on carbon emissions.

"We've had a 10 percent reduction in climate emissions, and it isn't because of Solyndra," Bush said, in reference to the bankrupt California solar firm that received Energy Department loan guarantees and later became a Republican symbol of government failure in the 2012 election cycle. "It isn't because of the central planners in Washington, D.C. It's because we've had a great American success story: the explosion of natural gas."

He added: "We've got to get to a conservation and environmental policy that goes beyond just carbon."

Texas Sen. Ted Cruz also sought to inject himself into the discussion about climate change policy but was cut off by Bush and did not complete his remarks.

In previous debates, moderator questions on climate change policy have proved rare, with Graham -- who is often cited as a Republican outlier for his allegiance to climate change science -- typically fielding the inquiries.

But neither Graham nor former New York Gov. George Pataki met the required polling cutoff to participate in the most recent Republican debate.

League of Conservation Voters Senior Vice President for Campaigns Daniel Weiss last night expressed disappointment over candidates' focus on ending the Clean Power Plan.

"These national carbon pollution limits have been embraced by a broad and diverse set of stakeholders -- including utilities, public health experts, clean energy advocates and others. Meeting the global threat of climate change requires U.S. leadership -- but we didn't see it from any of the candidates on stage

tonight," he said.

Democratic presidential primary contenders will face off Saturday in Iowa in a debate hosted by CBS News. Republican candidates will not debate again until Dec. 15, when CNN is set to host an event in Nevada.

CLEAN POWER PLAN:

Green group presses Dem lawmakers on carbon rule

Daniel Bush, E&E reporter

Published: Wednesday, November 11, 2015

Environment America launched an ad campaign today pressuring a trio of Democratic senators to vote against a resolution aimed at overturning U.S. EPA's Clean Power Plan.

The green group's online ad blitz urges Democratic Sens. Bob Casey of Pennsylvania, Mark Warner of Virginia and Michael Bennet of Colorado -- who is up for re-election next year -- to oppose a Congressional Review Act resolution that would block the Obama administration's rules for power-sector carbon emissions.

"Senator Warner, will you let big polluters and their allies take away public health benefits, or will you support cleaner air, protect our climate [and] ensure a healthy future for our families?" the ad targeting the Virginia Democrat asks.

The ads aimed at Bennet and Casey -- who, like Warner, have both publicly supported the Clean Power Plan -- thank the lawmakers for "protecting our climate." The ads are running online in Colorado, Pennsylvania and Richmond, Va., through Friday, an Environment America official said.

The push comes as Senate Majority Leader Mitch McConnell (R-Ky.) plans to hold a vote next week on the CRA resolution blocking the Clean Power Plan. The EPA rule is a favorite target of congressional Republicans and moderate Democrats from energy-producing states.

Environment America isn't the only green group ramping up its messaging effort ahead of the CRA vote.

Sierra Club Executive Director Michael Brune urged members of a new Senate Republican working group on energy and environmental policy -- made up of Sens. Mark Kirk of Illinois, Kelly Ayotte of New Hampshire, Lamar Alexander of Tennessee and Lindsey Graham of South Carolina -- to reject the resolution (*E&ENews PM*, Nov. 10).

TRANSPORTATION:

Stakeholders seek more money over shorter time in highway bill

Ariel Wittenberg, E&E reporter

Published: Wednesday, November 11, 2015

Transportation groups wrote to Congress yesterday urging that the highway bill under debate increase federal investments in transportation projects, even if it means reauthorizing surface transportation

programs for less time.

The letter, sent by 40 stakeholder groups, was written as legislators prepare to go into conference to hammer out the differences between House and Senate versions of the highway bill.

"The goal of the conference committee should be to produce final legislation that confronts the nation's surface transportation challenges with policy reforms AND increased federal investment levels," the letter says. "To that end, a reauthorization bill of less than six years duration with significant highway and public transportation investment increases is far superior to a six-year bill with status quo funding levels."

Determining how to finance the $325 billion road and public transit package has been a major point of contention as the bills moved through Congress (*E&E Daily*, Nov. 5).

Currently, the Senate bill authorizes funding for six years but provides enough money only to pay for the first three. The House was able to cover five years of the bill's cost at the last minute last week thanks to an amendment by Rep. Randy Neugebauer (R-Texas) that would help finance the bill by reducing dividends that the Federal Reserve pays to some large member banks (*Greenwire*, Nov. 5).

That last-minute fix has some members of the conference committee considering authorizing a fully funded five-year authorization package.

But the transportation groups say the House solution is not enough because it would "fail to keep pace with the projected annual inflation increases."

"While the reliability of future federal highway and public transportation funds is a critical benefit of a multi-year reauthorization bill, such predictability alone is not sufficient to drive needed surface transportation improvements," the letter says. "We urge you to ensure any surface transportation conference report seeks to maximize the benefits it would provide as opposed to the number of years it would last."

ENERGY EFFICIENCY:

E.U. rejects Dyson's claims of VW-style vacuum deception

Published: Wednesday, November 11, 2015

A bid by appliance maker Dyson Ltd. to change E.U. energy efficiency labeling laws to eliminate perceived unfairness was rejected by an E.U. court.

Claiming deception "akin to the Volkswagen scandal," company founder James Dyson argued last month that E.U. regulators tested vacuums only on clean surfaces, which could "mislead consumers on the real environmental impact of the machine they are buying." He filed legal action against appliance rivals Bosch and Siemens AG, which primarily make bagged vacuum cleaners, as opposed to Dyson's bagless ones (*Greenwire*, Oct. 21).

"The court acknowledges that the suction performance and energy efficiency of a vacuum cleaner with a dust-loaded receptacle will be reduced due to dust accumulation," the E.U. general court said in its ruling. "It observes, however, that the [European] commission could not use tests conducted on the basis of a dust-loaded receptacle, as they are not reliable, accurate and reproducible, as required by the regulation."

BSH Home Appliances Corp., which manufactures vacuums sold under the Bosch and Siemens brands, said it will take legal action against Dyson regarding the "unfounded and untrue" statements (*London Guardian*, Nov. 11). **-- BTP**

STATES:

Carbon tax could be coming to a handful of regions

Published: Wednesday, November 11, 2015

Several states are moving close to charging fees on carbon emissions and passing the proceeds to residents in the form of dividend checks.

In Washington state, advocates are working to gather signatures for a ballot initiative to cut the state's carbon footprint and reform its tax system. If it qualifies, it would be the first carbon tax to reach the ballot in the United States.

Citizens and state lawmakers in Massachusetts, Vermont, Rhode Island and Oregon have also considered similar proposals. British Columbia already has a carbon tax that it returned to residents.

The plan, if enacted, will show consumers that action on climate change can offer benefits to them, not only personal sacrifices.

"I think it's a relatively new idea for a lot of people," said Yoram Bauman, who founded a group, Carbon Washington, that supports the plan. "When you talk about climate change, they think they're going to have to spend money on solar panels or stuff like that" (Chelsea Harvey, *Washington Post*, Nov. 10). **-- SP**

OIL AND GAS:

Shell president supports cap and trade over current approach

Published: Wednesday, November 11, 2015

Shell Oil Co.'s president said yesterday that a national -- or global -- carbon tax or cap-and-trade system would be better for the energy industry than the patchwork of state and federal regulations it currently must deal with.

"I don't know that I really care which it is. It just has to be a very well-designed system," Shell President Marvin Odum said in a speech at the University of Houston. "I think it's important to have a level playing field."

Shell parent company Royal Dutch Shell PLC was one of six major European fossil fuel companies that asked the United Nations earlier this year to work on creating national and eventually global carbon pricing systems to help fight climate change (*ClimateWire*, June 2).

Odum said Shell is not backing away from fossil fuels and plans to expand its natural gas operations even further with the acquisition of BG Group PLC (*EnergyWire*, Nov. 2).

"You're actually going to require a tremendous amount of fossil fuels and hydrocarbons over the next 40 to 50 years," Odum said (Jordan Blum, *Fuel Fix*, Nov. 10). **-- BTP**

WIND:

Bill Clinton touts renewables at Panama turbine farm

Published: Wednesday, November 11, 2015

Former President Bill Clinton came to Central America's largest wind farm in western Panama yesterday to tout the potential of renewable energy.

The wind farm near Penonome, Panama, is set to open next year and will be able to produce 6 to 8 percent of Panama's electricity.

The project received support from the Clinton Global Initiative, as well as a private equity firm that invests in Latin American energy projects.

Other stops on Clinton's trip are Peru and El Salvador (AP/*New York Times*, Nov. 10). **-- SP**

PEOPLE:

Technology key to solving climate woes -- Bill Nye in new book

Published: Wednesday, November 11, 2015

Bill Nye's new book tackles how humanity could solve climate change through new technology, and he's optimistic it can still happen.

"My grandfather went into World War I on a horse," Nye said. "He was on a horse, for crying out loud. But 20 years later, when people went to extend that conflict, to reignite the world war, nobody who was serious about fighting a battle went into a battle on a horse. Everything changed in 20 years. Everything."

In "Unstoppable: Harnessing Science to Change the World," Nye, an inventor and former engineer, proposes energy-saving ideas such as better batteries, robocab fleets for cities, rockets using hydrogen fuel and biofuels.

"There are a great many engineering options and, I hope, policy ideas that people will embrace to help humankind save the Earth for humankind," Nye said. "As I like to say, the Earth is going to be here no matter what we do. We want to save the Earth for us" (Chris Mooney, *Washington Post*, Nov. 10). **-- BTP**

BIOFUELS:

Producers push back against anti-ethanol ads in Ohio

Tiffany Stecker, E&E reporter

Published: Wednesday, November 11, 2015

Ohio ethanol producers are protesting recent ads in the state to discredit the corn-based renewable fuel as a low-carbon alternative to petroleum.

The Ohio Ethanol Producers Association and the Ohio Corn and Wheat Growers Association are reacting to the American Council for Capital Formation's ad buy in the Buckeye State for TV spots that assert corn

ethanol is no better than gasoline when it comes to greenhouse-gas-reducing effects.

"I don't think that the misleading ads that we're seeing can go unchecked," Mark Borer, president of the Ohio Ethanol Producers Association, said in a call with reporters.

ACCF last week announced that the ads would run in Ohio and three New England states and released analyses on how the RFS has affected the environment and economy in the states (*E&E Daily*, Nov. 3).

Borer criticized the ads as an effort to malign ethanol at a time when the corn fuel is cheaper than gasoline. Ethanol prices currently range from $1.52 to $1.65 per gallon, and the U.S. average for gasoline is $2.24 per gallon, according to the U.S. Energy Information Administration.

"Ethanol right now is at a significant price advantage compared to gasoline," said Borer. "That's what's driving this. It's important for us to realize that's what's behind this campaign."

ACCF's ad buy allowed the ads to run in the Ohio market for one week. The ads aired on Monday before ACCF received a letter from the Ohio groups to stop them, said a source affiliated with ACCF.

The Ohio groups said their letter to ACCF on the ads went unanswered. The source said ACCF received the letter less than 24 hours ago.

"I think these guys sometimes get lost in this weird, parallel universe in which they actually convince themselves that this mountain of damning, definitive science and data about corn ethanol's environmental impact doesn't exist, or that folks don't actually know about it," Dave Banks, executive vice president of ACCF, said in a statement.

FEDERAL AGENCIES:

Obama nominates acting OPM chief for job permanently

Kevin Bogardus, E&E reporter

Published: Wednesday, November 11, 2015

Beth Cobert has been nominated by President Obama to be director of the Office of Personnel Management.

Cobert has been leading the personnel office on an acting basis as it has picked up the pieces from the federal government's massive data breach that leaked sensitive information for 21.5 million people compiled from the agency's background investigations.

That breach, first disclosed in June, eventually led to the resignation of Katherine Archuleta as OPM chief. Cobert, then deputy director at the Office of Management and Budget, stepped in to head the office under an interim status (*Greenwire*, July 10).

In announcing his pick of Cobert for OPM yesterday, Obama said, "Beth will bring tremendous depth and quality of experience to her role as director of the Office of Personnel Management."

He added: "As acting director, Beth has effectively pursued strategies to strengthen cybersecurity and improve the way the government serves citizens, businesses and the federal workforce both past and present. I thank Beth for her commitment to serving the American people and look forward to working with her in the months ahead."

Cobert has already had to handle some tough issues as acting OPM chief.

In September, the agency disclosed that more federal employees than originally estimated -- roughly 5.6 million -- had their fingerprints stolen in the breach (*Greenwire*, Sept. 23). Cobert has also been leading OPM's effort to notify millions of government workers that their personal data have been compromised.

Cobert first joined the Obama administration in 2013 when she came to OMB. Before that, she was with consulting giant McKinsey & Co. for almost 30 years, holding down top jobs there such as director and senior partner.

Cobert's nomination won praise yesterday from both sides of the aisle.

"She has impressed me as a talented, qualified, and competent choice for OPM Director. I am hopeful that she can lead and fix this agency," Rep. Jason Chaffetz (R-Utah), chairman of the House Oversight and Government Reform Committee, said in a statement.

Panel ranking member Elijah Cummings (D-Md.) said he was "confident that she is the right person to lead the agency."

Sen. Tom Carper (D-Del.), ranking member of the Senate Homeland Security and Governmental Affairs Committee, said Cobert was "impressive, decisive and well-respected on both sides of the aisle in Congress."

"I urge my colleagues to act quickly on her nomination," Carper added.

The acting OPM chief also won plaudits from the largest federal worker union.

J. David Cox, president of the American Federation of Government Employees, said Cobert "has done an admirable job as acting director."

He added, "She has answered questions about the data breach honestly, has taken steps to bring in-house the work associated with notifying affected employees, and seems to understand IT adequately enough to make sure that security measures are in place to minimize further breaches."

Cobert's confirmation process will lead to more questions on how the administration is dealing with the data breach -- a response that has left many underwhelmed on Capitol Hill and in federal agencies.

"I look forward to hearing the nominee's ideas for protecting Americans' private information, for contacting the millions affected by the attack that inexplicably have not yet heard from OPM, and ensuring that federal employees are not subject to the threat of another massive hack of their private information," said Senate Majority Leader Mitch McConnell (R-Ky.).

In addition, Republicans are pushing for more accountability at OPM since the breach. In his statement, Chaffetz repeated his call that the personnel office should fire Donna Seymour, its chief information officer.

"It is of huge concern however, that despite suffering a massive data breach and not working in good faith with the OPM OIG [Office of the Inspector General], CIO Donna Seymour remains in her position. I strongly urge Ms. Cobert to immediately remove Ms. Seymour and replace her with a qualified CIO who will protect the critical information housed at OPM," Chaffetz said.

OPM, however, has defended Seymour in the past in response to Chaffetz (*Greenwire*, Aug. 6).

AIR POLLUTION:

EPA proposes changes to ozone 'exceptional event' regs

Sean Reilly, E&E reporter

Published: Wednesday, November 11, 2015

U.S. EPA has unveiled proposed changes to its "exceptional events" regulations, a tool the agency has said states could use to address high levels of background ozone.

The proposed rule posted online yesterday would revise existing regulations in ways that appear geared toward making it easier for states to prove that spikes in ozone levels were due to natural events, not local human activity. The proposed rule would, for example, drop one provision from the existing regulations requiring states to show a direct connection between a particular event and a subsequent violation or exceedance.

While green groups are still reviewing the proposal, "I can tell you there are concerns that this is, in effect, a deregulatory move made in response to lobbying by Western governors," Frank O'Donnell, president of Clean Air Watch, said in an email this morning. Environmental organizations "are certain to file negative comments," he added.

Attempts to reach several industry representatives last night and today -- a federal holiday -- were unsuccessful. The draft rule, which runs more than 200 pages and must still be published in the *Federal Register*, sets a Jan. 19 deadline for public comments. A Dec. 8 public hearing will be held in Phoenix.

While Congress gave EPA the authority to excuse spikes in ground-level ozone readings in a 2005 amendment to the Clear Air Act, the agency has since rarely used that power. Implementation of the follow-up 2007 rule has been a headache for both state air agencies applying for exemptions and the EPA regional offices charged with reviewing those filings.

"Because exceptional events are fact-specific and thus unique and varied, providing templates or general guidance was, and still is, challenging," the proposed rule says. Under the current definition, the exceptional events are one-time occurrences, caused by either natural forces or human activity, that affect air quality.

But the issue of background ozone -- defined as readings of the pollutant that are not attributable to local, human-related sources -- has drawn increasing attention in light of EPA's decision's last month to lower the ambient air quality standard for ground-level ozone from 75 parts per billion to 70 ppb. High-elevation sites in the West sometimes approach that threshold because of background ozone; in a recently released, NASA-led study, researchers found that about 48 ppb -- or 77 percent -- of total ozone in Northern California and Nevada stemmed from background sources.

At the 70 ppb level, "we have reached the point where some parts of the country would fail to meet the standard even if they were to eliminate all industrial activity within their borders," Jeff Holmstead, who served as EPA's air chief during President George W. Bush's administration, said in prepared testimony at a House Science, Space and Technology Committee hearing last month.

In unveiling the new ozone standard last month, EPA officials noted that they were updating the exceptional events rule "to simplify and expedite the process for air agency development and EPA review" of individual exemption applications.

To date, however, the agency has granted only one waiver for an exceedance traced to background ozone. In response to a claim from Wyoming, the agency last year agreed not to count as a violation a June 2012 day when two air monitors in the state's western reaches registered ozone readings of 76 and 77 ppb, respectively (*Greenwire*, Nov. 17, 2014).

But EPA has said it has been working to improve communications with states; under the proposed rule, the agency would also reduce the number of criteria states must address in seeking to prove an exceptional event.

Those criteria include demonstrating that the event was not reasonably preventable and stemmed from natural forces or "a human activity unlikely to recur at a particular location." Although the proposed rule would drop the current requirement that states show "there would have been no exceedance or violation but for the event," it would retain another requirement that states demonstrate "a clear causal relationship between the specific event and the monitored exceedance." If the practical distinction between the two mandates seems slight, states have voiced concern that EPA "has, in many cases, historically interpreted the 'but for' criterion as implying the need for a strict quantitative analysis … of the estimated air quality impact" from a particular event, according to the draft rule.

EPA is also proposing to revise its existing regulations to make clear that "a mix of natural emissions and reasonably controlled human-affected emissions sources may be considered a natural event," according to the proposal. It adds, however, that an exceedance triggered solely by "reasonably controlled" human emissions would not be considered a natural event.

FERC:

White House may wait months to fill GOP vacancy -- sources

Hannah Northey, E&E reporter

Published: Tuesday, November 10, 2015

This story was updated at 2:25 p.m. EST.

The White House may wait months to fill a vacant Republican seat on the powerful Federal Energy Regulatory Commission -- and then use that nomination as a bargaining chip when the time comes, according to sources.

The Obama administration has yet to tap a replacement for Philip Moeller, a member of the agency who stepped down at the end of last month to pursue opportunities in the private sector.

Moeller, whose term expired June 30, was with the agency nine years. The outspoken commissioner warned about effects of new environmental rules on the electric grid and the closure of coal plants. More recently, Moeller said FERC will have to tackle the issue of distributed generation in coming years (*EnergyWire*, Oct. 30).

Moeller's vacancy has left the agency with three Democrats -- Chairman Norman Bay and Commissioners Cheryl LaFleur and Colette Honorable -- and Commissioner Tony Clark as the lone Republican.

Although speculation was high in recent weeks that Moeller would be replaced by Patrick McCormick, senior counsel for the Senate Energy and Natural Resources Committee, his fate is now unclear.

Sen. Lisa Murkowski (R-Alaska), the chairwoman of the committee, which has jurisdiction over FERC, said McCormick is comfortable working for the panel. But Murkowski wouldn't comment on whether McCormick was still a contender for the FERC position.

"I'm certainty comfortable because he's an incredible asset on the Energy Committee," the senator said.

Murkowski hired McCormick, an energy market lawyer, as the panel's special counsel in 2011. He came to the committee from the regulated markets and energy infrastructure practice at Hunton & Williams LLP and worked as an attorney for FERC. McCormick is now chief counsel.

McCormick's role was of high interest when Murkowski expressed opposition to Ron Binz, a past President Obama nominee to the commission who later stepped back after facing furious backlash from the fossil industry and free-market groups. Hunton & Williams represented coal giant Peabody Energy Corp. when the company was involved in a controversial case before the Colorado Public Utilities Commission and Binz was its chairman (*E&E Daily*, May 13).

For now, Murkowski said the commission is moving ahead.

"Moeller was just a good, strong commissioner. FERC is proceeding ahead, they can still do their business, which I think is important," Murkowski said. "Obviously, do we want to see a full complement? Yes. Do we want to see a functioning FERC? Yes. But I haven't lost a lot of sleep thinking about what the White House is doing on that."

While one source speculated that the White House wouldn't nominate a new commissioner until after the 2016 presidential election, others said the administration would be more likely to make a move before a lame-duck session sets in and makes any confirmation more difficult.

GOP strategist Mike McKenna said there's no "burning need" for the White House to fill the vacancy given that the agency is running smoothly and isn't seeing any split votes among the commissioners. But the administration, he added, may be keen on using the FERC nomination to secure passage for a Democratic appointee to another post whose confirmation has been stalled -- possibly a judicial nominee or an acting agency official.

"If it's going to happen, I think it'll happen during the first six months of [2016]. And I've got to believe it's going to happen because it's a nice trade."

McKenna also rejected the notion that McCormick is out of the running.

"I think that Pat is still very much a possibility," he said. "He's the best-qualified guy sitting out there."

OIL AND GAS:

Federal leases next big target for activists who fought KXL

Amanda Reilly, E&E reporter

Published: Tuesday, November 10, 2015

Article updated at 3:18 p.m.

With President Obama's rejection of the Keystone XL pipeline, climate activists who fought the project are turning their sights on a new movement to restrict fossil fuel extraction on federal lands.

The movement -- branded "Keep It in the Ground" -- took its first big steps last week as Sens. Jeff Merkley (D-Ore.) and Bernie Sanders (I-Vt.) introduced legislation to ban drilling on public lands. Now, activists are turning their attention to upcoming oil and gas lease sales in the West, threatening protests.

Former Secretary of State and Democratic presidential front-runner Hillary Clinton yesterday also assumed the nascent movement's language in a speech about climate change to the League of Conservation Voters.

"I would put the Arctic off-limits to drilling because I believe there are some places where we need to keep fossil fuels in the ground or under the ocean," Clinton said at the speech in New Hampshire as she accepted LCV's endorsement.

350.org co-founder Bill McKibben and other activists last week announced that they hoped to harness the energy from the movements against the Keystone pipeline and drilling in the Arctic to the "Keep It in the Ground" push.

The movement is calling for an end to new leases and the renewal of nonproducing leases for fossil fuels on public lands, as well as an end to leasing activities for offshore drilling. Supporters say the action is necessary to reduce the oil, gas and coal sectors' carbon dioxide emissions (*E&E Daily*, Nov. 4).

"We are taking on the Koch brothers and some of the most powerful political forces in the world who are more concerned with short-term profits than the future of the planet," Sanders said last week at an event on the U.S. Capitol grounds, surrounded by activists with signs linking climate change to fossil fuels.

While the movement is getting new life after Friday's Keystone decision, environmental organizations have previously raised questions about whether leasing public lands for coal mining runs contrary to climate change goals.

Democratic lawmakers and environmental groups have pressured the Department of the Interior's Bureau of Land Management to update its leasing program to add more accounting of climate impacts and ensure coal companies are paying a fair share for coal leases.

Environmental groups yesterday said they plan to protest upcoming BLM oil and gas leasing sales, including one scheduled for Thursday in Lakewood, Colo.

Yesterday, 11 environmental organizations, including Keystone opposition leader 350.org, pressed President Obama to cancel the Nov. 12 lease sale altogether, citing climate impacts.

"This lease sale, as do all new federal fossil fuel leases, continues a dangerous disconnect between your administration's climate goals and its 'all of the above' energy policy," the groups wrote. "Federal leasing of publicly owned fossil fuels contributes significantly to U.S. and global greenhouse gas emissions."

The environmental organizations said they were concerned that Interior has not quantified the cumulative greenhouse gas emissions stemming from past and new leasing, describing the agency as "flying in the dark amidst a dangerous and worsening climate."

Fossil fuels from public lands should be "deemed unburnable," the groups said.

"The disconnect between President Obama's climate policy and his energy policy couldn't be more stark," said Tim Ream, climate and energy campaign director at WildEarth Guardians. "Back in D.C., he talks a

good game on clean energy, but in Colorado, it's still drill, baby, drill."

BLM is required to hold quarterly oil and gas lease sales in each state with eligible public lands under the Mineral Leasing Act, though green groups argue that the secretary of Interior has discretion to stop new leases.

Industry organizations have called the new campaign a stunt, warning that ending drilling on public lands would cost the federal government a revenue stream worth billions of dollars.

The push to end drilling is "a political stunt by those who are spouting populist rhetoric for political points," American Petroleum Institute Executive Vice President Louis Finkel said. "They are not being honest with American voters."

CAMPAIGN 2016:

Steyer group airing more climate ads tied to GOP debate

Amanda Reilly, E&E reporter

Published: Tuesday, November 10, 2015

NextGen Climate Action today launched a new six-figure ad campaign that calls on presidential candidates to lay out plans to achieve at least 50 percent clean energy by 2030.

A television ad is timed to air on the Fox Business Network ahead of tonight's Republican presidential debate in Milwaukee on economic issues, while full-page print ads will run in the *Milwaukee Journal Sentinel* and the *Wisconsin State Journal*.

"It's not who we are. We don't ignore threats like climate change," the ad says. "We face our problems head on. With American-made clean energy we can end our dependence on foreign oil."

NextGen, the political action committee of billionaire climate activist Tom Steyer, has long called on candidates to show how they would boost renewable energy use in the country.

Steyer yesterday cast renewable energy as an economic opportunity for the United States, releasing a report that found achieving an 80 percent reduction in greenhouse gas emission levels through renewable energy could add 2 million jobs and nearly $300 billion to the nation's economy by 2050 (*E&ENews PM*, Nov. 9).

"If Republican candidates are serious about creating jobs, they must make clean energy central to their plans to grow our economy," Steyer today said in a statement. "We know we have the solutions to tackle climate change while creating millions of jobs and raising household incomes. So what are the Republican candidates waiting for?"

The main debate tonight will feature Republican candidates Donald Trump, Ben Carson, Marco Rubio, Ted Cruz, Jeb Bush, Carly Fiorina, John Kasich and Rand Paul. An earlier debate will feature Chris Christie, Mike Huckabee, Bobby Jindal and Rick Santorum.

Most Republican candidates have, up to now, avoided discussing climate change and renewable energy (*ClimateWire*, Oct. 29).

"We feel as if we have to have this conversation right now about what solutions we have for energy and

climate," Steyer said yesterday on a call with reporters.

Democrats, on the other hand, have attempted to outdo each other on the issue of climate change, and each say they would be best suited to pick up where President Obama leaves off with his climate agenda.

Democratic presidential candidate Hillary Clinton yesterday gave a 20-minute speech about climate change as she accepted an endorsement from the League of Conservation Voters Action Fund.

She called on Republicans to "join with" Democrats on climate change and specifically called out Cruz for his position.

Cruz has argued that scientists have not concluded that the climate is changing and has used the "global warming pause" as evidence that climate change is not occurring.

"In 2008 -- hardly ancient history -- the Republican Party platform had a long section about combating climate change. It supported wind and renewable energy," Clinton said. "And now we have candidates like Ted Cruz, who says climate change is not science."

BIOFUELS:

RFS promoters issue report card for presidential hopefuls

Tiffany Stecker, E&E reporter

Published: Tuesday, November 10, 2015

Democratic presidential candidates and a handful of Republicans received favorable marks on a midterm assessment of the White House contenders' views on the renewable fuel standard.

The top Democratic candidates -- former Secretary of State Hillary Clinton, former Maryland Gov. Martin O'Malley and Sen. Bernie Sanders (I-Vt.) -- were all graded as "good" on the midterm report from America's Renewable Future.

Six Republican candidates -- New Jersey Gov. Chris Christie, South Carolina Sen. Lindsey Graham, former Arkansas Gov. Mike Huckabee, former New York Gov. George Pataki, former Pennsylvania Sen. Rick Santorum and real estate mogul Donald Trump -- met the pro-RFS group's mark for approval.

Former Florida Gov. Jeb Bush, former Hewlett-Packard CEO Carly Fiorina and Ohio Gov. John Kasich received a "needs work" grade for "inconsistent answers" on their views on the biofuels policy, which mandates annual increases in biofuel production and blending in the country's fuel supply, ARF state director Eric Branstad said.

Receiving a "bad" grade in the GOP field were Texas Sen. Ted Cruz, neurosurgeon Ben Carson, Kentucky Sen. Rand Paul and Louisiana Gov. Bobby Jindal.

The report card is an interim assessment leading up to a final grade ahead of the Iowa caucus in February, Branstad said.

"At that point, it will be very clear who is supportive of the RFS and who is not," Branstad said on a call with reporters.

Branstad singled out Cruz for introducing legislation to repeal the RFS, and Carson for comments in the Republican debate last month in which he backed away from past support of using "oil subsidies" to expand the number of ethanol fueling pumps (*E&E Daily*, Oct. 29).

ARF has been trying to boost pressure on candidates to support the RFS by attending more than 900 events and signing up 45,000 backers.

"It has not been easy," ARF senior adviser Derek Eadon said. "We've been at every political event you can imagine."

Huckabee and Santorum were praised for visiting ethanol production facilities, and Trump was recognized for his plans to visit a facility this week.

Clinton and O'Malley have written op-eds in support of the mandate, Branstad said.

Activity on both sides of the RFS debate is increasing as U.S. EPA prepares to finalize the requirements for the program for 2014 through 2016, plus the biodiesel requirement for 2017.

ARF hopes to move the candidates in the "needs work" category up a grade before the Iowa caucus.

COAL:

Ky. group may pursue case against TVA

Manuel Quiñones, E&E reporter

Published: Tuesday, November 10, 2015

A federal appeals court is upholding the Tennessee Valley Authority's decision to burn less coal and more natural gas at its Paradise plant in coal-rich western Kentucky.

The Kentucky Coal Association sued TVA, accusing the federally backed utility of not properly following the National Environmental Policy Act in its decisionmaking.

Earlier this year, U.S. District Judge Joseph McKinley in Owensboro upheld TVA's decision, and late last month, a three-judge panel of the 6th U.S. Circuit Court of Appeals affirmed McKinley's ruling.

The judges wrote, "When the Tennessee Valley Authority decided to switch from coal to natural-gas generation at one of its power plants in Kentucky, many local landowners were not happy. They thought that the conversion would damage the local economy and harm the environment to boot."

But they added, "Any judicial power to halt such a project arises only if the TVA acted arbitrarily (and capriciously) in making its decision. Because that was not the case, any problems from the conversion are not ours to fix."

Bill Bissett, president of the coal association, said the group is considering its next steps. One option is to ask for a full court rehearing of the litigation.

In filing its litigation, the state's top pro-coal group was taking a page from environmentalists' playbook. They, too, have sued TVA over its fuel decisions, complaining about the utility's continued reliance on coal.

In recent weeks, Republican lawmakers from Kentucky urged TVA to back away from its natural gas conversion plan and told the utility to ignore U.S. EPA's new Mercury and Air Toxics Standards rule, which has led to the closure of dozens of coal generators (*E&ENews PM*, Oct. 7).

Even though the Supreme Court said EPA had not property analyzed the potential impacts of MATS, justices did not scrap the rule altogether. And TVA has said it must follow binding standards.

EMISSIONS:

Most G-20 members post CO2 declines -- study

Published: Tuesday, November 10, 2015

Greenhouse gas emissions are on the decline among the world's 20 major economies for the first time, a study found yesterday.

The report by a group of scientists and climate experts called Climate Transparency also found 15 of the Group of 20 members are showing strong growth in the renewable energy industry.

The nations together account for about 75 percent of the world's greenhouse gas emissions. The group is scheduled to meet in Turkey beginning Monday to discuss the issue.

"Climate action by the G20 has reached a turning point, with per capita emissions falling in 11 members, and renewable energy growing strongly," the group said.

Per-capita emissions declined from 2007 to 2012 in Australia, the United States, Canada, Japan, Germany, Britain, the European Union, South Africa, Italy, France and Mexico. Per-capita emissions are still rising in China and India, as well as Saudi Arabia, South Korea, Russia, Argentina, Turkey, Brazil and Indonesia, the study found.

The group said these nations needed to "urgently decarbonize their economies" for the world to limit average temperature increases to 2 degrees Celsius (3.6 degrees Fahrenheit) from preindustrial levels (Alister Doyle, Reuters, Nov. 10). **-- SP**

TRIBES:

Quinault Nation braces against climate change

Published: Tuesday, November 10, 2015

The rising Pacific Ocean is inundating the Quinault Indian Nation, and the salmon that still sustain many tribal members are fading, putting the reservation on Washington's Olympic Peninsula at the vanguard of climate change.

In 2014, waves breached the 2,000-foot sea wall protecting the seaside village of Taholah, destroying homes. The U.S. Army Corps of Engineers repaired the wall, but with seas continuing to rise, the tribe is trying to raise $60 million to move 700 homes, a courthouse and police station uphill.

The Anderson Glacier, which supplies cold water to the Quinault River, is disappearing. The situation makes things worse for salmon, which died in droves this summer in unusually warm rivers before they could spawn.

"When it comes to extreme measures taken to adapt to climate change, it does take an entire collaborative approach among agencies; it can't be done alone," said Quinault Tribal Council President Fawn Sharp, who is headed to the Paris climate negotiations to lend her voice to a rising number of leaders from indigenous groups, some of the people hardest hit by the effects of climate change.

The Quinault and Sharp have participated in international climate talks before, and considered signing the 1997 Kyoto Protocol as a sovereign nation and altering the tribe's timber harvest as a way to sell carbon credits to Europe.

While Sharp said she doesn't plan on signing any agreements this time, she will press the international community to protect indigenous peoples worldwide.

"If there are areas where a jurisdiction or an entire nation of people don't have the capacity or financial wherewithal to contend with the issue," she said, "then there is a responsibility in other parts of the world to provide that aid and assistance" (Ashley Ahearn, Oregon Public Broadcasting, Nov. 9). **-- DTB**

EFFICIENCY:

DOE partnering with cities and states on building data

Christa Marshall, E&E reporter

Published: Tuesday, November 10, 2015

The Department of Energy is launching a program with the National League of Cities, the National Association of State Energy Officials and other partners to help local jurisdictions boost energy efficiency in buildings and slash costs.

The SEED Collaborative utilizes open-source DOE software called the Standard Energy Efficiency Data (SEED) Platform, which aims to help cities and states over a three-year period manage a growing flood of energy data on buildings from sources including tax assessor records and audits. Some cities and states are using "a half- or a full-time employee" and spending thousands of dollars managing the data, which can contain errors, explained Elena Alschuler, building technologies project manager at DOE. That in turn can make it more difficult to implement and develop energy efficiency programs.

"Many jurisdictions don't even know how many buildings are in their city, much less how big they are or how old they are or how much energy they consume," Alschuler said. Additionally, cities and businesses often use different tracking tools, which can make it difficult to coordinate and implement policies, she said. The Natural Resources Defense Council and the Institute for Market Transformation are also collaborating on the program.

David Terry, a spokesman for the National Association of State Energy Officials, noted that more data is being applied to improve compliance with building codes, and bench-marking of building energy use in cities is being implemented across the country. "The effort to promote energy efficiency financing programs and state renewable energy programs is based on assessing costs and benefits," Terry said. "You can't assess the benefits unless you have data."

The software application -- which was developed with Lawrence Berkeley National Laboratory -- allows users to track and sort a wide range of building metrics, as well as create reports and graphs on energy consumption. Alschuler said it is designed to help officials look at multiple buildings at once to get a sense of trends, so they can determine things such as a link between building age and energy consumption or a need for, say, boiler upgrades in a given location.

"We want to move towards having a living record of every building so that changes in energy use are tracked over time in a standard format," Alschuler said. The department has allocated approximately $100,000 per partner annually for the program, although the participating cities and states won't be announced until next year. Participating jurisdictions pledge to hold monthly meetings, use the SEED platform and "share success stories and lessons learned," while DOE is offering ongoing technical assistance. Washington, D.C., and Philadelphia were among early adopters of the platform last year.

"The SEED Collaborative is an important step for cities and local governments so they can make smarter decisions," National League of Cities CEO and Executive Director Clarence Anthony said in a statement.

NATURAL GAS:

Space mining would be cheaper than LNG plant -- study

Published: Tuesday, November 10, 2015

Mining on the moon or an asteroid would be cheaper than building Earth's largest natural gas terminals, according to new research.

A mission to the dwarf planet Ceres, which lies 257 million miles from the sun and is the size of Texas, could cost around $27 billion. By comparison, Chevron Corp.'s Gorgon liquefied natural gas plant in Australia is expected to cost about $54 billion. Mining on the moon would cost about $9 billion, while taking parts of near-Earth asteroids could take just $492 million, according to estimates from graduate business students at the University of New South Wales in collaboration with NASA.

While investments could be economically feasible, they would need leaps of faith by investors.

"We shouldn't drink the Kool-Aid too hard," said Rene Fradet, deputy director of the engineering and science directorate at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "Investors are out there, but they need to know what the risk and return will be," he said.

"It's not a profit-making venture yet," said Jeff Coulton, a senior lecturer at UNSW's School of Accounting. "It may well be a profit-making venture 20 to 30 to 50 years into the future" (David Stringer, Bloomberg/*Salt Lake Tribune*, Nov. 10). **-- BTP**

DOE:

Watchdog finds cybersecurity efforts lacking

Christa Marshall, E&E reporter

Published: Tuesday, November 10, 2015

The Department of Energy is falling short in protecting its data systems from cybersecurity threats, despite making progress in the last year, according to reports released this month by the DOE inspector general.

Citing a $3.7 million cybersecurity breach in 2013, the IG said a failure to implement security procedures in a more timely manner could expose the department to "increased risk of compromise." That earlier data breach compromised the names, Social Security numbers and personal data of more than 100,000

current and former department employees.

In an evaluation of the department's unclassified cybersecurity program, the IG said that more than 720 incidents were reported in fiscal 2015 related to security on DOE information systems, including the loss of equipment and "compromises to information systems."

Deficiencies include a department failure to report the full status of its cybersecurity program to the Department of Homeland Security by leaving out contractors, even though they constituted the majority of security incidents. In other cases, more than 1,300 computers didn't have antivirus updates, dozens of computer servers contained decade-old configurations, and individuals were granted access to information systems unnecessarily.

"The weaknesses occurred, in part, because the department had not ensured that policies and procedures were fully developed and/or implemented to meet all cybersecurity requirements," says the report, which is an annual IG review required by several laws, including 2014's Federal Information Security Modernization Act, which requires agencies to report on information security breaches. Investigators reviewed 22 locations, including the National Nuclear Security Administration.

Scott White, an associate clinical professor at Drexel University and a cybersecurity expert, said he was concerned that government agencies like DOE and the private sector generally are not spending enough time "creating a culture of security." Considering the sensitivity of data on government computers, there needs to be a focus on changing personal habits -- so employees, for example, are not inadvertently opening up computers to attack -- especially as more and more government data go online, he said.

In recent years, DOE has transitioned to a "cybersecurity risk management framework" to reduce threats on a more continuous basis through tools such as software to analyze systemwide risks. In the second audit, the IG found that officials had not always implemented security controls or monitored their effectiveness, however.

"Further, programs and sites had not ensured that authorizing officials responsible for accepting system risk were fully aware of the risks, weaknesses and vulnerabilities to the information systems under their purview," the audit states.

An information system at the NNSA, for example, was not categorized properly in terms of risk, "despite the severe impact to organizational operations that could occur." Other incidents included a four-year delay in assessing risks at the National Renewable Energy Laboratory.

The reports also praises DOE for addressing many issues in earlier audits.

The department concurred with most recommendations in both reports, which generally called for the department to develop and implement required cybersecurity procedures, as well as report metrics to the Department of Homeland Security.

However, the NNSA said it was not required to take further action on a recommendation to develop, implement and maintain a department program consistent with federal requirements, as it said the cited concerns already fell under existing policies.

The reports follow a string of earlier analyses, including one from the Government Accountability Office earlier this year stating that it was "crucial" that the federal government implement measures to reduce cyber-based threats.

AIR POLLUTION:

EPA dings NASA rocket launch site for violations

Sam Pearson, E&E reporter

Published: Tuesday, November 10, 2015

NASA's Wallops Flight Facility on Virginia's Eastern Shore will pay more than $50,000 to U.S. EPA after it was accused of violating air and hazardous waste laws at the coastal launch site.

The space agency launches rockets carrying small payloads and support systems for sub-orbital, low- and mid-Earth orbiting spacecraft from the facility adjacent to the Wallops Island National Wildlife Refuge.

EPA found NASA failed to verify the sulfur content of fuels used at the center in violation of its Clean Air Act permit.

EPA also cited NASA for violating the Resources Conservation and Recovery Act by failing to label and date hazardous waste containers, where it kept lead solder and alcohol rags. NASA also failed to adequately package and label discarded lamps that could contain mercury or other hazardous substances, EPA said.

The agencies agreed to a $50,660 settlement, EPA said today.

The settlement "reflects NASA's compliance efforts, and its cooperation with EPA in the resolution of this matter," EPA said.

In a statement, Wallops Flight Facility spokesman Jeremy Eggers said the violations "largely involved labeling issues on small containers identified during a July 2013 inspection."

The issues were corrected quickly, he said.

"It is a high priority to conduct our missions in a safe and environmentally friendly manner," Eggers said.

NASA did not admit or deny liability under the agreement, EPA said, but certified that it is now in compliance with the laws.

RAIL:

Northeast Corridor upgrades could boost environment -- report

Published: Tuesday, November 10, 2015

Modernizing the Northeast Corridor rail line would lead to lower energy usage and greenhouse gas production and more economic activity and mobility, a draft environmental report found.

The report released yesterday by the Federal Railroad Administration examined three choices for upgrading the rail line between now and 2040. The three choices were compared with an alternative of maintaining current service.

Simply leaving the rail line as is would cost about $20 billion over the next 25 years, while the most ambitious plan -- involving an underground rail tunnel from the Long Island coast to Connecticut -- would come in around $290 billion, FRA officials said.

Upgrading the line could increase ridership between 92 and 102 percent by 2040, the report found. Though construction would cause environmental disruption, that would be outweighed by the environmental benefits of increased train travel, the report said.

Federal officials expect to hold public hearings on the proposals beginning next month (David Porter, AP/*San Francisco Chronicle*, Nov. 10). **-- SP**

RAIL:

Canadian Pacific in talks to buy Norfolk Southern

Published: Tuesday, November 10, 2015

Canadian Pacific Railway Ltd. is mulling a takeover of U.S. railroad Norfolk Southern Corp., which could further consolidate the rail industry.

Canadian Pacific, the second-largest railway in Canada, is raising financing and has held early talks with Norfolk Southern, two officials said. The company attempted to acquire CSX Corp. last year, but negotiations did not progress.

"We would view a potential transaction positively," Desjardins Capital Markets analyst Benoit Poirier said, but the deal would face regulatory challenges, making it "unlikely that a transaction can be completed in the short term."

Norfolk Southern is valued at about $24 billion. The companies declined to comment (Hammond/McCracken, Bloomberg, Nov. 9). **-- SP**

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Thu., November 12, 2015

READ FULL EDITION

1.AGRICULTURE:

How veterans are growing a crop of sustainable farms in the U.S.

ALEXANDRIA, Va. -- On the grounds of the former Woodlawn Plantation, Laron Murrell, 36, plucks turnips from the still-damp earth, lightly gripping the leaf stems just above the bright white bulbs. He is the first person to take part in a new program for veterans that trains current and former members of the military in how to start their own sustainable farms.

TODAY'S STORIES

2.CONGRESS:
Lawmakers sharpen legislative knives before Paris climate talks

3.CLEAN POWER PLAN:
EPA confirms wind, solar only renewables to receive early credit

4.COAL:
Australian Parliament nixes support for U.S. coal restrictions

5.RELIGION:
Faith leaders call for climate change action

6.FINANCE:

Climate activists push G-20 leaders on climate action

7.FOOD SECURITY:

Massive South African drought raises fears of crop failures

8.NATIONS:

Does India hold the key to reaching the 2 C target?

9.NATIONS:

Report predicts coal downturn in China

10.NEGOTIATIONS:

Saudi Arabia submits climate targets for Paris deal

E&ETV'S ONPOINT

11.CLIMATE:

Nuclear Society's Klein talks challenges ahead for industry in power plan compliance

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Thu., November 12, 2015

READ FULL EDITION

1.OIL AND GAS:

Promise of fracking sprouts opposition in England

SHEFFIELD, England -- Political leaders at Westminster are rolling out the red carpet for shale gas development, eager for the kind of domestic energy boom that has rocked the United States. But to activists, the American shale revolution is a cautionary tale of high risks and questionable rewards -- at least for communities in the path of drilling.

TOP STORIES

2.POLICY:

Mich. Legislature closes in on energy reform shaped by utilities

3.REGULATION:

NARUC talk on utility convergence turns to when, not if

ELECTRICITY

4.UTILITIES:

Miss. Power will credit customers for some of coal project's costs

5.PEOPLE:

CenterPoint taps new VP of Minn. gas

6.ELECTRICITY:

Australia wants you -- to invest in renewables on its continent

7.UTILITIES:

National Grid to sell gas distribution business

8.TRANSMISSION:

Ariz. vintners in high spirits after BLM moves proposed power lines

OIL AND GAS

9.OIL MARKETS:

Rising inventories drive down federal crude price forecast

10.PEOPLE:
Shell's outgoing Arctic lead joins KBR board
11.WORKFORCE:
N.D. 'man camps' facing a shutdown
E&ETV'S ONPOINT
12.CLIMATE:
Nuclear Society's Klein talks challenges ahead for industry in power plan compliance

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Ex. 7 Ex. 7 Ex. 7 Kaul, Meetu[Kaul.Meetu@epa.gov]
Cc: Ex. 7 Ex. 7
From: Ex. 7
Sent: Thur 11/12/2015 4:52:46 PM
Subject: VW - powerpoint for VW 101 today
VW 101 PRIMER 2015_11_11 FINAL - Bates US DOJ.pdf

Confidential and Privileged

Not for Public Release

See attached.

Meetu, please pass along to others at EPA

Ex. 7 – feel free to come, or not – your call

Ex. 7
Ex. 7

Environmental Enforcement Section

United States Department of Justice

Ex. 7

Overnight Deliveries

Ex. 7

Washington, DC 20004

From: Ex. 6 @ARB [mailto: Ex. 6 @arb.ca.gov]
Sent: Thursday, November 12, 2015 11:31 AM
To: Ex. 7
Ex. 7
Cc: Ex. 6 @ARB <Ex. 6 @arb.ca.gov>; Ex. 6 @ARB <Ex. 6 @arb.ca.gov>; Ex. 6 @ARB <Ex. 6 @arb.ca.gov>; Ex. 6 Ex. 6 @ARB <Ex. 6 @arb.ca.gov>
Subject: VW Confidentiality Agreement - Test Cycles

Ex. 7

Attached please find the PowerPoint for the 9:30 AM Meeting. Please feel free to contact me with any questions.

Ex. 6

Legal Office Analyst

California Air Resources Board

Ex. 7

Ex. 6

To: Glas, Tobias[Tobias.Glas@vw.com]; Snyder, Jim[Snyder.Jim@epa.gov]
From: Pidgeon, Bill
Sent: Thur 11/12/2015 10:01:15 PM
Subject: RE: IUVP Waver CY 2015

Hi Tobias,

Sorry for the delay. I have some questions regarding the following test groups:

AVWXT03.6U76

AVWXV02.5253

AVWXV02.5257

AADXV02.03PA

AVWXV02.5U35

AVWXV02.03PA

1. What was the distance radius from your test lab for the mailings?

2. Did the mailings include the Toledo, Ohio metropolitan area?

3. How many vehicles with each of these test groups are registered within a 100 mile radius (including Ohio)?

4. For the vehicles with return cards, for each test group, please report the mileage of the highest two vehicles.

Thanks,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Friday, October 30, 2015 4:43 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: IUVP Waver CY 2015

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Good, David[good.david@epa.gov]
Cc: Ex. 7
From: Ex. 7
Sent: Fri 11/13/2015 12:17:00 PM
Subject: 2016 Audi A3 e-tron Owner's Manual Battery Charging Excerpt
Audi_A3-e-tron Bat Chrg.pdf

Hi Dave;

Attached is an excerpt from the 2016 A3 e-tron owner's manual with that section describing the battery recharging methods and specifically your question about battery recharging power settings (50% and 100%) can be found on manual page 109.

I am still waiting for Monroney label (with fuel economy label) samples, but I should have them soon. I will forward them to you as soon as I have them.

Best regards,

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: Ex. 7

Fax:

mailto: Ex. 7

LOC:
Exterior: Scuba Blue Metallic

Dealer Stock Status:

VIN: Ex. 6
Interior: Black Interior

MODEL: 8VA5PX-2016 Audi A3 Sportback e-tron 1.4T FWD S tronic
2015317-TEST LABEL

2016 Audi A3 Sportback e-tron 1.4T FWD S tronic

Audi
Truth in Engineering

STANDARD EQUIPMENT (unless replaced by options)

TECHNICAL
- 1.4 TFSI®, 4 CYL., PHEV, 204hp / 258lb-ft combined
- 6-speed S tronic® transmission
- 16" 15-spoke-Y-design wheels, 205/55 summer tires
- ESC (Electronic Stability Control) with secondary collision brake
- Electromechanical speed-sensitive power steering
- TPMS (tire pressure monitoring system)

COMFORT/CONVENIENCE
- Audi xenon plus headlights w/ LED DRLs & taillights
- Mobile charging unit
- Parking system plus with rearview camera
- 3-spoke leather-wrapped multifunction steering wheel
- Leather seating surfaces
- 12-way power adjustable front seats including lumbar adjustment
- 60/40 split-folding rear seat
- Audi Sound System with AM/FM/SAT/1CD audio w/ SD card rea
- SIRIUS® satellite radio (w/ three-month complimentary subscript
- Power adjustable exterior mirrors
- Panoramic sunroof w/ retractable sunshade
- Audi advanced key
- Preparation for mobile phone (Bluetooth®)
- Dual-zone automatic climate control
- Driver information system, color display
- Audi drive select
- LED interior lighting package
- Rain & light sensor

SAFETY/SECURITY
- Driver and front passenger advanced airbag supplemental restra
- Driver and front passenger knee airbags
- Driver and front-passenger seat-mounted thorax side airbags
- Sideguard® inflatable curtain airbags
- Rear side airbags
- Driver 3-point safety belts with automatic pretensioning and force
- Front passenger 3-point safety belts with Automatic Locking Retr automatic pre-tensioning, and force limiters
- Rear outboard 3-point safety belts with Automatic Locking Retrac automatic pre-tensioning
- Rear center 3-point safety belt with Automatic Locking Retractor
- Lower Anchors and Tethers for Children (LATCH) in rear
- Rear child safety locks
- Anti-theft vehicle alarm system

WARRANTY/MAINTENANCE
- 4 Year/50,000 mile (whichever occurs first) New Vehicle Limited
- 8 Year/100,000 mile (whichever occurs first) High-Voltage Batter
- 12 Year Limited Warranty Against Corrosion Perforation

URER'S SUGGESTED RETAIL PRICE

Sportback e-tron 1.4T FWD S tronic $37,900.00

TIONS

tallic

ium Plus model
ke Turbine design wheels
eason tires
lays
ve light
interface w/ iPod® cable
ng interior mirror with compass
Audi ultra badge
eadlights
t seats
aluminum window surrounds
ation plus
avigation plus w/ MMI touch
ct® w/ online services (6-month subscription)

ltifunction steering wheel with shift paddles
ke Turbine design wheels
eason tires
seats
kage
urbine design wheels
eason tires
Audi ultra tailgate badge
kage
-design wheels
mer tires
ilgate badge

harge

fees, taxes and dealer installed accessories are not i

RNMENT 5-STAR SAFETY R

OAD
, MI 48
ORPOR
3
ICA
OAD
, MI 48
Method:

EPA
DOT Fuel E

Plug-In Hybrid Vehicle
Electricity-Gasoline

Compact Cars range from 14 to 116 MPG. The best vehicle rates 119 MPGe.

Electricity + Gasoline
Charge Time: 2.5 hours (240V)
83 MPGe
0.0 gallons per 100 miles
40 kW-hrs per 100 miles
combined city/highway

Gasoline Only
35 MPG
2.9 gallons per 100 miles
combined city/highway

Driving Range
Electric + Gasoline: 0 5 10 — Gasoline only: 21 380
All Electric Range = 0 to 16 miles
16 miles

You **save**
$3,000
in fuel costs

Annual fuel **cost**
$1,200

Fuel Economy & Gree

1 8 10

This vehicle emits 158 grams
distributing fuel & electricity a

Calculate personalized estimates and compare vehicles

Smartphon
QR Code™

LOC: Dealer Stock Status:
Exterior: Misano Red Pearl Effect

VIN: Ex. 6
Interior: Black Interior

MODEL: 8VA5PX-2016 Audi A3 Sportback e-tron ultra
2015317-TEST LABEL

2016 Audi A3 Sportback e-tron ultra

Audi
Truth in Engineering

STANDARD EQUIPMENT (unless replaced by options)

TECHNICAL
- 1.4 TFSI®, 4 CYL., PHEV, 204hp / 258lb-ft combined
- 6-speed S tronic® transmission
- 16" 15-spoke-Y-design wheels, 205/55 summer tires
- ESC (Electronic Stability Control) with secondary collision brake a
- Electromechanical speed-sensitive power steering
- TPMS (tire pressure monitoring system)

COMFORT/CONVENIENCE
- Audi xenon plus headlights w/ LED DRLs & taillights
- Mobile charging unit
- Parking system plus with rearview camera
- 3-spoke leather-wrapped multifunction steering wheel
- Leather seating surfaces
- 12-way power adjustable front seats including lumbar adjustment
- 60/40 split-folding rear seat
- Audi Sound System with AM/FM/SAT/1CD audio w/ SD card reac
- SIRIUS® satellite radio (w/ three-month complimentary subscripti
- Power adjustable exterior mirrors
- Panoramic sunroof w/ retractable sunshade
- Audi advanced key
- Preparation for mobile phone (Bluetooth®)
- Dual-zone automatic climate control
- Driver information system, color display
- Audi drive select
- LED interior lighting package
- Rain & light sensor

SAFETY/SECURITY
- Driver and front passenger advanced airbag supplemental restrai
- Driver and front passenger knee airbags
- Driver and front-passenger seat-mounted thorax side airbags
- Sideguard® inflatable curtain airbags
- Rear side airbags
- Driver 3-point safety belts with automatic pretensioning and force
- Front passenger 3-point safety belts with Automatic Locking Retra automatic pre-tensioning, and force limiters
- Rear outboard 3-point safety belts with Automatic Locking Retrac automatic pre-tensioning
- Rear center 3-point safety belt with Automatic Locking Retractor (
- Lower Anchors and Tethers for Children (LATCH) in rear
- Rear child safety locks
- Anti-theft vehicle alarm system

WARRANTY/MAINTENANCE
- 4 Year/50,000 mile (whichever occurs first) New Vehicle Limited W
- 8 Year/100,000 mile (whichever occurs first) High-Voltage Battery
- 12 Year Limited Warranty Against Corrosion Perforation

URER'S SUGGESTED RETAIL PRICE

Sportback e-tron ultra **$37,900.00**

)PTIONS

earl effect

ackage
navigation plus w/ MMI touch
ect® w/ online services (6-month subscripti
assist

l pedal caps
-weather floor mats

heel lock kit
e for Audi music interface
ox
Kit

harge

fees, taxes and dealer-installed accessories are not i

RNMENT 5-STAR SAFETY R

IDE RD
91355
DRPOR

06
A
IDE RD
91355

Method:

EPA
DOT **Fuel E**

Plug-In Hybrid Vehicle
Electricity-Gasoline

Compact Cars range from 14 to 116 MPG. The best vehicle rates 119 MPGe.

Electricity + Gasoline
Charge Time: 2.5 hours (240V)
86 MPGe
0.0 gallons per 100 miles
38 kW-hrs per 100 miles
combined city/highway

Gasoline Only
39 MPG
2.6 gallons per 100 miles
combined city/highway

You save
$3,750
in fuel costs

Driving Range
Electric + Gasoline: 0 5 10 — **17** miles
Gasoline only: 22 430
All Electric Range = 0 to 17 miles

Annual fuel cost
$1,050

Fuel Economy & Greenhou

1 10 8

This vehicle emits 138 grams of CO
distributing fuel & electricity also cre

Calculate personalized estimates and compare vehicles

Smartphone QR Code™

To: Good, David[good.david@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Mon 11/16/2015 7:18:16 PM
Subject: CD-15-27

Hi Dave;

I was looking over the guidance letter dated November 16, and noticed that the "Estimated Fuel Economy Range" for Minicompact Cars is now 15-34 MPG. This class of vehicle last year was 15-116 MPG. This looked a little suspicious to me, so I thought I would mention it and perhaps there was an error in this chart. All the other Carline Class values seem to be within a mile or two of last year's values.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Good, David[good.david@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Mon 11/16/2015 7:18:16 PM
Subject: CD-15-27

Hi Dave;

I was looking over the guidance letter dated November 16, and noticed that the "Estimated Fuel Economy Range" for Minicompact Cars is now 15-34 MPG. This class of vehicle last year was 15-116 MPG. This looked a little suspicious to me, so I thought I would mention it and perhaps there was an error in this chart. All the other Carline Class values seem to be within a mile or two of last year's values.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Fisherow, Walter Benjamin (ENRD)[Walter.Benjamin.Fisherow@usdoj.gov]; karen.dworkin@usdoj.gov[karen.dworkin@usdoj.gov]; Allen, Leslie (ENRD)[Leslie.Allen@usdoj.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]
Cc: Van Eaton, Josh (ENRD)[Josh.Van.Eaton@usdoj.gov]
From: Engel, Bethany (ENRD)
Sent: Tue 11/17/2015 5:55:35 PM
Subject: Fwd: Susman Godfrey Letter (VW)
VW CAA Violations.pdf
ATT00001.htm

FYI. Second citizen suit notice letter, dated 11/6, covers both NOVs.

Sent from my iPad

Begin forwarded message:

From: David Nachman <David.Nachman@ag.ny.gov>
Date: November 17, 2015 at 9:32:08 AM PST
To: "Van Eaton, Josh (ENRD) (Josh.Van.Eaton@usdoj.gov)" <Josh.Van.Eaton@usdoj.gov>, "Engel, Bethany (ENRD) (Bethany.Engel@usdoj.gov)" <Bethany.Engel@usdoj.gov>
Cc: "Lisa M. Burianek" <Lisa.Burianek@ag.ny.gov>, John Turrettini <John.Turrettini@ag.ny.gov>
Subject: FW: Susman Godfrey Letter (VW)

Here's the second letter I mentioned to Josh this morning.

IMPORTANT NOTICE: This e-mail, including any attachments, may be confidential, privileged or otherwise legally protected. It is intended only for the addressee. If you received this e-mail in error or from someone who was not authorized to send it to you, do not disseminate, copy or otherwise use this e-mail or its attachments. Please notify the sender immediately by reply e-mail and delete the e-mail from your system.

B0000YAAS.XML

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA STREET
HOUSTON, TEXAS 77002-5096
(713) 651-9366
FAX (713) 654-6666
WWW.SUSMANGODFREY.COM

SUITE 5100
901 MAIN STREET
DALLAS, TEXAS 75202-3775
(214) 754-1900

SUITE 950
1901 AVENUE OF THE STARS
LOS ANGELES, CALIFORNIA 90067-6029
(310) 789-3100

SUITE 3800
1201 THIRD AVENUE
SEATTLE, WASHINGTON 98101-3000
(206) 516-3880

15TH FLOOR
560 LEXINGTON AVENUE
NEW YORK, NEW YORK 10022-6828
(212) 336-8330

ROBERT S. SAFI
DIRECT DIAL (713) 653-7850

E-MAIL RSAFI@SUSMANGODFREY.COM

November 6, 2015

VIA CERTIFIED MAIL

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
William Jefferson Clinton Federal Building
Washington, DC 20460

Volkswagen AG
Audi AG
Porsche AG
Volkswagen Group of America, Inc.
Porsche Cars North America, Inc.
Thru:

Ex. 7

Joseph Folz
Vice President, General Counsel and
Secretary
Porsche Cars North America, Inc.
One Porsche Drive
Atlanta, GA 30354

Ex. 7

Walter J. Lewis
Manager, Regulatory Affairs
Porsche Cars North America, Inc.
980 Hammond Drive, Suite 1000
Atlanta, GA 30328

[State addressees listed at the end]

3963705v2/014996

Re: Notice of Clean Air Act Violations Pursuant to 42 U.S.C. § 7604(b)(1)(A)

Ladies and Gentlemen,

We represent Rich Hill, Elvis Foster, Robert Nesbitt, Joe Howbert, Callum Dorey, Don Cunningham, Angelyen Wood, Marcia Andru Moshe, Edmund Steppan, Mireya Perez, Kristen Van de Biezenbos, Ann Marie Stief, William Stief, Thomas C. Jorgensen, Kartik Pillutla, Kathryn Sue Vordenberg, Michael Brown, Carol Spindel, Jason Welch, Thomas Bassett, Joshua R. Geller, Michelle Geller, Fred M. Flores, Gary Butterwei, Terri Butterwei, Thomas Michael Carran, Michael Fuerstein, Grant Garcia, Howard Katz, Timothy P. Yerkes, Beth Glassman, Stephanie Waddoups, Mary Jones, Diego Alberto Diaz, Michael Santos, Mark Pomerantz, and Tiffany Ford, individually and on behalf of all others similarly situated (collectively, "Plaintiffs"), and write to provide notice of violations of the Clean Air Act ("CAA") by Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") to the Administrator of the EPA, to the States in which the violation occurs (in this case, all fifty States and the District of Columbia), and to the alleged violators of the CAA. This is notice is pursuant to 42 U.S.C. § 7604(b)(1)(A), and is made 60 days before Plaintiffs commence a civil action against VW to enforce the applicable emission standards or limitations and to recover civil penalties, costs of litigation (including reasonable attorney and expert witness fees), and all other relief that is proper in citizen suits under the CAA.

The allegations in this notice are based on the Notices of Violation issued by the United States Environmental Protection Agency ("EPA") on September 18, 2015 and November 2, 2015. As stated therein, the EPA has investigated and continues to investigate Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") for compliance with the CAA, 42 U.S.C. §§ 7401-7671q, and its implementing regulations. The EPA has determined that VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0 liter engines, and certain model year 2014 through 2016 diesel light-duty vehicles equipped with 3.0 liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles' emission control system that exist to comply with CAA emission standards. Therefore, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B). Additionally, the EPA has determined that, due to the existence of the defeat devices in these vehicles, these vehicles do not conform in all material respects to the vehicle specifications described in the applications for the certificates of conformity that

VW FOIA, EPA 06/20/2017 2017-FFP_036004

purportedly cover them. Therefore, VW also violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing these vehicles, or for causing any of the foregoing acts.

Law Governing Alleged Violations

This notice arises under Part A of Title II of the CAA, 42 U.S.C. §§ 7521-7554, and the regulations promulgated thereunder. In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting dangers to the public health and welfare." CAA § 101(a)(2), 42 U.S.C. § 7401(a)(2). Congress' purpose in creating the CAA, in part, was "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." CAA § 101(b)(l)-(2), 42 U.S.C. § 740 l (b)(l)-(2). The CAA and the regulations promulgated thereunder aim to protect human health and the environment by reducing emissions of nitrogen oxides (NOx) and other pollutants from mobile sources of air pollution. Nitrogen oxides are a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds (VOCs) that produce ozone (smog) on hot summer days. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma. Children are at greatest risk of experiencing negative health impacts from exposure to ozone.

The allegations here concern light-duty motor vehicles for which 40 C.F.R. Part 86 sets emission standards and test procedures and section 203 of the CAA, 42 U.S.C. § 7522, sets compliance provisions. Light-duty vehicles must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce.

To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-0l(d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of

VW FOIA, EPA 06/20/2017 2017-FFP_036005

activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) such conditions are substantially included in the Federal emission test procedure; (2) the need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) the AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control systems performance are AECDs. EPA, *Advisory Circular Number 24-2: Prohibition of Emission Control Defeat Devices - Optional Objective Criteria* (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-10(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications), 86.1848-01(b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should

VW FOIA, EPA 06/20/2017 2017-FFP_036006

know that such part or component is being offered for sale or installed for such use or put to such use."' CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86. 1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(l), 42 U.S.C. § 7522(a)(l); 40 C.F.R. § 86.1854-1 2(a)(l). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854-12(a).

2.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of these vehicles that sensed when the vehicle was being tested for compliance with EPA emission standards. The EPA calls this the "switch." The "switch" senses whether the vehicle is being tested or not based on various inputs including the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs precisely track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA emission testing, the vehicles' ECM ran software which produced compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). At all other times during normal vehicle operation, the "switch", was activated and the vehicle ECM software ran a separate "road calibration" which reduced the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean Ox trap). As a result, emissions of Ox increased by a factor of 10 to 40 times above the EPA compliant levels, depending on the type of drive cycle (e.g., city, highway).

The California Air Resources Board (CARB) and the EPA were alerted to emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. VW issued a voluntary recall in December 2014 to address the issue. CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the

VW FOIA, EPA 06/20/2017 2017-FFP_036007

testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' on board diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing. It became clear that CARB and the EPA would not approve certificates of conformity for VW's 2016 model year diesel vehicles until VW could adequately explain the anomalous emissions and ensure the agencies that the 20 16 model year vehicles would not have similar issues. Only then did VW admit it had designed and installed a defeat device in these vehicles in the form of a sophisticated software algorithm that detected when a vehicle was undergoing emissions testing.

VW knew or should have known that its "road calibration" and "switch" together bypass, defeat, or render inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track the parameters of the federal test procedure and cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure.

VW's "road calibration" and "switch" are AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), each time it sold, offered for sale, introduced into commerce, de livered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the hundreds of thousands of new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch" and " road calibration."

The vehicles are identified by the table below. All vehicles are equipped with 2.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen,

VW FOIA, EPA 06/20/2017 2017-FFP_036008

		Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGA V02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

3.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of each vehicle that causes the vehicle to perform differently when the vehicle is being tested for compliance with EPA emission standards than in normal operation and use.

When this software determines the vehicle has begun the FTP 75 Federal emission test procedure, it directs the vehicle to employ a low NOx temperature conditioning mode. A status bit in the software indicates that a "temperature conditioning" mode is active. In this low NOx temperature conditioning mode, the vehicle operates under a number of emission control parameters, including injection timing, exhaust gas recirculation rate, and common rail fuel pressure in such a way that the parameters yield low engine-out NOx emissions and high exhaust temperatures. The high exhaust temperatures heat the selective catalytic reduction system ("catalyst") and improve the catalyst's ability to reduce tailpipe NOx emissions. In this low NOx temperature conditioning mode, the combination of low engine-out NOx and improved catalyst performance results in tailpipe NOx emissions that are below the applicable emissions standard.

VW FOIA, EPA 06/20/2017 2017-FFP_036009

However, the software employs a "timer" that coincides with the low NOx temperature conditioning mode. At exactly one second after the completion of the initial phases of the FTP 75 Federal emissions test procedure (1,370 seconds, which is when the vehicle would normally be turned off), this software directs the vehicle to cease low NOx temperature conditioning mode. The "temperature conditioning" status bit switches to zero, and a second status bit indicates the activation of "transition to normal mode." In this "normal mode," the emission control system is immediately less effective. Compared to the low NOx temperature conditioning mode, the vehicle employs a different injection timing, exhaust gas recirculation rate, and common rail fuel pressure. This yields higher levels of NOx from the engine and reduced exhaust temperatures.

In addition, when the vehicle starts under conditions that the software determines *are not* the beginning of the FTP 75 Federal emission test procedure, the vehicle does not use the low NOx temperature conditioning mode at all. Instead, the emission control parameters are set consistent with the "normal mode." In sum, as soon as the vehicle senses that it is not being tested, it uses "normal mode." In "normal mode," tailpipe emissions of NOx are up to 9 times the applicable NOx standard levels, depending on model type and type of drive cycle (e.g., city, highway).

This notice is based on vehicle emission testing performed by the EPA's National Vehicle and Fuel Emissions Laboratory, California Air Resources Board's Hagen-Smit Laboratory, and Environment Canada's River Road Laboratory. This testing was performed since EPA's announcement on September 25, 2015, that it would perform additional testing "using driving cycles and conditions that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device." EPA, *EPA Conducted Confirmatory Testing* (Sept. 25, 2015).

VW knew or should have known that the software described above bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track federal test procedures and cause emission control systems to underperform when the software determined that the vehicle was not being tested.

VW's software described above includes one or more AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), each

VW FOIA, EPA 06/20/2017 2017-FFP_036010

time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the software described above. The vehicles are identified by the table below. All vehicles are equipped with 3.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2014	EADXT03.02UG	VW Touareg
2015	FPRXT03.0CDD	Porsche Cayenne
2016	GVGAJ03.0NU4	Audi A6 Quattro, A 7 Quattro, A8, A8L, and Q5

Citizen Enforcement

The investigation into this matter is continuing. The above tables represent specific violations that the EPA and Plaintiffs believe, at this point, are sufficiently supported by evidence to warrant the allegations in this notice. The EPA and Plaintiffs may find additional violations as the investigation continues, including violations related to carbon dioxide emissions from diesel and gasoline-power VW vehicles, as indicated by VW's public announcement on November 3, 2015.

Not less than 60 days following this notice, Plaintiffs may commence a civil action pursuant to 42 U.S.C. §7604, which provides that the district courts of the United States have jurisdiction to enforce emission standards or limitations, to apply any appropriate civil penalties, and to award costs of litigation (including reasonable attorney and expert witness fees) to any party.

Sincerely,

Robert S. Safi

State Addressees:

Alabama Department of Environmental Management
Air Division

Alaska Department of Environmental Conservation
Division of Air Quality

3963705v2/014996

P.O. Box 301463
Montgomery, AL 36130-1463
ATTN: Ron Gore

410 Willoughby Ave., Suite 303,
P.O. Box 111800
Juneau, AK 99811-1800
ATTN: Denise Koch

American Samoa Environmental
Protection Agency
Air and Land Division
P.O. BOX PPA
Pago Pago, AS 96799
ATTN: William Sili

Arizona Department of
Environmental Quality
Air Quality Division
1110 West Washington Street
Phoenix, Arizona 85007
ATTN: Enforcement

Arkansas Department of Environmental
Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

California Air Resources Board
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ATTN: Enforcement

Colorado Department of Public Health and
Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80246
ATTN: Janet Lovell

Connecticut Department of
Environmental Protection
Air Division
79 Elm Street
Hartford, CT 06106-5127
ATTN: Enforcement

Delaware Dept. of Natural Resources and
Environmental Control
Division of Air Quality
655 South Bay Road Suite 5 N
Dover, DE 19901
ATTN: Frank Frisby

DC Department of the Environment
Air Quality Division
1200 First Street NE
Washington, DC 20002
ATTN: Enforcement

Florida Department of Environmental
Protection
Division of Air Resource Management
2600 Blair Stone Road, M.S. 5500
Tallahassee, Florida 32399-2400
ATTN: Justin Green

Georgia Department Environmental
Protection Division
Air Protection Branch
2 Martin Luther King Jr. Drive,
Suite 1456, East Tower
Atlanta, GA 30334
ATTN: Karen Hays

Guam Environment Protection Agency

Hawaii Department of Health

VW FOIA, EPA 06/20/2017 2017-FFP_036012

Air Pollution Division
P.O. Box 22439
GMF Barrigada, Guam 96921
ATTN: Conchita Taitano

Environmental Health Analytical Branch
2725 Waimano Home Road
Pearl City, Hawaii 96782
ATTN: Wanda Chang

Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706
ATTN: Tiffany Floyd

Illinois Pollution Control Board
Air Division
1021 North Grand Avenue East, P.O. Box 19274
Springfield, Illinois 62794-9274
ATTN: Tom Johnson

Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue, Room N1003
Indianapolis, Indiana 46204
ATTN: Enforcement

Iowa Department of Natural Resources
Air Quality Division
502 East 9th Street, 4th Floor
Des Moines, IA 50319-0034
ATTN: Enforcement

Kansas Department of Health and Environment
Air Division
1000 SW Jackson, Suite 31
Topeka, KS 66612-1366
ATTN: Rick Brunetti

Kentucky Environmental Quality Commission
Division for Air Quality
200 Fair Oaks Ln., 1st Floor
Frankfort, KY 40601
ATTN: Candy Montgomery

Louisiana Department of Environmental Quality
Air Permits, Engineering and Planning Division
602 N. Fifth Street
Baton Rouge, LA 70802
ATTN: Enforcement

Maine Department of Environmental Protection
Air Quality Division
17 State House Station, 28 Tyson Drive
Augusta, Maine 04333-0017
ATTN: Marc Cone

Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard, Suite 715
Baltimore, Maryland 21230-1720
ATTN: Enforcement

Massachusetts Department of Environmental Protection
Air Quality Division
1 Winter Street
Boston, Massachusetts 02108
ATTN: Paul Davis

VW FOIA, EPA 06/20/2017 2017-FFP_036013

Michigan Department of Environmental Quality
Air Division
P.O. Box 30260
Lansing, MI 48909-7760
ATTN: Lynn Fiedler

Minnesota Pollution Control Agency
Air Division
525 Lake Avenue South, Suite 400
Duluth, MN 55802
ATTN: Enforcement

Mississippi Department of Environmental Quality
Office of Pollution Control
P. O. Box 2261
Jackson, MS 39225
ATTN: Enforcement

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
ATTN: Kyra Moore

Montana Department of Environmental Quality
Air Program
1520 E 6th Ave
Helena, MT 59601
ATTN: Eric Merchant

Nebraska Department of Environmental Quality
Air Quality Division
1200 N Street, Suite 400, P.O. Box 98922
Lincoln, NE 68509-8922
ATTN: Shelley Schneider

Nevada Division of Environmental Protection
Bureau of Air Quality Planning
901 So. Stewart St., Suite 4001
Carson City, NV 89701
ATTN: Enforcement

New Hampshire Department of Environmental Services
Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
ATTN: Enforcement

New Jersey Department of Environmental Protection
Division of Air Quality
P.O. Box 402
Trenton, NJ 08625-0402
ATTN: Enforcement

New Mexico Environment Department
Air Division
P.O. Box 5469
Santa Fe, New Mexico 87502-5469
ATTN: Enforcement

New York State Department of Environmental Conservation
Chemical and Pollution Control Division
625 Broadway
Albany, New York 12233-0001
ATTN: Enforcement

NC Division of Pollution Prevention and Environmental Assistance
Environmental Assistance and Customer Service
1639 Mail Service Center
Raleigh, NC 27699-1639
ATTN: Theodore Bush

3963705v2/014996

ND Department of Health - Environmental Health Section
Division of Air Quality
918 E. Divide Ave, 2nd Floor
Bismarck, ND 58501
ATTN: Terry L. O'Clair

Division of Environmental Quality
Air Division
P.O. Box 501304
Saipan, MP 96950
ATTN: Enforcement

Ohio Air Quality Development Authority
Air Division
50 W. Broad Street, Suite 1718
Columbus, Ohio 43215
ATTN: Enforcement

Oklahoma Department of Environmental Quality
Air Quality Division
P.O. Box 1677, 707 North Robinson
Oklahoma City, Oklahoma 73101-1677
ATTN: Gary Collins

Oregon Department of Environmental Quality
Air Quality Division
811 SW 6th Avenue
Portland 97204-1390
ATTN: Enforcement

Pennsylvania Department of Environmental Protection
Air Programs
400 Market Street
Harrisburg, PA 17101
ATTN: Enforcement

Departamento de Recursos Naturales y Ambientales
Air Division
P.O. Box 366147
San Juan, Puerto Rico 00936
ATTN: Enforcement

Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence, RI 02908-5767
ATTN: Doug McVay

South Carolina Department of Health and Environmental Control
Air Quality Enforcement
2600 Bull Street
Columbia, SC 29201
ATTN: Randy Stewart

South Dakota Department of Environment and Natural Resources
Air Quality Division
523 E Capitol
Pierre, SD 57501
ATTN: Enforcement

Tennessee Department of Environment and Conservation
Division of Air Pollution Control
312 Rosa L. Parks Ave
Nashville, TN 37243
ATTN: Barry Stephens

Texas Commission on Environmental Quality (TCEQ)
Office of Air
P.O. Box 13087
Austin, TX 78711-3087
ATTN: Steve Hagle, P.E.

VW FOIA, EPA 06/20/2017 2017-FFP_036015

Utah Department of Environmental Quality
Division of Air Quality
195 North 1950 West
Salt Lake City, Utah 84116
ATTN: Bryce Bird

Vermont Department of Environmental Conservation
Air Quality & Climate Division
One National Life Drive, 2nd Floor
Montpelier, VT 05620-3802
ATTN: Heidi Hales

US Virgin Islands Division of Environmental Protection
Air Pollution Control Program
Cyril E. King Airport, Terminal Building, 2nd Fl.
St. Thomas, VI 00802
ATTN: Enforcement

Virginia Department of Environmental Quality
Air Division
P.O. Box 1105
Richmond, VA 23218
ATTN: Michael Dowd

Washington Department of Transportation's Environmental Services
Air Quality Division
P.O. Box 47300
Olympia, WA 98504-7300
ATTN: Enforcement

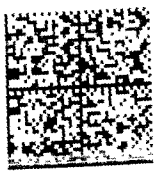
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
ATTN: Enforcement

Wisconsin Department of Natural Resources
Air Quality Division
101 S Webster Street, P.O. Box 7921
Madison WI
ATTN: Enforcement

Department of Environmental Quality
Air Quality Division
122 West 25th St, Herschler Building
Cheyenne 82002
ATTN: Cole Anderson

3963705v2/014996

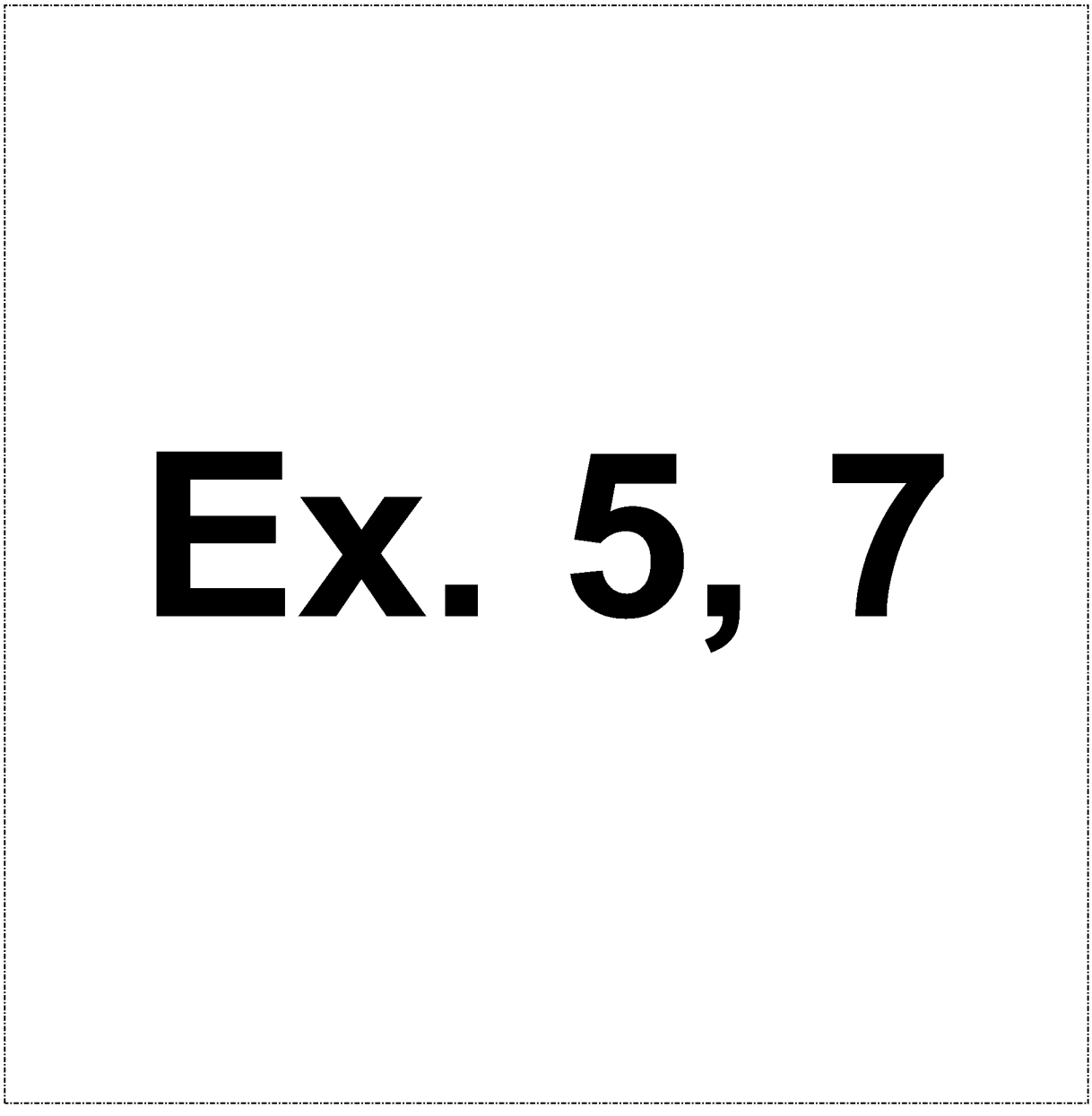
SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA
HOUSTON, TEXAS 77002-5096



US POSTAGE PITNEY BOWES

ZIP 77002 $ 000.90⁰
02 1W

Arkansas Department of Environmental Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer



Sent from my iPad

Begin forwarded message:

From: David Nachman <David.Nachman@ag.ny.gov>
Date: November 17, 2015 at 9:32:08 AM PST
To: "Van Eaton, Josh (ENRD) (Josh.Van.Eaton@usdoj.gov)" <Josh.Van.Eaton@usdoj.gov>, "Engel, Bethany (ENRD) (Bethany.Engel@usdoj.gov)" <Bethany.Engel@usdoj.gov>
Cc: "Lisa M. Burianek" <Lisa.Burianek@ag.ny.gov>, John Turrettini <John.Turrettini@ag.ny.gov>
Subject: FW: Susman Godfrey Letter (VW)

Here's the second letter I mentioned to Josh this morning.

IMPORTANT NOTICE: This e-mail, including any attachments, may be confidential, privileged or otherwise legally protected. It is intended only for the addressee. If you received this e-mail in error or from someone who was not authorized to send it to you, do not disseminate, copy or otherwise use this e-mail or its attachments. Please notify the sender immediately by reply e-mail and delete the e-mail from your system.

BOOOOYAAS.XML

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA STREET
HOUSTON, TEXAS 77002-5096
(713) 651-9366
FAX (713) 654-6666
WWW.SUSMANGODFREY.COM

SUITE 5100
901 MAIN STREET
DALLAS, TEXAS 75202-3775
(214) 754-1900

SUITE 950
1901 AVENUE OF THE STARS
LOS ANGELES, CALIFORNIA 90067-6029
(310) 789-3100

SUITE 3800
1201 THIRD AVENUE
SEATTLE, WASHINGTON 98101-3000
(206) 516-3880

15TH FLOOR
560 LEXINGTON AVENUE
NEW YORK, NEW YORK 10022-6828
(212) 336-8330

ROBERT S. SAFI
DIRECT DIAL (713) 653-7850

E-MAIL RSAFI@SUSMANGODFREY.COM

November 6, 2015

VIA CERTIFIED MAIL

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
William Jefferson Clinton Federal Building
Washington, DC 20460

Volkswagen AG
Audi AG
Porsche AG
Volkswagen Group of America, Inc.
Porsche Cars North America, Inc.
Thru:

David Geanacopoulos
Executive Vice President Public Affairs
and General Counsel
Volkswagen Group of America, Inc.
2200 Ferdinand Porsche Drive
Herndon, VA 20171

Joseph Folz
Vice President, General Counsel and
Secretary
Porsche Cars North America, Inc.
One Porsche Drive
Atlanta, GA 30354

Stuart Johnson
General Manager
Engineering and Environmental Office
Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326

Walter J. Lewis
Manager, Regulatory Affairs
Porsche Cars North America, Inc.
980 Hammond Drive, Suite 1000
Atlanta, GA 30328

[State addressees listed at the end]

3963705v2/014996

Re: Notice of Clean Air Act Violations Pursuant to 42 U.S.C. § 7604(b)(1)(A)

Ladies and Gentlemen,

We represent Rich Hill, Elvis Foster, Robert Nesbitt, Joe Howbert, Callum Dorey, Don Cunningham, Angelyen Wood, Marcia Andru Moshe, Edmund Steppan, Mireya Perez, Kristen Van de Biezenbos, Ann Marie Stief, William Stief, Thomas C. Jorgensen, Kartik Pillutla, Kathryn Sue Vordenberg, Michael Brown, Carol Spindel, Jason Welch, Thomas Bassett, Joshua R. Geller, Michelle Geller, Fred M. Flores, Gary Butterwei, Terri Butterwei, Thomas Michael Carran, Michael Fuerstein, Grant Garcia, Howard Katz, Timothy P. Yerkes, Beth Glassman, Stephanie Waddoups, Mary Jones, Diego Alberto Diaz, Michael Santos, Mark Pomerantz, and Tiffany Ford, individually and on behalf of all others similarly situated (collectively, "Plaintiffs"), and write to provide notice of violations of the Clean Air Act ("CAA") by Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") to the Administrator of the EPA, to the States in which the violation occurs (in this case, all fifty States and the District of Columbia), and to the alleged violators of the CAA. This is notice is pursuant to 42 U.S.C. § 7604(b)(1)(A), and is made 60 days before Plaintiffs commence a civil action against VW to enforce the applicable emission standards or limitations and to recover civil penalties, costs of litigation (including reasonable attorney and expert witness fees), and all other relief that is proper in citizen suits under the CAA.

The allegations in this notice are based on the Notices of Violation issued by the United States Environmental Protection Agency ("EPA") on September 18, 2015 and November 2, 2015. As stated therein, the EPA has investigated and continues to investigate Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") for compliance with the CAA, 42 U.S.C. §§ 7401-7671q, and its implementing regulations. The EPA has determined that VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0 liter engines, and certain model year 2014 through 2016 diesel light-duty vehicles equipped with 3.0 liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles' emission control system that exist to comply with CAA emission standards. Therefore, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B). Additionally, the EPA has determined that, due to the existence of the defeat devices in these vehicles, these vehicles do not conform in all material respects to the vehicle specifications described in the applications for the certificates of conformity that

VW FOIA, EPA 06/20/2017 2017-FFP_036021

purportedly cover them. Therefore, VW also violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing these vehicles, or for causing any of the foregoing acts.

Law Governing Alleged Violations

This notice arises under Part A of Title II of the CAA, 42 U.S.C. §§ 7521-7554, and the regulations promulgated thereunder. In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting dangers to the public health and welfare." CAA § 101(a)(2), 42 U.S.C. § 7401(a)(2). Congress' purpose in creating the CAA, in part, was "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." CAA § 101(b)(l)-(2), 42 U.S.C. § 740 l (b)(l)-(2). The CAA and the regulations promulgated thereunder aim to protect human health and the environment by reducing emissions of nitrogen oxides (NOx) and other pollutants from mobile sources of air pollution. Nitrogen oxides are a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds (VOCs) that produce ozone (smog) on hot summer days. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma. Children are at greatest risk of experiencing negative health impacts from exposure to ozone.

The allegations here concern light-duty motor vehicles for which 40 C.F.R. Part 86 sets emission standards and test procedures and section 203 of the CAA, 42 U.S.C. § 7522, sets compliance provisions. Light-duty vehicles must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce.

To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-0l(d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of

VW FOIA, EPA 06/20/2017 2017-FFP_036022

activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) such conditions are substantially included in the Federal emission test procedure; (2) the need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) the AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control systems performance are AECDs. EPA, *Advisory Circular Number 24-2: Prohibition of Emission Control Defeat Devices - Optional Objective Criteria* (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-10(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications), 86.1848-01(b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should

VW FOIA, EPA 06/20/2017 2017-FFP_036023

know that such part or component is being offered for sale or installed for such use or put to such use."' CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86. 1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(l), 42 U.S.C. § 7522(a)(l); 40 C.F.R. § 86.1854-1 2(a)(l). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854-12(a).

2.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of these vehicles that sensed when the vehicle was being tested for compliance with EPA emission standards. The EPA calls this the "switch." The "switch" senses whether the vehicle is being tested or not based on various inputs including the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs precisely track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA emission testing, the vehicles' ECM ran software which produced compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). At all other times during normal vehicle operation, the "switch", was activated and the vehicle ECM software ran a separate "road calibration" which reduced the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean Ox trap). As a result, emissions of Ox increased by a factor of 10 to 40 times above the EPA compliant levels, depending on the type of drive cycle (e.g., city, highway).

The California Air Resources Board (CARB) and the EPA were alerted to emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. VW issued a voluntary recall in December 2014 to address the issue. CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the

VW FOIA, EPA 06/20/2017 2017-FFP_036024

testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' on board diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing. It became clear that CARB and the EPA would not approve certificates of conformity for VW's 2016 model year diesel vehicles until VW could adequately explain the anomalous emissions and ensure the agencies that the 20 16 model year vehicles would not have similar issues. Only then did VW admit it had designed and installed a defeat device in these vehicles in the form of a sophisticated software algorithm that detected when a vehicle was undergoing emissions testing.

VW knew or should have known that its "road calibration" and "switch" together bypass, defeat, or render inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track the parameters of the federal test procedure and cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure.

VW's "road calibration" and "switch" are AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), each time it sold, offered for sale, introduced into commerce, de livered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the hundreds of thousands of new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch" and " road calibration."

The vehicles are identified by the table below. All vehicles are equipped with 2.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen,

VW FOIA, EPA 06/20/2017 2017-FFP_036025

		Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGA V02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

3.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of each vehicle that causes the vehicle to perform differently when the vehicle is being tested for compliance with EPA emission standards than in normal operation and use.

When this software determines the vehicle has begun the FTP 75 Federal emission test procedure, it directs the vehicle to employ a low NOx temperature conditioning mode. A status bit in the software indicates that a "temperature conditioning" mode is active. In this low NOx temperature conditioning mode, the vehicle operates under a number of emission control parameters, including injection timing, exhaust gas recirculation rate, and common rail fuel pressure in such a way that the parameters yield low engine-out NOx emissions and high exhaust temperatures. The high exhaust temperatures heat the selective catalytic reduction system ("catalyst") and improve the catalyst's ability to reduce tailpipe NOx emissions. In this low NOx temperature conditioning mode, the combination of low engine-out NOx and improved catalyst performance results in tailpipe NOx emissions that are below the applicable emissions standard.

VW FOIA, EPA 06/20/2017 2017-FFP_036026

However, the software employs a "timer" that coincides with the low NOx temperature conditioning mode. At exactly one second after the completion of the initial phases of the FTP 75 Federal emissions test procedure (1,370 seconds, which is when the vehicle would normally be turned off), this software directs the vehicle to cease low NOx temperature conditioning mode. The "temperature conditioning" status bit switches to zero, and a second status bit indicates the activation of "transition to normal mode." In this "normal mode," the emission control system is immediately less effective. Compared to the low NOx temperature conditioning mode, the vehicle employs a different injection timing, exhaust gas recirculation rate, and common rail fuel pressure. This yields higher levels of NOx from the engine and reduced exhaust temperatures.

In addition, when the vehicle starts under conditions that the software determines *are not* the beginning of the FTP 75 Federal emission test procedure, the vehicle does not use the low NOx temperature conditioning mode at all. Instead, the emission control parameters are set consistent with the "normal mode." In sum, as soon as the vehicle senses that it is not being tested, it uses "normal mode." In "normal mode," tailpipe emissions of NOx are up to 9 times the applicable NOx standard levels, depending on model type and type of drive cycle (e.g., city, highway).

This notice is based on vehicle emission testing performed by the EPA's National Vehicle and Fuel Emissions Laboratory, California Air Resources Board's Hagen-Smit Laboratory, and Environment Canada's River Road Laboratory. This testing was performed since EPA's announcement on September 25, 2015, that it would perform additional testing "using driving cycles and conditions that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device." EPA, *EPA Conducted Confirmatory Testing* (Sept. 25, 2015).

VW knew or should have known that the software described above bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track federal test procedures and cause emission control systems to underperform when the software determined that the vehicle was not being tested.

VW's software described above includes one or more AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), each

VW FOIA, EPA 06/20/2017 2017-FFP_036027

time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the software described above. The vehicles are identified by the table below. All vehicles are equipped with 3.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2014	EADXT03.02UG	VW Touareg
2015	FPRXT03.0CDD	Porsche Cayenne
2016	GVGAJ03.0NU4	Audi A6 Quattro, A 7 Quattro, A8, A8L, and Q5

Citizen Enforcement

The investigation into this matter is continuing. The above tables represent specific violations that the EPA and Plaintiffs believe, at this point, are sufficiently supported by evidence to warrant the allegations in this notice. The EPA and Plaintiffs may find additional violations as the investigation continues, including violations related to carbon dioxide emissions from diesel and gasoline-power VW vehicles, as indicated by VW's public announcement on November 3, 2015.

Not less than 60 days following this notice, Plaintiffs may commence a civil action pursuant to 42 U.S.C. §7604, which provides that the district courts of the United States have jurisdiction to enforce emission standards or limitations, to apply any appropriate civil penalties, and to award costs of litigation (including reasonable attorney and expert witness fees) to any party.

Sincerely,

Robert S. Safi

State Addressees:

Alabama Department of Environmental Management
Air Division

Alaska Department of Environmental Conservation
Division of Air Quality

3963705v2/014996

P.O. Box 301463
Montgomery, AL 36130-1463
ATTN: Ron Gore

410 Willoughby Ave., Suite 303,
P.O. Box 111800
Juneau, AK 99811-1800
ATTN: Denise Koch

American Samoa Environmental
Protection Agency
Air and Land Division
P.O. BOX PPA
Pago Pago, AS 96799
ATTN: William Sili

Arizona Department of
Environmental Quality
Air Quality Division
1110 West Washington Street
Phoenix, Arizona 85007
ATTN: Enforcement

Arkansas Department of Environmental
Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

California Air Resources Board
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ATTN: Enforcement

Colorado Department of Public Health and
Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80246
ATTN: Janet Lovell

Connecticut Department of
Environmental Protection
Air Division
79 Elm Street
Hartford, CT 06106-5127
ATTN: Enforcement

Delaware Dept. of Natural Resources and
Environmental Control
Division of Air Quality
655 South Bay Road Suite 5 N
Dover, DE 19901
ATTN: Frank Frisby

DC Department of the Environment
Air Quality Division
1200 First Street NE
Washington, DC 20002
ATTN: Enforcement

Florida Department of Environmental
Protection
Division of Air Resource Management
2600 Blair Stone Road, M.S. 5500
Tallahassee, Florida 32399-2400
ATTN: Justin Green

Georgia Department Environmental
Protection Division
Air Protection Branch
2 Martin Luther King Jr. Drive,
Suite 1456, East Tower
Atlanta, GA 30334
ATTN: Karen Hays

Guam Environment Protection Agency

Hawaii Department of Health

VW FOIA, EPA 06/20/2017 2017-FFP_036029

Air Pollution Division
P.O. Box 22439
GMF Barrigada, Guam 96921
ATTN: Conchita Taitano

Environmental Health Analytical Branch
2725 Waimano Home Road
Pearl City, Hawaii 96782
ATTN: Wanda Chang

Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706
ATTN: Tiffany Floyd

Illinois Pollution Control Board
Air Division
1021 North Grand Avenue East, P.O. Box 19274
Springfield, Illinois 62794-9274
ATTN: Tom Johnson

Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue, Room N1003
Indianapolis, Indiana 46204
ATTN: Enforcement

Iowa Department of Natural Resources
Air Quality Division
502 East 9th Street, 4th Floor
Des Moines, IA 50319-0034
ATTN: Enforcement

Kansas Department of Health and Environment
Air Division
1000 SW Jackson, Suite 31
Topeka, KS 66612-1366
ATTN: Rick Brunetti

Kentucky Environmental Quality Commission
Division for Air Quality
200 Fair Oaks Ln., 1st Floor
Frankfort, KY 40601
ATTN: Candy Montgomery

Louisiana Department of Environmental Quality
Air Permits, Engineering and Planning Division
602 N. Fifth Street
Baton Rouge, LA 70802
ATTN: Enforcement

Maine Department of Environmental Protection
Air Quality Division
17 State House Station, 28 Tyson Drive
Augusta, Maine 04333-0017
ATTN: Marc Cone

Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard, Suite 715
Baltimore, Maryland 21230-1720
ATTN: Enforcement

Massachusetts Department of Environmental Protection
Air Quality Division
1 Winter Street
Boston, Massachusetts 02108
ATTN: Paul Davis

VW FOIA, EPA 06/20/2017 2017-FFP_036030

Michigan Department of Environmental Quality
Air Division
P.O. Box 30260
Lansing, MI 48909-7760
ATTN: Lynn Fiedler

Minnesota Pollution Control Agency
Air Division
525 Lake Avenue South, Suite 400
Duluth, MN 55802
ATTN: Enforcement

Mississippi Department of Environmental Quality
Office of Pollution Control
P. O. Box 2261
Jackson, MS 39225
ATTN: Enforcement

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
ATTN: Kyra Moore

Montana Department of Environmental Quality
Air Program
1520 E 6th Ave
Helena, MT 59601
ATTN: Eric Merchant

Nebraska Department of Environmental Quality
Air Quality Division
1200 N Street, Suite 400, P.O. Box 98922
Lincoln, NE 68509-8922
ATTN: Shelley Schneider

Nevada Division of Environmental Protection
Bureau of Air Quality Planning
901 So. Stewart St., Suite 4001
Carson City, NV 89701
ATTN: Enforcement

New Hampshire Department of Environmental Services
Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
ATTN: Enforcement

New Jersey Department of Environmental Protection
Division of Air Quality
P.O. Box 402
Trenton, NJ 08625-0402
ATTN: Enforcement

New Mexico Environment Department
Air Division
P.O. Box 5469
Santa Fe, New Mexico 87502-5469
ATTN: Enforcement

New York State Department of Environmental Conservation
Chemical and Pollution Control Division
625 Broadway
Albany, New York 12233-0001
ATTN: Enforcement

NC Division of Pollution Prevention and Environmental Assistance
Environmental Assistance and Customer Service
1639 Mail Service Center
Raleigh, NC 27699-1639
ATTN: Theodore Bush

3963705v2/014996

ND Department of Health - Environmental Health Section
Division of Air Quality
918 E. Divide Ave, 2nd Floor
Bismarck, ND 58501
ATTN: Terry L. O'Clair

Division of Environmental Quality
Air Division
P.O. Box 501304
Saipan, MP 96950
ATTN: Enforcement

Ohio Air Quality Development Authority
Air Division
50 W. Broad Street, Suite 1718
Columbus, Ohio 43215
ATTN: Enforcement

Oklahoma Department of Environmental Quality
Air Quality Division
P.O. Box 1677, 707 North Robinson
Oklahoma City, Oklahoma 73101-1677
ATTN: Gary Collins

Oregon Department of Environmental Quality
Air Quality Division
811 SW 6th Avenue
Portland 97204-1390
ATTN: Enforcement

Pennsylvania Department of Environmental Protection
Air Programs
400 Market Street
Harrisburg, PA 17101
ATTN: Enforcement

Departamento de Recursos Naturales y Ambientales
Air Division
P.O. Box 366147
San Juan, Puerto Rico 00936
ATTN: Enforcement

Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence, RI 02908-5767
ATTN: Doug McVay

South Carolina Department of Health and Environmental Control
Air Quality Enforcement
2600 Bull Street
Columbia, SC 29201
ATTN: Randy Stewart

South Dakota Department of Environment and Natural Resources
Air Quality Division
523 E Capitol
Pierre, SD 57501
ATTN: Enforcement

Tennessee Department of Environment and Conservation
Division of Air Pollution Control
312 Rosa L. Parks Ave
Nashville, TN 37243
ATTN: Barry Stephens

Texas Commission on Environmental Quality (TCEQ)
Office of Air
P.O. Box 13087
Austin, TX 78711-3087
ATTN: Steve Hagle, P.E.

VW FOIA, EPA 06/20/2017 2017-FFP_036032

Utah Department of Environmental Quality
Division of Air Quality
195 North 1950 West
Salt Lake City, Utah 84116
ATTN: Bryce Bird

Vermont Department of Environmental Conservation
Air Quality & Climate Division
One National Life Drive, 2nd Floor
Montpelier, VT 05620-3802
ATTN: Heidi Hales

US Virgin Islands Division of Environmental Protection
Air Pollution Control Program
Cyril E. King Airport, Terminal Building, 2nd Fl.
St. Thomas, VI 00802
ATTN: Enforcement

Virginia Department of Environmental Quality
Air Division
P.O. Box 1105
Richmond, VA 23218
ATTN: Michael Dowd

Washington Department of Transportation's Environmental Services
Air Quality Division
P.O. Box 47300
Olympia, WA 98504-7300
ATTN: Enforcement

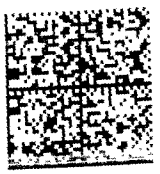
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
ATTN: Enforcement

Wisconsin Department of Natural Resources
Air Quality Division
101 S Webster Street, P.O. Box 7921
Madison WI
ATTN: Enforcement

Department of Environmental Quality
Air Quality Division
122 West 25th St, Herschler Building
Cheyenne 82002
ATTN: Cole Anderson

VW FOIA, EPA 06/20/2017 2017-FFP_036033

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA
HOUSTON, TEXAS 77002-5096

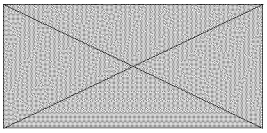


US POSTAGE PITNEY BOWES

ZIP 77002 $ 000.90[0]
02 1W

Arkansas Department of Environmental Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

To: Brooks, Phillip[Brooks.Phillip@epa.gov]
From: Environmental Law360
Sent: Wed 11/18/2015 8:32:04 AM
Subject: The 10 Mightiest Environmental Practice Groups



ENVIRONMENTAL

Wednesday, November 18, 2015

TOP NEWS

The 10 Mightiest Environmental Practice Groups

Faced with ever more complex needs from clients seeking environmental counsel, 10 firms are meeting the challenge head-on with the deepest environmental teams in the U.S. Check back Thursday to see the full list of the 100 largest environmental practice groups.

EPA Beefs Up Cross-State Air Pollution Rule

The U.S. Environmental Protection Agency on Tuesday incorporated the 2008 national ozone standards into its recently-resurrected cross-state air pollution rule, requiring several upwind U.S. states to reduce nitrogen oxide emissions from power plants that travel to downwind states that currently aren't meeting those ozone standards.

Clean Power Plan Will Devastate Pa. Coal, Lawmakers Say

Pennsylvania lawmakers and coal industry representatives vowed to fight the Obama administration's Clean Power Plan during a joint public hearing Tuesday involving members of the House and Senate coal caucuses, saying the regulations could devastate the state's coal industry and economy.

Ex-Massey Energy CEO's Criminal Trial Goes To Jury

A federal jury on Tuesday began deliberating conspiracy charges against former West Virginia coal magnate Don Blankenship, who prosecutors said in closing arguments exerted unrelenting pressure on his Massey Energy workers to look past hazards and wring profits from the Upper Big Branch mine before an explosion killed 29 people.

EPA Threatens To Yank NC Permitting Authority

The U.S. Environmental Protection Agency has threatened to revoke North Carolina's ability to issue permits under the Clean Water Act and Clean Air Act over concerns that recent state administrative law judge and state court decisions limit citizen access to judicial review of environmental permits.

Prosecutor Misconduct In Calif. Wildfire Ignored, AGs Say

LAW FIRM

Akern

Alstor Hunt

Arnol & Porte

Babst Callar

Baker & McKe

Baker Donel

Bays Lung

Best Best

Bever & Diam

Bown and Brook

Brace & Giulia

Capel

Five state attorneys general Monday urged the Ninth Circuit to reverse a California federal judge's refusal to unwind a $122.5 million settlement over a devastating wildfire, arguing he ignored plausible allegations of serious misconduct by federal prosecutors in pursuing the deal.

EQT Says Frack Fine Challenge Can't Wait For Enviro Board

The Pennsylvania Supreme Court should greenlight EQT's court challenge to a regulator's $1.2 million settlement offer over a fracking water spill, the gas developer argued Tuesday, saying clarifying the law underpinning the proposed fine should not have to wait for an administrative body's ruling.

POLICY & REGULATION

Senate Votes To Block Controversial EPA Clean Power Plan

The U.S. Senate on Tuesday passed a pair of resolutions intended to repeal U.S. Environmental Protection Agency carbon emissions rules, including its contentious Clean Power Plan, despite the White House threatening a veto.

APEC Nations Commit To Promoting Green Trade Growth

Asia-Pacific Economic Cooperation leaders committed on Tuesday to continue backing the massive Free Trade Area of the Asia-Pacific and prioritizing trade-enhancing measures that address environmental challenges, encourage sustainable food supply chains and improve and develop transportation infrastructure.

LITIGATION

NJ High Court To Review Dispute Over Oil Tank Leak At Inn

New Jersey's highest court will consider whether a state appellate court erred by dividing the cost of investigating and cleaning up an oil leak between the purchasers and one-time owners of an inn property, according to a Monday court filing.

NJ Justices Will Mull Givaudan Win In Policy Assignment Row

The New Jersey Supreme Court will consider whether Givaudan Fragrances Corp. received a valid assignment of rights under an affiliate's insurance policies and can pursue more than $500 million in pollution claims coverage from an army of insurers, according to an order Monday.

Monsanto Tells 9th Circ. GMO Law Backers Lack Standing

Monsanto again urged the Ninth Circuit on Monday to dismiss a bid by a citizens coalition trying to revive a Maui County, Hawaii, law restricting genetically modified crops for lack of standing, saying they have no legal stake in defending the law.

LAW FIRM

Akern

Alstor Hunt

Arnol & Porte

Babst Callar

Baker & McKe

Baker Donel

Bays Lung

Best Best

Bever & Diam

Bown and Brook

Brace & Giulia

Capel Scatc

Cliffor Chan

Clyde & Co

Cougl Duffy

Cox

WATER

Wash. Judge Trims Tribe's $9M Claim In River Cleanup Suit

A Washington federal judge partially denied a tribe's $9.2 million claim for responding to pollutants that a Canadian mining company dumped into the Columbia River, ruling Monday that the tribe lacked enforcement authority and must prove during an upcoming trial if the majority of the costs were related to remedial actions.

Union Pacific Slams Asarco's Filing In Basin Cleanup Row

Union Pacific Railroad Co. on Monday slammed a recent motion by Asarco LLC in a dispute over environmental cleanup costs, saying Asarco had not put forward undisputed facts in its effort to defeat arguments that Union Pacific may use in the case.

BP, Shell Move For Win In Calif. Tainted Water Suit

BP and Shell have asked a New York federal judge to dismiss a yearslong dispute with a California water district that alleges the oil companies, along with a host of others, endangered Orange County's water supply through their use of a gasoline additive, saying there is no reason for delaying judgment.

Miami-Dade Board Delays Boat Show Enviro Permit Vote

Looking to make some headway on its controversial plans to host part of the 2016 Greater Miami International Boat Show on Virginia Key, the event's operator only got more uncertainty Tuesday as the Miami-Dade County Commission deferred decision on a critical environmental permit until next month.

Water Agency Can Challenge Tribal Tax Rule, 9th Circ. Told

A California water agency renewed its fight on Monday against a federal rule that bars state and local taxation and collection of fees from improvements such as hotels, restaurants and other nontribal facilities built on tribal lands, telling the Ninth Circuit that it can challenge the regulation.

ENFORCEMENT

Chemical Producer PQ Hit With $1.7M Pa. Air Pollution Fine

Carlyle Group-backed chemical producer PQ Corp. must pay $1.74 million for violating Pennsylvania air quality standards with excessive carbon monoxide and nitrogen oxides emissions from its Chester facility, state regulators announced Tuesday.

EXPERT ANALYSIS

Recent Trends In Environmental Nuisance Law

LAW FIRM

Akern

Alstor Hunt

Arnol & Porte

Babst Callar

Baker & McKe

Baker Donel

Bays Lung

Best Best

Bever & Diam

Bown and Brook

Brace & Giulia

Capel Scatc

Cliffor Chan

Clyde & Co

Cougl Duffy

Cox

Nuisance has increasingly become the "tort of choice" for plaintiffs in environmental and toxic tort litigation, but two federal jurisdiction doctrines — preemption and political question — remain potential roadblocks. And while such cases continue to be viable under state law, courts generally have refused to lower the bar for plaintiffs to prove injury and causation, and to certify classes based on nuisance, say attorneys at Gibson Dunn & Crutcher LLP.

LEGAL INDUSTRY

The 10 Mightiest Product Liability Practice Groups

The 10 law firms with the largest product liability practices in the country include midsize firms for which the practice is an essential part of their identity, as well as large firms adapting to handle the increasingly international nature of lawsuits and government investigations stemming from high-profile product defects and recalls. Check back Thursday to see the full list of the 100 largest product liability practice groups.

The 10 Mightiest Insurance Practice Groups

Ten law firms have staked out spots among the biggest insurance practice groups by cultivating deep benches of partners with expertise in insurance litigation, transactional and regulatory matters. Check back Thursday to see the full list of the 100 largest insurance practice groups.

The 10 Mightiest Bankruptcy Practice Groups

Ten firms have established themselves as go-to shops for clients in need of restructuring expertise by providing the deepest bench of bankruptcy partners, placing them among the ranks of the largest bankruptcy practice groups in the U.S. Check back Thursday to see the full list of the 100 largest bankruptcy practice groups.

The 10 Mightiest Real Estate Practice Groups

Amid a globe-spanning real estate deal boom, 10 firms boasting the largest number of real estate partners are primed to grab the industry's growing cross-border deal work. Check back Thursday to see the full list of the 100 largest real estate practice groups.

5 Things Law Firms Do That Waste Time

Time is money and a way of life for law firms, but efficiency — increasingly necessary in a highly competitive legal market — is hobbled by habits and activities with few concrete results beyond wasted time, experts say. Here, experts discuss how firms let time slip away and what to do about it.

Baker Donelson Ties Health Insurance To Billing Hours

Baker Donelson Bearman Caldwell & Berkowitz PC said staff attorneys, part-time attorneys, of counsels and senior counsels will have to work 30 hours or more per week in order to maintain eligibility for health care coverage in 2017, according to a Monday memo.

Sen. Reid Blames Republicans For Judicial Vacancies

LAW FIRM

Akern

Alstor Hunt

Arnol & Porte

Babst Callar

Baker & McKe

Baker Donel

Bays Lung

Best Best

Bever & Diam

Bown and Brook

Brace & Giulia

Capel Scatc

Cliffor Chan

Clyde & Co

Cougl Duffy

Cox

Senate Minority Leader Harry Reid, D-Nev., on Tuesday blasted Republicans for delaying judicial nominee votes, saying they are leaving Americans in the lurch by refusing to confirm qualified judges such as Luis Felipe Restrepo for the Third Circuit and Mary Barzee Flores for the Southern District of Florida.

Calif. Gov. Taps MoFo, Arnold, Katten Partners For Bench

California Gov. Jerry Brown on Tuesday announced 25 new judicial appointees, including a commercial litigation and antitrust expert from Morrison & Foerster LLP, a product liability litigation and white collar defense specialist from Arnold & Porter LLP, and a banking and real estate pro from Katten Muchin Rosenman LLP.

Davis Polk Sheds $1.4M Recruiting Fee Appeal

A New York appeals court Tuesday agreed with a lower court that a legal consultant's suit against Davis Polk & Wardwell LLP for $1.4 million in attorney recruiting commissions belonged in Hong Kong.

Exhibit A — Winky Face: Emoticon Evidence Enters Courts

With so many emojis and emoticons being transmitted online and in text messages, it was inevitable that they would end up in communications used as evidence in court cases. But what do they mean? And when their meaning is in dispute, who should resolve the conflict — the court or the jury? These questions recently have arisen in a variety of civil and criminal cases, say Karen Henry and Jason Harrow of Davis Wright Tremaine LLP.

JOBS
Search full listings or **advertise your job opening**

Castle

Cozen O'Con

DLA Piper

Davis Graha

Davis Polk

Davis Wrigh Trema

Debev & Plimp

Dentc

Down Branc

Duan
Morris

Epste
Becke
Greer

Gibso
Dunn

Goldb
Segal

Gouls
&
Storrs

Graha
Curtir

Greer
Trauri

Greer
Pauly

Hardi
Kundl

Hawk
Parne

Hinsh
&
Culbe

Hoga
Lovell

Hollar
&
Hart

Hollar
&
Knigh

Hunto
&
Willia

Jones

Day

Kasow
Benso

Katter
Much

King
&
Spald

Kirkla
&
Ellis

Latha
&
Watki

LeCla

Lee
&
Hayes

Lewis
Brisbo

Marte
Law

Mathe
Sears

McDe
Will

Morris
&
Foers

Nelso
Brown
& Co.

Norto
Rose
Fulbri

Pachu
Stang

Paine
Hamb

Paul
Weiss

Perkin
Coie

Pillsbu
Winth

Reed
Smith

Riker
Danzi

Rivkin
Radle

Sedgw
LLP

Seyfa
Shaw

Shear
&
Sterlin

Shook
Hardy

Short
Cress

Smith
Stratt

Squire
Patto
Boggs

Stearn
Weav

Stoel
Rives

Suthe
Asbill

Troutr
Sande

White
&
Case

Wilso
Elser

Winde
Marx

Zucke
Spaet

COMI

Aetna
Inc.

Alcoa
Inc.

Allsta
Corpc

Alpha
Natur
Resou
Inc.

Ameri
Electr
Powe
Comp
Inc

Ameri
Intern
Group
Inc.

Ameri
Truck
Assoc
Inc.

Apple
Inc.

BP
p.l.c.

CCMI
Capit
Advis
LLC

Carlyl
Group
LP

Chevr
Corpo

Cono

EQT
Corpo

ERM
Group
Inc.

Enbri

Faceb

Fosur
Intern
Ltd.

Friedr
LLP

Georg
Pacifi
LLC

Givau

Goog
Inc.

LG
Electr
Inc.

Lippm
Junge
LLC

Marat
Oil
Corpo

Mons
Comp

Murph
Oil
Corpo

Murph
USA
Inc.

Murra
Energ
Corp.

Royal
Dutch
Shell
PLC

Sams
Electr
Co.
Ltd.

Sierra
Pacifi
Indus
Inc.

Twitte
Inc.

Union
Pacifi
Corpo

Volks

GOVE
AGEN

Agua
Calien
Band
of
Cahui
Indian

Army
Corps
of

Engin

Burea
of
Indiar
Affairs

Confe
Tribes
of the
Colvil
Reser

Depa
of
Agricu

Envirc
Prote
Agenc

Mine
Safet
and
Healt
Admir

Port
of
Seattl

Secur
and
Excha
Comr

Tenne
Valley
Autho

U.S.
Army

U.S.
Depa
of
Justic

U.S.
Senat

U.S.
Supre

Court

Unite
Natio

LAW FIRMS
Dentons

DLA Piper

Norton Rose Fulbright

Baker & McKenzie

Greenberg Traurig

Kirkland & Ellis

Latham & Watkins

Squire Patton Boggs

Arnold & Porter

Cozen O'Connor

Davis Polk

Lewis Brisbois

White & Case

Wilson Elser

Akerman

Alston Hunt

Babst Calland

Baker Donelson

Bays Lung

Best Best

Beveridge & Diamond

Bowman and Brooke

Bracewell & Giuliani

Capehart Scatchard

Clifford Chance

Clyde & Co

Coughlin Duffy

Cox Castle

Davis Graham

Davis Wright Tremaine

Debevoise & Plimpton

Downey Brand

Duane Morris

Epstein Becker Green

Gibson Dunn

Goldberg Segalla

Goulston & Storrs

Graham Curtin

Greenwald Pauly

Hardin Kundla

Hawkins Parnell

Hinshaw & Culbertson

Hogan Lovells

Holland & Hart

Holland & Knight

Hunton & Williams

Jones Day

Kasowitz Benson

Katten Muchin

King & Spalding

LeClairRyan

Lee & Hayes

Marten Law

Matheny Sears

McDermott Will

Morrison & Foerster

Nelson Brown & Co.

Pachulski Stang

Paine Hamblen

Paul Weiss

Perkins Coie

Pillsbury Winthrop

Reed Smith

Riker Danzig

Rivkin Radler

Sedgwick LLP

Seyfarth Shaw

Shearman & Sterling

Shook Hardy

Short Cressman

Smith Stratton

Stearns Weaver

Stoel Rives

Sutherland Asbill

Troutman Sanders

Windels Marx

Zuckerman Spaeder

COMPANIES
Alpha Natural Resources, Inc.

Aetna Inc.

Alcoa Inc.

Allstate Corporation

American Electric Power Company Inc

American International Group Inc.

American Trucking Associations Inc.

Apple Inc.

BP p.l.c.

CCMP Capital Advisors LLC

Carlyle Group LP

Chevron Corporation

ConocoPhillips

EQT Corporation

ERM Group Inc.

Enbridge

Facebook

Fosun International Ltd.

Friedman LLP

Georgia-Pacific LLC

Givaudan

Google Inc.

LG Electronics Inc.

Lippman Jungers LLC

Marathon Oil Corporation

Monsanto Company

Murphy Oil Corporation

Murphy USA Inc.

Murray Energy Corp.

Royal Dutch Shell PLC

Samsung Electronics Co. Ltd.

Sierra Pacific Industries Inc.

Twitter Inc.

Union Pacific Corporation

Volkswagen

GOVERNMENT AGENCIES
Environmental Protection Agency

U.S. Supreme Court

U.S. Department of Justice

U.S. Senate

Agua Caliente Band of Cahuilla Indians

Army Corps of Engineers

Bureau of Indian Affairs

Confederated Tribes of the Colville Reservation

Department of Agriculture

Mine Safety and Health Administration

Port of Seattle

Securities and Exchange Commission

Tennessee Valley Authority

U.S. Army

United Nations

JOBS
Search full listings or **advertise your job opening**

Not sure if your firm subscribes? Ask your librarian.

We hope you found this message to be useful.
However, if you'd rather not receive future emails of this sort,
you may unsubscribe here.

Please DO NOT reply to this email. For customer support inquiries, please call 1-646-783-7100 or visit our Contact Us page.

Law360 | Portfolio Media, Inc, 860 Broadway, New York, New York 10003

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Moyer, Robert (Separated 9/30/15)[Moyer.Robert@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer

Sent: Wed 11/18/2015 4:29:24 PM
Subject: Air & Radiation Law News for November 18, 2015

Air & Radiation Law News

for November 18, 2015

Bloomberg BNA **Daily Environment Report™**

Air Pollution

EPA: 'Clear' Right to Shield McCarthy From Deposition

The Environmental Protection Agency's right to a writ of mandamus to prevent Administrator Gina McCarthy from being deposed in a lawsuit over the impact air pollution regulations have on jobs "is clear and indisputable," the...

Air Pollution

EPA Proposes More Power Plant Emissions Cuts

An Environmental Protection Agency proposal would require power plants in 23 states to achieve additional reductions in emissions of nitrogen oxides, a precursor to the formation of ground-level

ozone....

Air Pollution

Kaiser Aluminium Challenges EPA Emissions Standards

Kaiser Aluminum Corp. asked the U.S. Court of Appeals for the District of Columbia Circuit Nov. 17 to review the Environmental Protection Agency's updated hazardous air pollutant standards for secondary aluminium production facilities...

Air Pollution

VW Emissions Scandal Prompts German Tax Avoidance Probe

The Volkswagen Group, already set for billions in losses over its emissions reporting scandal, now faces the possibility of further financial liabilities as authorities examine whether to levy personal environmental tax avoidance fees,...

Climate Regulation

Majority of Senate Votes to Kill Obama Climate Rules

More than half the Senate Nov. 17 voted to kill two regulations that are the centerpieces of President Barack Obama's efforts to combat climate change. ...

Congress

Environmentalists, Industry Seek Final Say in Highway Bill

Environmental groups want to nix Republican-backed environmental streamlining provisions—including a pilot permitting program—from a multiyear highway bill in conference this week, but it isn't clear how many conferees...

Emissions Trading

RGGI Stakeholders Agree on Power Plan Compliance Approach

Environmental groups and representatives from the electric power industry agreed Nov. 17 that states in the Regional Greenhouse Gas Initiative should use a mass-based approach for new and existing sources of carbon emissions to comply with...

Energy

Post-Fukushima Accident Requirements on Track, NRC Says

Nuclear plant operators are on track to meet the highest priority safety requirements issued by the Nuclear Regulatory Commission in response to the Fukushima Daiichi nuclear reactor accident in 2011, the agency said....

Enforcement

11 States Receive Infrared Cameras From EPA to Detect Pollution

The Environmental Protection Agency has provided 11 states with infrared cameras to detect volatile organic compounds in the air, agency enforcement chief Cynthia Giles said Nov. 17 in a talk about the agency's Next Generation Compliance...

Enforcement

PQ Corp. Fined $1.7 Million for Air Violations

A Philadelphia-area company that makes chemical ingredients for detergents and luxury bath products has been penalized $1.7 million for air pollution violations, Pennsylvania environmental regulators said Nov. 17....

Hazmat Transport

PHMSA Publishing Crude-by-Rail Petition Responses

The Pipeline and Hazardous Materials Safety Administration will publish Nov. 18 its responses to administrative petitions about its crude-by-rail rule. The denials of several petitions on the rule (RIN 2137-AE91), which imposes new tank...

International Climate

Calderon: Low-Carbon Economy Would Help End Global Slump

Steps to spur investment in a low-carbon future would help end the global economic slump, former Mexican President Felipe Calderon said....

International Climate

Climate Deal Expected to Mean More Green Bonds

A global agreement to reduce greenhouse gas emissions, which negotiators expect to reach during talks beginning this month in Paris, would boost issuance of so-called green bonds, according to the World Bank Group's International...

International Climate

Congress Will Send Letter on Paris Climate Deal Concerns

Sens. John Barrasso (R-Wyo.) and Jim Inhofe (R-Okla.) are collecting signatures from Senate and House colleagues on a letter outlining concerns with the Obama administration's pursuit of an international agreement on climate change,...

International Climate

OECD Agrees to Limit Coal Power Plan Funding

The Organization for Economic Cooperation and Development has reached an agreement to limit financing for all but the most efficient new coal-fired power plants, the White House announced Nov. 17....

International Climate

WHO Urges Action to 'Save Lives' at UN Climate Talks

Climate change is "the defining issue for the 21st century," and health advocates ought to "lend their voice" to the discussion that will take place at the United Nations climate change summit in Paris in December, the World...

Oil & Gas

Canada's Record Prompted U.S. 'Dirty Oil' Remark: Trudeau

U.S. President Barack Obama's characterization of Canadian oil as dirty is "rhetoric" prompted by Canada's inaction on environmental issues, Prime Minister Justin Trudeau says....

Oil & Gas

Changes Sought to Colorado Well Siting Proposal

Environmentalists and drillers in Colorado continue to disagree on whether local governments should have greater regulatory control over oil and gas activity, but they agree on one thing: The state's proposed rules (Recommendations...

Oil & Gas

No Keystone, No Problem: TransCanada Turns to Mexico

Days after the U.S. spurned TransCanada Corp.'s proposal to expand its Keystone pipeline network across North America, Mexico opened its arms. ...

Oil & Gas

Statoil to Quit Offshore Alaska Exploration Leases

Norwegian oil and gas giant Statoil ASA is giving up on its exploration leases in the U.S. Arctic offshore, the company said Nov. 17....

Renewable Energy

$545M in Investments Aim to Boost Access to Solar Power

Private sector organizations are investing $545 million across 21 states to advance community solar projects and increase solar power access to more than 20,000 low- and moderate-income households, according to the White House....

Renewable Energy

DOE Sends $3.7 Million to Maine Offshore Wind Project

The Department of Energy granted $3.7 million in additional funds to a planned 12-megawatt offshore wind facility in Maine, Sens. Angus King (I) and Susan Collins (R) announced Nov. 16....

Trade

TPP Deal Likely to Degrade Conservation Efforts, Groups Say

The Trans-Pacific Partnership environmental chapter will exacerbate overfishing and illicit logging due to the combination of poor enforcement mechanisms in the pact and TPP terms designed to boost trade among member countries, environmental...

OPINION

International Climate

McCarthy Confident Climate Deal Can Be Reached

INSIDEEPA.COM
an online news service from the publishers of Inside EPA

Inside EPA's **Clean Air Report**, 11/19/2015

http://insideepa.com/newsletters/clean-air-report

Latest News

Revised CSAPR Echoes States' Push On 'Cost-Effective' Utility Air Controls

EPA's proposed update to its Cross-State Air Pollution Rule (CSAPR) utility emissions trading program echoes ideas floated by several states on upwind states' mandates for using existing air pollution controls, with the agency using a uniform "cost-effectiveness" threshold for the controls despite an appellate ruling faulting the approach.

Despite Veto Promise, Senate Backs Resolutions Rejecting EPA GHG Rules

The Republican-led Senate has moved forward with resolutions disapproving EPA's greenhouse gas (GHG) rules for new and existing power plants, demonstrating that a majority of the chamber is opposed to the rules in an effort to bolster support for Republicans in coal states and undercut the Obama administration's negotiating position in the looming United Nations climate talks in Paris.

EPA Floats CSAPR Air Trading Update To Help States Meet Ozone NAAQS

EPA is proposing to update its Cross-State Air Pollution Rule (CSAPR) power plant emissions trading program to force reductions of ozone-forming emissions in 23 states during the summer ozone season to

help states attain the agency's 2008 ozone air limit, but the rule does not address EPA's tighter ozone standard issued in October.

Manufacturers Seek To Return EPA's GHG Permit Program To High Court

A group of major manufacturers is asking the Supreme Court to again review long-running litigation over EPA's greenhouse gas permit rules, filing a petition that asks the justices to provide EPA direction on how to trigger GHG limits in stationary source permits -- though the effort is considered a long shot that seeks to re-litigate EPA's Clean Air Act authority to regulate the gases.

News Briefs

EPA's Critics Question Authority For SSM Air Rule

Power sector and other EPA critics are urging a federal appeals court to vacate the agency's rule forcing 36 states to scrap language in their emissions control plans that exempts some industrial emissions during startup, shutdown and malfunction (SSM) periods for Clean Air Act compliance purposes, saying the agency lacks authority to do so.

Hague Named As Permanent EPA Region 7 Chief

President Obama has named former acting Region 7 Administrator Mark Hague as the region's permanent top agency official, succeeding Karl Brooks in that position after Brooks moved to the agency's personnel office earlier this year.

Greenwire

COAL:

OECD agrees to phase out export financing

Lisa Friedman, E&E reporter

Published: Tuesday, November 17, 2015

Wealthy nations have struck a deal to phase out coal financing through export credit agencies, a U.S. source and several environmental activists monitoring the negotiations said.

Members of the Organisation for Economic Co-operation and Development (OECD) meeting in Paris agreed to restrict subsidies for exports of the least efficient coal-fired power generation, starting in 2017. The deal still allows certain types of coal financing for the biggest markets like India, Indonesia and South Africa.

The deal -- built largely around a compromise crafted by the United States and Japan -- carves out key exceptions for slightly more efficient plants at the insistence of South Korea and Australia, sources said. Despite those changes, environmental groups declared the deal a major achievement ahead of U.N. climate negotiations later this month.

"This is a win for international climate diplomacy," said Steve Herz, a senior attorney for the Sierra Club.

"The reason is, that a number of countries have already adopted restrictions on the subsidies they would provide to their exporters," Herz added. "What this does is add restrictions to the most regressive and the biggest remaining countries that had not adopted restrictions."

Under the agreement, all but the smallest plants using subcritical technology -- below 300 megawatts -- would be ineligible for financing.

Small and medium-sized plants, between 300 to 500 megawatts, would be eligible for the world's poorest countries as well as countries with less than 90 percent electrification rates.

Under the original language designed by the United States and Japan, only the world's poorest countries -- those eligible for International Development Association (IDA) funding through the World Bank -- would have been able to access coal financing. The change was made at the behest of Australia and South Korea, sources said.

The coal deal comes just two weeks before nations meet in Paris again to complete an international climate change agreement. That accord is expected to help keep emissions from reaching dangerous levels and possibly create a system under which countries regularly boost their targets for curbing greenhouse gas emissions.

OIL AND GAS:

BLM postpones Utah auction to 'accommodate' climate activists

Phil Taylor, E&E reporter

Published: Tuesday, November 17, 2015

The Bureau of Land Management late last night announced it is postponing today's scheduled oil and gas lease sale in Salt Lake City to appease activists who are fighting to keep those minerals in the ground.

BLM had planned to lease up to 37,580 acres scattered around the center of the Beehive State for future oil and gas development, but the agency said it needed more time to "better accommodate the high level of public interest in attending the sale."

It marks the first time that the "Keep it in the Ground" climate movement -- which seeks to end the sale of federally owned oil, gas and coal -- has disrupted a BLM lease auction.

BLM said it intends to reschedule the sale in the "near future."

"As a public agency, we understand the importance of transparency," said BLM spokeswoman Megan Crandall. "Given the large interest, we chose to postpone the sale and will be working to find the best way to accommodate the public and those who wish to attend and participate in the auction when it is held."

It was the third consecutive BLM lease sale to be confronted by climate protesters who believe the burning of federally owned fossil fuels will undermine the nation's efforts to reduce greenhouse gas emissions.

Roughly 50 people gathered last week outside BLM's Colorado headquarters in Lakewood to protest the agency's sale of 90,000 acres in the Pawnee National Grassland, according to the Western Energy Alliance.

BLM moved forward with that auction, selling 106 parcels covering 83,534 acres for $5 million.

Protesters also demonstrated outside a Nov. 3 lease sale in Wyoming.

Protesters carried banners and fake bidding paddles at this morning's climate rally outside BLM's office in downtown Salt Lake City. Photo courtesy of WildEarth Guardians.

Crandall said there was not enough room in BLM's downtown Salt Lake City auction room to accommodate members of the public who wanted to attend. The room is about 28 feet wide by 60 feet long and also has to accommodate up to 30 bidders and reporters, she said.

BLM planned to live-stream the auction, but many activists insisted on attending in person, she said.

The "Keep it in the Ground" campaign is backed by some major environmental groups including the Natural Resources Defense Council and is buoyed in Congress by legislation from Sen. Jeff Merkley (D-Ore.) that would end new leasing and renewals of nonproducing federal leases for oil, coal and gas.

The movement is riding the momentum of President Obama's recent rejection of the Keystone XL pipeline and Royal Dutch Shell PLC's decision to abandon oil exploration in the Arctic Ocean. It now seeks to stop BLM from leasing fossil fuels in the West and the Bureau of Ocean Energy Management from opening the Atlantic Ocean to offshore drilling.

In Salt Lake City this morning, roughly 40 activists displayed theatrical bidding paddles, held up photos of their grandkids and sang folk songs including John Prine's "Paradise," according to Tim Ream, an organizer from WildEarth Guardians who is based in San Francisco and attended this morning's protest. Organizing groups included WildEarth, the Center for Biological Diversity, Women's Congress for Future Generations, 350.org, the Rainforest Action Network and Elders Rising for Intergenerational Justice.

Ream said BLM informed him last week that some members of the public would be turned back from the auction room regardless of whether there was space. This morning's protest was led primarily by older activists who had no intention of disrupting the sale, he said.

"They wanted to touch the hearts of those who are selling and buying our public lands," he said. "They realized two years in prison is too high a price."

Ream was referring to the two-year prison sentence handed down in 2011 to activist Tim DeChristopher for his decision to pose as a bidder at a BLM lease sale in Utah in late 2008 and snatch up $1.8 million in leases with no intention of paying for them.

Vaughn Lovejoy of the group Elders Rising was among those who attended this morning's rally.

"We'd like to see if there's a way to inspire my generation ... to spend this piece of our life doing something for the future rather than hanging out on cruise ships or golf courses," he said.

Ream said activists will also stage protests at BLM's upcoming oil and gas lease sales in Reno, Nev., on Dec. 8 and in Washington, D.C., on Dec. 10. "We're going to keep on hitting every one of these lease sales," he said.

The American Petroleum Institute has criticized the movement and Merkley's legislation as a "political stunt," warning that halting federal sales of fossil fuels would hike energy costs and hurt the federal government's coffers.

The Mineral Leasing Act requires BLM to hold regular oil and gas auctions.

Kathleen Sgamma, vice president of government and public affairs at the Western Energy Alliance, whose members depend heavily on public lands leasing, said this morning that the Salt Lake City protesters are ignoring how increased production of natural gas has helped the nation transition away from coal that is more harmful to the climate when burned.

"Apparently, BLM is seeking a larger venue to accommodate the expected crowd of protesters whose goal is to disrupt the sale," she said. "These same professional protesters bragged that they were traveling to other lease sales to try to disrupt them, but they're on a fool's errand."

Sgamma noted that Interior Secretary Sally Jewell has rebuffed the "Keep it in the Ground" movement as unrealistic.

"There are millions of jobs around the country that are dependent on these industries, and you can't just cut it off overnight," Jewell said in September during a breakfast organized by *The Christian Science Monitor* (*Greenwire*, Sept. 15).

AIR POLLUTION:

EPA proposes updates to its cross-state rule

Sean Reilly, E&E reporter

Published: Tuesday, November 17, 2015

U.S. EPA today released proposed updates to its Cross-State Air Pollution Rule, intended to cut nitrogen oxides (NOx) emissions from power plants in 23 Eastern states that contribute to downwind ozone air quality problems.

By reducing ozone pollution, "this update will help protect the health and lives of millions of Americans," EPA Administrator Gina McCarthy said in a news release.

The almost 360-page proposal identifies cuts in NOx emissions that can be achieved using proven and cost-effective control technologies, according to the release. When combined with other regulations already on the books, the proposal would lead to an approximately 30 percent reduction in NOx emissions in 2017 in comparison with last year's level, acting EPA air chief Janet McCabe told reporters in a conference call, and provide up to $1.2 billion worth in annual benefits compared to an estimated $93 million price tag.

The cross-state rule was finalized four years ago. In the release, the agency said that proposed update addresses the July ruling by the U.S. Court of Appeals for the District of Columbia Circuit that sent back part of the rule to the agency but rejected arguments by states and other petitioners that EPA lacked the authority to put in place federal implementation plans for almost two dozen states. The proposal released today provides for that option if states don't develop their own plans.

In a statement, Clean Air Watch President Frank O'Donnell called the proposal "a step in the right direction," but one that would only help states meet a 2008 ambient ozone air standard of 75 parts per billion, not the newer standard of 70 ppb unveiled last month.

Doing anything less to help downwind states meet the new standard "will fail to adequately protect public health," O'Donnell said.

CLEAN POWER PLAN:

Senate launches debate on CRA effort to kill climate rule

Amanda Reilly, E&E reporter

Published: Tuesday, November 17, 2015

The Senate today began debate on a bid to use the Congressional Review Act to kill the Obama administration's carbon rules for power plants.

Senate Majority Leader Mitch McConnell (R-Ky.) moved to open debate this morning on a CRA joint resolution to eliminate the Clean Power Plan, U.S. EPA's program for reducing carbon dioxide emissions from existing power plants. By rule, there will be up to 10 hours of debate before the Senate votes on passage of the resolution, possibly later today.

"The Obama administration is putting facts and compassion to the side in order to advance their ideological agenda," McConnell said this morning.

Sens. Shelley Moore Capito (R-W.Va.) and Heidi Heitkamp (D-N.D.) sponsored S.J. Res. 24 to kill the Clean Power Plan, while McConnell and Sen. Joe Manchin (D-W.Va.) introduced a separate resolution, S.J. Res. 23, targeting EPA's rule to reduce carbon dioxide emissions from new and modified power plants.

Taken together, the two resolutions would strike down the central piece of President Obama's climate change agenda as the administration prepares to go to Paris at the end of the month to attend international climate negotiations. The White House today threatened to veto the Clean Power Plan resolution.

Sen. Ed Markey (D-Mass.), long a proponent of U.S. action to address climate change, called the floor debate on the resolutions this week "an historic debate."

"This is a showdown on the United States Senate floor over the clean energy future of our country," he said.

McConnell today said he expected both the House and Senate to approve the resolutions. In the Senate, CRA resolutions require a simple majority, or 51 votes, for passage. The resolution targeting the Clean Power Plan has 48 co-sponsors, while the resolution aimed at the new power plants has 47 co-sponsors.

The House Energy and Commerce Committee later this afternoon will also begin a markup of CRA resolutions targeting the carbon rules and is expected to send the measures to the House floor in a vote tomorrow. The full House, however, will likely not vote on the measures until after Thanksgiving.

Sen. Brian Schatz (D-Hawaii) today said there was "zero chance" of the resolutions being enacted into law, given that they would require a signature by the president.

"There is no way that the president is going to enact into law something that would overturn his signature environmental achievement," Schatz said.

In its veto threat, the White House said that the Clean Power Plan resolution would "undermine the public health protections of the Clean Air Act" and "stop critical U.S. efforts to reduce dangerous carbon pollution from power plants."

Congress has been successful only once at using the 1996 CRA to overturn an administrative rule. In 2001, newly elected President George W. Bush signed a CRA resolution overturning an Occupational Safety and Health Administration rule on ergonomic injuries in the workplace.

Not only would the resolutions on the Senate floor kill the Clean Power Plan and EPA's rule for new and modified power plants, but they would also prohibit the agency from promulgating any similar rules in the future.

As Congress today moved forward on the CRA resolutions, supporters and opponents of EPA's rules for power plants doubled down.

In a study released this morning, the National Mining Association warned that the Clean Power Plan would lead to a $214 billion increase in wholesale electricity prices by 2030 while achieving "meaningless" reductions in global greenhouse gas emissions.

The U.S. Chamber of Commerce today issued a key vote letter urging senators to vote in favor of both resolutions.

Green groups, on the other hand, today highlighted EPA's projections that the Clean Power Plan would result in 3,600 fewer premature deaths and 90,000 fewer asthma attacks in children. They urged states to make use of the flexibility built into the program to focus actions on minority and vulnerable populations.

Yesterday, 116 environmental organizations sent letters to every senator urging them to oppose the resolutions.

A group of Senate Democrats today slammed the measures as a waste of time meant to appease the coal industry. Congress has a more pressing legislative agenda that includes addressing the terrorist attacks in Paris and moving appropriations bills, Sen. Sheldon Whitehouse (D-R.I.) said.

"I think a very unfortunate choice has been made by the majority leader to do this," Whitehouse said. "There are very few people who support it, but the ones that do -- the tea party, the fossil fuel industry and

the Koch brothers -- are the ones who matter, obviously, the most."

Citing industry cost estimates, Capito today called the rule the most expensive EPA regulation ever on the U.S. power sector and said that it would affect a broader swath of the economy than just the coal sector. EPA, she said, is "attempting to regulate the entire energy grid."

"Congress should pass this resolution and place this issue squarely on the president's desk," Capito said.

Opponents' objective, Schatz said, was to "kick up enough dust" for the international community to wonder whether the U.S. commitment to address climate change at the upcoming negotiations in Paris is firm.

But Democrats said they were confident that President Obama would still be able to show the nation's commitment to climate change regardless of House or Senate passage of the resolutions ahead of or during the Paris talks.

"It'll be clear once they pass it -- if they have the ability to do so -- that the president will announce he's vetoing it. It'll be clear from whatever vote occurs on the Senate floor that the votes are there to sustain the president's veto," Markey predicted. "And so he [Obama] will be saying quite clearly that it is the law of the land in the United States of America."

OIL:

Gardner sees room for agreement on lifting crude ban

Daniel Bush, E&E reporter

Published: Tuesday, November 17, 2015

Republican Sen. Cory Gardner of Colorado said today that Congress should consider a deal on lifting the ban on crude oil exports in exchange for measures that boost renewable energy production.

Gardner, a member of the Energy and Natural Resources Committee, echoed several Democrats who have suggested in recent months that the party could potentially support lifting the export ban if congressional Republicans agree to extend tax credits for wind and solar power.

"I think that's a great opportunity and something we should look at," Gardner said at an energy forum in Washington, D.C.

Gardner pointed to comments made in July by Democratic Sen. Martin Heinrich of New Mexico and Maine independent Sen. Angus King, who said they would be open to lifting the decades-old ban if they're offered language to extend expiring tax incentives for clean power (*E&E Daily*, July 31).

"Before we make such a monumental shift in U.S. policy, I hope we can agree to extend our existing policy incentives for carbon-free energy sources," Heinrich said at the time.

Senate Minority Leader Harry Reid (D-Nev.) also said earlier this year that he sees a potential opening to strike a crude-for-renewables deal that would bring Democrats wary of lifting the crude ban on board (*Greenwire*, Aug. 25).

"If that's the way to get votes," then lawmakers should consider the compromise, said Gardner, who famously backed wind power in a campaign commercial last year in his successful challenge to former

Democratic Sen. Mark Udall of Colorado.

But Gardner also acknowledged the political pitfalls facing any potential deal.

The House passed a stand-alone bill last month that would lift the export ban, but the 261-159 vote fell short of the two-thirds majority needed to override a promised presidential veto.

The Senate Energy and Natural Resources Committee voted 12-10 in July to pass legislation that also included a provision lifting the ban, but that bill has yet to come to the floor.

Given the White House's opposition to a clean bill lifting the ban, Gardner said the best bet will likely be attaching a crude export provision to a must-pass omnibus spending bill that Congress is slated to take up next month.

If Congress doesn't act this year, Gardner added, lifting the export ban would be that much harder during the 2016 presidential election cycle. "I'd like to see it done this year. Next year becomes much more difficult," Gardner said.

Industry groups and energy analysts agreed.

"There's been a lot of progress on the Hill" in advancing the crude exports issue, said George David Banks, executive vice president of the American Council for Capital Formation, which backs lifting the ban. Still, Banks said, "if we don't do it now, we're definitely not going to be able to do it next year."

COAL:

EPA protests Murray's 'punitive' effort to depose McCarthy

Manuel Quiñones, E&E reporter

Published: Tuesday, November 17, 2015

U.S. EPA made its latest argument before a federal appeals court yesterday to keep Murray Energy Corp. attorneys from deposing Administrator Gina McCarthy in ongoing litigation.

Justice Department attorneys representing EPA have long complained about the scope of discovery in the case. "The discovery rules were not intended to be punitive," they wrote in a filing yesterday.

Last week, U.S. District Court Judge John Preston Bailey for the Northern District of West Virginia declined to block Murray's deposition of McCarthy (*Greenwire*, Nov. 13). The company accuses EPA of not accounting for the economic impacts of rules affecting the coal industry.

EPA attorneys are now asking the U.S. Court of Appeals for the 4th Circuit for relief. The agency says it's improper for the company to depose a senior government official.

"There is no reason to believe that Administrator McCarthy's deposition could provide essential information about the EPA's alleged noncompliance with Section 321(a) of the Clean Air Act," the administration's filing said.

And contrary to Bailey's reasoning, administration attorneys wrote, "an agency's noncompliance with a statutory obligation does not constitute 'a clear showing of misconduct or wrongdoing' that could justify deposing a Cabinet-rank officer."

Last week, Bailey said McCarthy's knowledge of the facts and potential wrongdoing left "no viable alternative to the deposition of the administrator."

But the administration yesterday said Bailey "failed to adequately explain why information that Murray seeks from Administrator McCarthy could not be obtained from another source."

Murray attorneys have said they've tried to accommodate McCarthy when it comes to time and location of the deposition. They are set to file a brief to the appeals court in the coming days.

Bailey put off the deposition until next month to give the 4th Circuit time to review the dispute. The appeals court has in the past denied EPA relief on discovery in the same case.

Other litigation

The Supreme Court's recent ruling that EPA did not properly account for the economic impacts of its Mercury and Air Toxic Standards is empowering agency critics.

Arch Coal Inc. pointed to the ruling in a filing last week in its years-old litigation against EPA's retroactive veto of the Spruce mountaintop-removal mine in West Virginia.

The company told a three-judge panel of the U.S. Court of Appeals for the District of Columbia Circuit that EPA's "cavalier disregard" of issues like the company's compliance history and development spending on a years-old permit was "arbitrary and capricious in the extreme."

EPA already won the first round in the litigation over the agency's power to scrap Army Corps of Engineers dredge-and-fill permits even years after they're issued. At issue now is the decision itself.

In their own brief last month, Justice Department attorneys said that the courts must defer to EPA's decision, and that its veto can stand legal scrutiny "solely on the basis" of agency findings on the mine's adverse impacts (*Greenwire*, Oct. 12).

BIOFUELS:

Biodiesel makers lobbying Hill to reinstate tax credit

Tiffany Stecker, E&E reporter

Published: Tuesday, November 17, 2015

Biodiesel makers are pushing members of Congress this week to reinstate an expired tax credit to produce the renewable fuel, a financial support whose absence has hurt the domestic industry, according to the National Biodiesel Board.

Nearly 100 industry representatives are meeting with lawmakers today to reinstate the biodiesel tax incentive as a domestic production credit rather than a subsidy for blending the plant-based fuel with conventional biodiesel.

"This is a common-sense reform that will appropriately focus the incentive on stimulating U.S. production and jobs while streamlining IRS administration of the credit," Anne Steckel, the National Biodiesel Board's vice president of federal affairs, said in a statement. "It makes a good policy better."

The production credit expired on Dec. 31 last year, the fourth time in six years that Congress did not renew the credit at the close of the year, according to the biodiesel board.

"Members of Congress should understand that in the business world, this kind of unpredictability makes planning for growth nearly impossible," said Harry Simpson, CEO of Crimson Renewable Energy LP, a Denver-based company that operates one of the largest biodiesel refineries on the West Coast in Bakersfield, Calif.

Sens. Chuck Grassley (R-Iowa) and Maria Cantwell (D-Wash.) introduced an amendment to the Senate tax extenders package in July that would convert the $1-a-gallon tax credit to companies that blend biodiesel and renewable diesel into a producer tax credit, as well as make imported biofuels ineligible for the credit. The move was opposed by petroleum trade groups and the Advanced Biofuels Association (*E&ENews PM*, Oct. 22).

Advanced Biofuels Association President Michael McAdams has said he opposes changing the blender's credit to a producer's credit because it could raise prices for end-users.

"The current blender's credit for biofuels creates a competitive market for biodiesel and renewable diesel, which benefits the American consumer," McAdams said last month.

LOBBYING:

Tesla adds to advocacy roster

Kevin Bogardus, E&E reporter

Published: Tuesday, November 17, 2015

Tesla Motors Inc. has again bolstered its K Street team, adding another outside lobby firm to its payroll.

Chambers, Conlon & Hartwell LLC is now lobbying for the electric vehicle manufacturer. On behalf of Tesla, the firm is specifically looking at EV registration fee issues as well as rules that would tie greenhouse gas emissions and fuel economy credits to safety features, according to lobbying disclosure records released by the Senate last week.

Those lobbying for Tesla at the firm are Jason Tai, a former chief of staff to Rep. Dan Lipinski (D-Ill.); Matt Ginsberg, once an aide to Rep. Jared Polis (D-Colo.) and then-Sen. Ken Salazar (D-Colo.); and Katie Kachel, a former aide to Sen. Barbara Mikulski (D-Md.).

The trio of lobbyists have been working for the company since Nov. 1, according to their lobbying registration.

Tesla has begun to increase its presence again in the influence industry. Earlier this year, it hired 38 North Solutions LLC, its first outside lobby shop in almost four years (*Greenwire*, Oct. 23).

RENEWABLE ENERGY:

EPA climate rule could boost solar, wind in Ariz. -- study

Scott Streater, E&E reporter

Published: Tuesday, November 17, 2015

A new study says Arizona could meet carbon-cutting goals in U.S. EPA's Clean Power Plan simply by developing the state's abundant and already available solar and wind power resources over the next 15 years.

What's more, the 46-page study, conducted by the Tucson, Ariz.-based Sonoran Institute and researchers with Arizona State University, reports there are at least 15 large-scale solar and wind projects with the capacity to produce 2,032 megawatts of electricity that are already in some stage of the federal or state permitting process.

Many of these projects, which in total could produce enough electricity to power 600,000 homes, would move quickly toward construction if Arizona's public utilities would sign power purchase agreements (PPAs) to buy the electricity produced by these solar and wind projects, the study says.

The study -- titled "Gliding Toward a Clean Energy Future: Arizona Responds to the EPA's Clean Power Plan" -- also analyzes a potential build-out scenario, identifying areas where solar and wind projects could be developed to produce another 2,300 MW of electricity.

"The report for the first time provides a detailed road map for developing the most promising renewable energy projects and locations across Arizona both for generating and transmitting power from solar and wind," said John Shepard, the Sonoran Institute's senior director of programs and one of the study's authors.

Most of the development would be focused in western Arizona, which is already a target of solar power developers "due to the quality of solar resources, the proximity to markets in Arizona and California, the existing and planned transmission capacity, and a diversity of lands suitable for large-scale renewable development," according to the study.

The study lists 15 large-scale solar and wind projects in the region that "have the potential to be 'shovel ready' within two years."

These projects, which "have either completed most of the necessary planning and permitting requirements or are sufficiently advanced in their planning and permitting," would have the capacity to displace 2.5 million metric tons of carbon dioxide, the chief greenhouse gas contributing to climate change, the study says.

The Clean Power Plan would require Arizona to cut its carbon emissions rate 34 percent below 2012 levels by 2030.

The listed projects include BP Wind Energy North America Inc.'s 500 MW Mohave County Wind Farm, NextEra Energy Resources' 300 MW Sonoran Solar Energy Project and SolarReserve's 100 MW Quartzsite Solar Energy Project.

The study says the 15 projects would have an estimated total capacity to produce 2,032 MW of electricity and could be put into operation in the next seven years, allowing the state to meet interim carbon reduction targets under the Clean Power Plan by 2022.

These projects plus those identified in the build-out scenario could produce 4,312 MW -- nearly enough to allow the state to meet its Clean Power Plan emission reduction requirements by 2030.

Arizona is among a coalition of 27 states that filed a lawsuit challenging the Clean Power Plan final rule.

But many of those states, including Arizona, are also working on required state plans detailing how they will comply with the rule (*ClimateWire*, Nov. 9).

Renewable energy potential gives Arizona an advantage in that there's little doubt its abundant solar and wind resources could help the state reduce its carbon emissions. The National Renewable Energy Laboratory rates southern and western Arizona as having some of the nation's best solar power potential.

But none of the 15 projects outlined in the latest study have power purchase agreements with utilities to buy the power they would produce. Without such agreements, the study says, "these projects are not likely to go forward," even though projects like Quartzsite Solar already have been approved by the Bureau of Land Management.

This could drive renewables developers to sell their power to other states like California, resulting in Arizona squandering an opportunity to comply with the rule, Shepard said.

That's what happened earlier this year, Shepard said, when Sempra U.S. Gas & Power LLC entered into a PPA with Southern California Edison to sell the electricity produced from a 100 MW expansion of its Mesquite Solar complex in Arlington, Ariz.

"That's exactly what we don't want to see happen," Shepard said. "It's all good in the sense that it's going to reduce overall greenhouse gas emissions, but I'd like to see Arizona take advantage of its solar resources to meet its clean power goals."

CPP a 'policy driver'

Arizona certainly has the available land to accommodate the renewable energy build-out scenario outlined in the study.

Indeed, the study notes the 121,144 acres of land managed by BLM and Arizona state trust lands "that meet the initial size and screening criteria applied in our parcel selection have a total capacity of 17,306 MW."

While the study notes that a small fraction of that would ever be developed, these sites include three federally designated solar energy zones and numerous other renewable energy development areas that BLM identified as having low resource conflicts.

The Clean Power Plan "is a potential new policy driver" that could push demand for renewable energy in the state. The study notes the rule's emissions guidelines for coal-fired power plants and natural gas combined-cycle units, and that one option to meet the goals in the rule "is for electricity generation facilities that exceed the emissions guidelines to come into compliance by acquiring emissions reduction credits from [renewable energy] resources in Arizona."

Certainly, members of the renewable energy industry appear to agree.

"As the Sonoran Institute's study underscores, the Clean Power Plan opens up new opportunities for us to invest further in the state," said Jason Du Terroil, senior business developer for Iberdrola Renewables and an adviser to the study

But Mahesh Morjaria, First Solar Inc.'s vice president of systems development, said any increase in renewables in the state is a reflection not only of the rule but also of "what is already occurring in the energy sector."

"Due to reduced costs, solar and wind generation have become increasingly competitive with other

energy sources, driving the growth of these carbon-free generation assets," Morjaria said.

CLIMATE:

EPA to enter pact on warming with Puerto Rico, Virgin Islands

Amanda Reilly, E&E reporter

Published: Tuesday, November 17, 2015

U.S. EPA and the governments of Puerto Rico and the U.S. Virgin Islands will sign an agreement later this week to address climate change impacts in the Caribbean.

EPA announced today that the government entities will sign the memorandum of understanding during a two-day conference that kicks off today at the Interamerican University of Puerto Rico Faculty of Law. The MOU will put into writing that the entities will "share expertise" when it comes to climate change in the Caribbean.

"Climate change is impacting the Caribbean in serious ways, and we can expect more impacts in the future," EPA Region 2 Administrator Judith Enck said in a statement. "This region is extremely vulnerable to sea level rise, extreme heat events, hurricanes, and drought."

Leaders of Puerto Rico and the Virgin Islands said they hoped the MOU and conference will result in greater awareness of climate change in the Caribbean and stronger collaborations with U.S. government agencies.

"We have before us a historic opportunity to show the world how our islands can cope and grow in adversity. At the end of the day, many of the challenges are the same: droughts, hurricanes and coastal erosion recognizes no borders," Puerto Rico Gov. Alejandro García Padilla said in a statement.

Dignitaries and scientists who work in the Caribbean islands and the United States will be at the two-day conference. Representatives from the National Oceanic and Atmospheric Administration, Department of the Interior and Forest Service will attend.

NOAA last year issued a strategy naming climate change as one of three priorities for the Caribbean region.

SOLAR:

White House initiative aims to broaden Americans' access

Christa Marshall, E&E reporter

Published: Tuesday, November 17, 2015

The White House today announced new partners in a federal initiative to broaden Americans' access to solar power -- particularly in low- and moderate-income neighborhoods -- with more than $500 million in pledged funds.

The program is part of President Obama's broader climate plan heading into the Paris climate negotiations. Last week, Energy Secretary Ernest Moniz said lower costs of key technologies like solar --

enabled by research and development -- would be a "central theme" from the United States at the U.N. climate conference (*E&ENews PM*, Nov. 13).

Specifically, the administration said today that the number of participants in the National Community Solar Partnership has nearly tripled since July, now totaling 68 businesses, organizations and universities. Those partners are pledging $545 million in 21 states to help bring solar to more than 20,000 households, according to the White House.

"Actions like the ones announced today, will help the U.S. transition to cleaner sources of energy faster and ensure the opportunity to access clean energy is available to those who need it most, putting the U.S. on a strong playing field to secure an ambitious climate agreement in Paris," the White House said in a statement.

Announced in July, the National Community Solar Partnership is a collaboration between the Department of Energy, the Department of Housing and Urban Development, the Department of Agriculture, U.S. EPA, solar companies, nonprofits, and state and local leaders that allows them to share ideas and tap existing federal and state resources for solar. It was formed in response to a 2012 guide on community solar from the National Renewable Energy Laboratory. The partnership is aimed at building up community solar projects -- with technical help from DOE and its national laboratories -- so that households and businesses can pool their resources and invest in shared solar systems, saving costs on energy bills.

A report from DOE last week found that various solar technologies grew exponentially in the United States over the past four years, even as costs plunged. However, the White House noted that about 50 percent of U.S. households and businesses "are renters or lack the capital and adequate roof space to install solar systems." Community solar -- with its emphasis on shared systems and pooled resources -- could bring solar "to historically underserved communities," it said.

The new partners range geographically from the Vermont Energy Investment Corp. -- which is committing to installing three or more systems in the state -- to San Francisco-based RE-volv, which is launching a crowdfunding platform to finance solar for nonprofits. Other partners include companies like the Clean Energy Collective -- which developed a program allowing investor-owned utilities to own and rate-base community arrays without outside subsidies -- and groups like the National League of Cities and the Solar Energy Industries Association.

"The fact that low- and medium-income households can participate in our nation's clean energy revolution, and lead the way in improving their communities, is a giant step in the right direction," said SEIA's President and CEO Rhone Resch.

The White House announcement came on the heels of a $22.7 million funding announcement yesterday from the Department of Energy that it would try to lower the cost of installed solar energy systems to 6 cents per kilowatt-hour by the end of the decade. The funding will go toward a range of solar technology projects, including a web-based application that calculates the solar potential of a building's roof and a "solar permit generator" that helps developers navigate a barrage of documents.

ENERGY EFFICIENCY:

Calif. may require use of LED bulbs

Published: Tuesday, November 17, 2015

California regulators are considering new standards that would establish light-emitting diodes as the go-to technology in the state and scrap some other lightbulbs that waste more energy.

The California Energy Commission says its proposed standards on LEDs and small-diameter directional lamps will save residents more than $4 billion in energy costs in the next 13 years and will reduce greenhouse gas emissions.

The proposal "is one of the easiest ways to save money and help California reach its energy goals," CEC Commissioner Andrew McAllister said.

Under state law, the commission is required to adopt standards to cut energy use in homes by 50 percent and businesses by 25 percent from 2007 levels by 2018.

The commission is scheduled to decide whether to adopt the new standards next month (Mark Glover, *Sacramento Bee*, Nov. 14). **-- SP**

FEDERAL AGENCIES:

Law enforcement steps up patrols after Paris attacks, video

Hannah Hess, E&E reporter

Published: Tuesday, November 17, 2015

After an alarming Islamic State group video warned Washington, D.C., could face a strike similar to the Friday attack on Paris, the presence of local law enforcement remains heightened across the city.

Federal employees may have noticed increased patrols by Metro Transit Police during this morning's commute, as the department increased K-9 sweeps and random explosives screening systemwide. But federal authorities did not report changes to their ongoing safeguards.

The Homeland Security Department and FBI "are closely monitoring events in Paris and elsewhere, and we are in contact with our counterparts in the region," a DHS official said, in response to an inquiry about the video.

"While we take all threats seriously, we do not have specific credible information of an attack on the U.S. homeland," the official said, emphasizing that the agency continues to work closely with local law enforcement partners to "identify and disrupt potential threats to the United States." DHS will adjust security measures, as necessary, the official said, "to protect the American people to meet a constantly evolving threat picture."

Asked about federal workplace security, the Office of Personnel Management referred questions to the Federal Protective Service, a division of DHS charged with protecting the nation's federal facilities.

"OPM works closely with federal and local law enforcement and emergency management agencies in the region and consults with and coordinates any necessary changes in the operating status of the federal government with these entities," said Sam Schumach, an OPM spokesman, in a statement to *Greenwire*.

Yesterday's video, released by the information bureau of the Islamic State group in Salah al-Din Province, Iraq, features three speakers who praise the perpetrators of the Paris attacks and vow that the group will continue to strike France, as well as elsewhere in Europe, according to a translation by the Middle East Media Research Institute.

A militant who identifies himself as Al-Ajkrar Al-Iraqi warns, "Then we swear that we will strike America at its heart -- in Washington," during the four-minute video.

The Capitol Police Board notified congressional staff that police have increased their visibility in a number of areas on Capitol Hill, according to multiple news reports. The message called for staffers to remain vigilant in reporting suspicious activity and use the complex's system of underground tunnels.

"The U.S. Capitol Police are monitoring events in Paris as well as getting real-time intelligence updates to maintain awareness of global events. Enhanced patrols throughout the Capitol Campus may be observed, conducted out of an abundance of caution," said Capt. Kimberly Schneider, a spokeswoman for the department, in an email. "There is currently no known threat to the Capitol Complex."

COAL:

Companies ditch Wyo. leases

Published: Tuesday, November 17, 2015

Coal companies have scrapped applications for federal leases containing nearly 2 billion tons of coal reserves this year as the industry's fortunes decline.

Peabody Energy Corp. and Arch Coal Inc. have both abandoned plans to win leases on two sites with nearly 1 billion tons of coal reserves each in Wyoming.

Over time, those choices could lead to a decline in coal production in Wyoming's Powder River Basin.

"It is going to be a different looking industry than when I started in 40-some years ago," coal industry consultant Robert Burnham said (Benjamin Storrow, *Casper* [Wyo.] *Star Tribune*, Nov. 17). **-- SP**

AVIATION:

Airlines vary widely in trans-Atlantic fuel economy -- report

Sean Reilly, E&E reporter

Published: Tuesday, November 17, 2015

The world's leading passenger airlines vary dramatically in fuel economy on trans-Atlantic flights, with a gap of more than 50 percent separating the best- and worst-performing carriers, a new study has concluded.

Of 20 carriers ranked, Norwegian Air Shuttle was the most fuel-efficient, followed by Airberlin, Germany's second-largest airline, and the Irish national carrier, Aer Lingus. The bottom tier featured Lufthansa, Scandinavian Airlines (SAS) and British Airways, according to the report by the International Council on Clean Transportation, a Washington, D.C.-based nonprofit group.

The first-of-a-kind assessment graded airlines' fuel economy on the basis of passenger kilometers traveled per liter of fuel on nonstop flights between Europe and the United States and Canada.

Most efficient airlines

A new report ranks the top 20 airlines on the fuel efficiency of their nonstop passenger flights linking Europe to the United States and Canada.

Rank	Airline
1	Norwegian Air Shuttle
2	Air Berlin
3	Aer Lingus
	Aeroflot
	Air Canada
4	Air France
	KLM
	Turkish Airlines
9	Delta Air Lines
	Icelandair
	Alitalia
11	American Airlines
	Iberia
14	United Airlines
	Swissair
15	US Airways
	Virgin Atlantic
18	Lufthansa
	Scandinavian Airlines
20	British Airways

Source: International Council on Clean Transportation.

By that yardstick, British Airways burned 51 percent more fuel than Norwegian Air Shuttle; for both SAS and Lufthansa, the comparable figure was 44 percent more. Those numbers have a direct bearing on aircraft greenhouse gas releases; a nonstop round-trip trans-Atlantic flight averaged about 1 ton of carbon dioxide emissions per passenger, equal to what a Toyota Prius would produce over a 22-mile daily work commute over a year, the report said.

"Clearly, some airlines are making more efforts than others to improve" fuel efficiency, the report said.

The performance of U.S.-based carriers was at best mediocre. Delta Air Lines was tied for ninth, with American Airlines, United Airlines and US Airways all further back. The council attributed the bulk of the differences to two factors: the aircraft models flown by individual carriers and their ratio of roomier business- and first-class seats to more compact economy seating.

Norwegian, for example, flies newer, cleaner-burning Boeing 787 Dreamliners, Dan Rutherford, a co-author of the report, who is the council's director for marine and aviation programs, said in an interview. British Airways, by contrast, relies on Boeing 747s that are about 20 years old, he said. Similarly, the report found that British Airways and Lufthansa were among the three airlines with the highest share of business- and first-class seats.

For the trans-Atlantic sector, Rutherford added, "market forces and fuel efficiency are not well-aligned."

In 2013, aircraft globally pumped about 700 million metric tons of carbon dioxide into the atmosphere, accounting for 2 to 3 percent of total man-made emissions, Rutherford said. The International Civil Aviation Organization is aiming to complete work on a fuel efficiency standard for new aircraft by early next year; Norwegian Air Shuttle's very high fuel efficiency "demonstrates the key role of technology" in reducing airlines' CO2 emissions, the report said.

In emailed statements, however, representatives for SAS and British Airways both questioned the findings.

"A better approach to the research would have been to look at airlines' global operations rather than segment one region," British Airways said in a statement, adding that the company is adding newer aircraft to its fleet and improved carbon efficiency by 10 percent between 2005 and 2014.

Because there are no available data for actual fuel consumption by airline and aircraft type, global averages have to be used, said Lars Andersen Resare, SAS's head of environment and corporate social responsibility. Resare also questioned whether the report adequately accounted for fuel consumption for freight-related services.

"All in all, I would say it's more complicated than first anticipated to compare airlines with the data available and without considering what kind of services that is provided in combination with the actual fuel consumption," he said.

Spokespersons for Lufthansa, Germany's largest carrier, did not reply to requests for comment.

In its report, the council acknowledged that there is no easy way for environmentally conscious consumers to choose less carbon-intensive flights and called for all carriers to report fuel consumption data, along the lines of what U.S. airlines already provide to the Department of Transportation.

ELECTRIC VEHICLES:

DOT becomes first agency to join DOE workplace charging push

Ariel Wittenberg, E&E reporter

Published: Tuesday, November 17, 2015

The Department of Transportation is joining the Department of Energy's effort to bring more electric vehicle charging stations to workplaces across the country.

DOT, the first federal agency to join the Workplace Charging Challenge, plans to install 500 charging stations at its buildings nationwide by 2025.

"As the first Federal partner, we're excited to be part of this national partnership with DOE and other major employers across the country to further cleaner transportation alternatives," Assistant Secretary for Administration and Chief Sustainability Officer Jeff Marootian said in a statement. "DOT plays a major role in coordinating clean transportation infrastructure in our country, and we are proud to lead the Federal Government by taking early steps to implement the President's initiative to increase plug-in electric vehicle workplace charging for our employees."

The Workplace Charging Challenge was launched by DOE in 2013 with the goal of increasing the number of employers offering charging stations tenfold in five years (*Greenwire*, April 4, 2013). Today, more than 240 U.S. employers have joined the challenge, committing to provide electric charging access to more than 1 million workers at hundreds of locations.

Participants in the challenge receive free technical guidance for expanding electric vehicle charging, which helps assess employee demand and determine how to buy and install charging stations.

INDIA:

Closure ordered for crematorium blamed for yellowing Taj Mahal

Published: Tuesday, November 17, 2015

India's Supreme Court ordered an end to wood-burning cremation next door to the Taj Mahal to protect the famed marble domes and minarets from air pollution.

The order comes after one Supreme Court judge grew concerned about smoke and ash from the mausoleum damaging the UNESCO World Heritage site, which attracts more than 3 million tourists a year.

For decades, 17th-century Mughal Emperor Shah Jahan's pearly memorial to his wife along the Yamuna River in Agra has been yellowing as India industrializes.

In response, India's government has closed factories and tried to supply steady electricity to nearby residents to discourage the use of diesel-operated generators and dried cow dung cakes.

Now, officials are urging Hindus to use electricity-powered crematoriums instead of traditional wood pyres.

With the court order, the state of Uttar Pradesh has 15 days to announce a plan for eliminating the wood-burning crematorium (AP/London *Guardian*, Nov. 17). **-- DTB**

CHINA:

Nation invests $15B in 2 nuclear plants in Argentina

Published: Tuesday, November 17, 2015

China will finance and build two nuclear power plants in Argentina in a $15 billion deal aiming to export its nuclear technology.

The deal, signed during this week's Group of 20 meetings in Turkey, will give Argentina a significant boost at a time when it has been frozen out of the global credit markets. Last month, China moved to invest in a new generation of British nuclear plants (*ClimateWire*, Oct. 26).

"The construction of two new nuclear power plants will ensure our energy supply in the future," said Argentine Minister of Economy Axel Kicillof (Anderlini/Rathbone, *Financial Times*, Nov. 17). **-- BTP**

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Wed., November 18, 2015

READ FULL EDITION

1.SCIENCE:

What we don't know about the carbon cycle could hurt you

EL YUNQUE RAINFOREST, Puerto Rico -- Palm trees flower here in flashes of magenta and orange. Luscious green fronds drag on the floor, and ropelike lianas hang off trees. Ignoring the brilliance, 22 scientists trudged through their forest with their eyes planted on the floor. At times, they picked up roots. This subterranean stuff will decide El Yunque's fate as the planet warms in the Anthropocene, an age when humans have overcome nature as

the prime shapers of the planet. And this forest, and other tropical ecosystems like the Amazon, will, in turn, dictate Earth's future.

2.STATES:

Politicization of climate change hinders adaptation in cities -- report

Portland, Ore., gets it -- adapting to climate change, that is. Local decisionmakers in the liberal city, with a bustling population of just over 600,000 people, reported very high levels of concern about climate change and advanced adaptation plans, according to an analysis undertaken by researchers at George Washington University.

TODAY'S STORIES

3.BUSINESS:

Wal-Mart making money on being green, executives say

4.NATIONS:

U.S. strikes deal to block coal plants worldwide

5.CONGRESS:

Clean Power Plan votes waste time that could be spent on counterterrorism -- Democrats

6.SECURITY:

Democrats see response to terror trumping concerns about climate

7.STATES:

Coal backers in Pa. push to delay Clean Power Plan implementation

8.ADAPTATION:

African nations face large climate risks

9.SCIENCE:

CO2 levels expected to exceed key threshold next year

10.NATIONS:

Japan rejects 2 coal plants based on climate concerns

11.FINANCE:

Gates Foundation unloads almost $1B in fossil fuel investments

12.CLEAN POWER PLAN:

Utilities say climate rules could help business

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Wed., November 18, 2015

READ FULL EDITION

1.OIL AND GAS:

Wastewater spills untracked in Texas, masking pollution

It took decades for the stand of hardwood trees near Lake Texoma to grow tall. It took less than a day for 3,000 gallons of drilling wastewater to destroy them. The salty fluid spilled from aging oil field pipes in February 2012 in the Hagerman National Wildlife Refuge north of Dallas. But you won't find the details of the spill in the records of the Texas Railroad Commission, the state agency in charge of regulating the state's oil and gas industry.

TOP STORIES

2.ARCTIC:

Statoil's exit sets off alarm in Alaska

3.CLEAN POWER PLAN:

As Ark. mulls options, analysis sees 'minimal' price impact

4.UTILITIES:

Georgia Power sprints toward ambitious solar goal

ELECTRICITY

5.UTILITIES:

Well-connected group brings Calif., N.Y. together on distributed energy

6.CLEAN POWER PLAN:

EPA rule hits the road, stops in Denver

7.GRID:

Renewable-powered mini grids bring power to rural Africa

OIL AND GAS

8.GAS EXPORTS:

Tiny LNG proposal could be exempt from NEPA review

9.OFFSHORE DRILLING:

Apache makes its case for work in North Sea

10.LAW:

Enviros sue Calif. county over oil wells

11.PEOPLE:

Following oil sands setbacks, Shell Canada president retires

12.PEOPLE:

Sutherland grows N.Y. energy practice

13.PIPELINES:

TransCanada looks to Mexico after Keystone XL denied in U.S.

14.EXPLORATION:

BP plans to drill in Australia rejected, for now

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Thomas, Richard (EEO)[Richard.Thomas@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Good, David
Sent: Wed 11/18/2015 6:33:39 PM
Subject: RE: CD-15-27

Richard,

You are correct. The 2016 Fiat 500e minicompact (EV) was not in Verify at the time the letter came out. The other values for the minicompact class look correct---the Fiat 500 1.4L M5 is the current leader of the minicompact class at 34 mpg.

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Monday, November 16, 2015 2:18 PM
To: Good, David
Cc: Snyder, Jim
Subject: CD-15-27

Hi Dave;

I was looking over the guidance letter dated November 16, and noticed that the "Estimated Fuel Economy Range" for Minicompact Cars is now 15-34 MPG. This class of vehicle last year was 15-116 MPG. This looked a little suspicious to me, so I thought I would mention it and perhaps there was an error in this chart. All the other Carline Class values seem to be within a mile or two of last year's values.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: richard.thomas@vw.com[richard.thomas@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Good, David
Sent: Wed 11/18/2015 7:20:34 PM
Subject: FW: 2016 Audi A3 e-tron and A3 e-tron ultra FE Label Samples - [they look OK to me]
2016 Audi A3 Sportback e-tron 1 4 FWD S tronic_case11_11 13.pdf
2016 Audi A3 Sportback e-tron ultra_case4_11 13.pdf

Richard,

I double checked the values on the two labels and they looked fine to me.

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Monday, November 16, 2015 11:37 AM
To: Good, David
Subject: 2016 Audi A3 e-tron and A3 e-tron ultra FE Label Samples

Hi Dave;

Our IT department and NEPS have finally worked the bugs out of these first VWGoA PHEV fuel economy labels. Please see Monroney label samples for both the Audi A3 e-tron and A3 e-tron ultra carlines. Please let me know if you find anything that needs to be corrected.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

LOC:
Exterior: Scuba Blue Metallic

Dealer Stock Status:

VIN: Ex. 6
Interior: Black Interior

MODEL: 8VA5PX-2016 Audi A3 Sportback e-tron 1.4T FWD S tronic
2015317-TEST LABEL

2016 Audi A3 Sportback e-tron 1.4T FWD S tronic

Audi
Truth in Engineering

STANDARD EQUIPMENT (unless replaced by options)

TECHNICAL
- 1.4 TFSI®, 4 CYL., PHEV, 204hp / 258lb-ft combined
- 6-speed S tronic® transmission
- 16" 15-spoke-Y-design wheels, 205/55 summer tires
- ESC (Electronic Stability Control) with secondary collision brake
- Electromechanical speed-sensitive power steering
- TPMS (tire pressure monitoring system)

COMFORT/CONVENIENCE
- Audi xenon plus headlights w/ LED DRLs & taillights
- Mobile charging unit
- Parking system plus with rearview camera
- 3-spoke leather-wrapped multifunction steering wheel
- Leather seating surfaces
- 12-way power adjustable front seats including lumbar adjustment
- 60/40 split-folding rear seat
- Audi Sound System with AM/FM/SAT/1CD audio w/ SD card rea
- SIRIUS® satellite radio (w/ three-month complimentary subscript
- Power adjustable exterior mirrors
- Panoramic sunroof w/ retractable sunshade
- Audi advanced key
- Preparation for mobile phone (Bluetooth®)
- Dual-zone automatic climate control
- Driver information system, color display
- Audi drive select
- LED interior lighting package
- Rain & light sensor

SAFETY/SECURITY
- Driver and front passenger advanced airbag supplemental restra
- Driver and front passenger knee airbags
- Driver and front-passenger seat-mounted thorax side airbags
- Sideguard® inflatable curtain airbags
- Rear side airbags
- Driver 3-point safety belts with automatic pretensioning and force
- Front passenger 3-point safety belts with Automatic Locking Retr automatic pre-tensioning, and force limiters
- Rear outboard 3-point safety belts with Automatic Locking Retrac automatic pre-tensioning
- Rear center 3-point safety belt with Automatic Locking Retractor
- Lower Anchors and Tethers for Children (LATCH) in rear
- Rear child safety locks
- Anti-theft vehicle alarm system

WARRANTY/MAINTENANCE
- 4 Year/50,000 mile (whichever occurs first) New Vehicle Limited
- 8 Year/100,000 mile (whichever occurs first) High-Voltage Batter
- 12 Year Limited Warranty Against Corrosion Perforation

URER'S SUGGESTED RETAIL PRICE

Sportback e-tron 1.4T FWD S tronic $37,900.00

TIONS

tallic

ium Plus model
ke Turbine design wheels
eason tires
lays
ve light
interface w/ iPod® cable
ng interior mirror with compass
Audi ultra badge
eadlights
t seats
aluminum window surrounds
ation plus
avigation plus w/ MMI touch
ct® w/ online services (6-month subscription)

ltifunction steering wheel with shift paddles
ke Turbine design wheels
eason tires
seats
kage
urbine design wheels
eason tires
Audi ultra tailgate badge
kage
-design wheels
mer tires
ilgate badge

harge

fees, taxes and dealer installed accessories are not i

RNMENT 5-STAR SAFETY R

OAD
, MI 48
ORPOR
3
ICA
OAD
, MI 48
Method:

EPA
DOT Fuel E

Plug-In Hybrid Vehicle
Electricity-Gasoline

Compact Cars range from 14 to 116 MPG. The best vehicle rates 119 MPGe.

Electricity + Gasoline
Charge Time: 2.5 hours (240V)
83 MPGe
0.0 gallons per 100 miles
40 kW-hrs per 100 miles
combined city/highway

Gasoline Only
35 MPG
2.9 gallons per 100 miles
combined city/highway

Driving Range
Electric + Gasoline | Gasoline only
0 5 10 21 380
All Electric Range = 0 to 16 miles
16 miles

You **save**
$3,000
in fuel costs

Annual fuel **cost**
$1,200

Fuel Economy & Gree

1 8 10

This vehicle emits 158 grams
distributing fuel & electricity a

Calculate personalized estimates and compare vehicles

Smartphon
QR Code™

LOC: Dealer Stock Status:
Exterior: Misano Red Pearl Effect

VIN: Ex. 6
Interior: Black Interior

MODEL: 8VA5PX-2016 Audi A3 Sportback e-tron ultra
2015317-TEST LABEL

2016 Audi A3 Sportback e-tron ultra

Audi
Truth in Engineering

STANDARD EQUIPMENT (unless replaced by options)

TECHNICAL
- 1.4 TFSI®, 4 CYL., PHEV, 204hp / 258lb-ft combined
- 6-speed S tronic® transmission
- 16" 15-spoke-Y-design wheels, 205/55 summer tires
- ESC (Electronic Stability Control) with secondary collision brake a
- Electromechanical speed-sensitive power steering
- TPMS (tire pressure monitoring system)

COMFORT/CONVENIENCE
- Audi xenon plus headlights w/ LED DRLs & taillights
- Mobile charging unit
- Parking system plus with rearview camera
- 3-spoke leather-wrapped multifunction steering wheel
- Leather seating surfaces
- 12-way power adjustable front seats including lumbar adjustment
- 60/40 split-folding rear seat
- Audi Sound System with AM/FM/SAT/1CD audio w/ SD card reac
- SIRIUS® satellite radio (w/ three-month complimentary subscripti
- Power adjustable exterior mirrors
- Panoramic sunroof w/ retractable sunshade
- Audi advanced key
- Preparation for mobile phone (Bluetooth®)
- Dual-zone automatic climate control
- Driver information system, color display
- Audi drive select
- LED interior lighting package
- Rain & light sensor

SAFETY/SECURITY
- Driver and front passenger advanced airbag supplemental restrai
- Driver and front passenger knee airbags
- Driver and front-passenger seat-mounted thorax side airbags
- Sideguard® inflatable curtain airbags
- Rear side airbags
- Driver 3-point safety belts with automatic pretensioning and force
- Front passenger 3-point safety belts with Automatic Locking Retra automatic pre-tensioning, and force limiters
- Rear outboard 3-point safety belts with Automatic Locking Retrac automatic pre-tensioning
- Rear center 3-point safety belt with Automatic Locking Retractor (
- Lower Anchors and Tethers for Children (LATCH) in rear
- Rear child safety locks
- Anti-theft vehicle alarm system

WARRANTY/MAINTENANCE
- 4 Year/50,000 mile (whichever occurs first) New Vehicle Limited V
- 8 Year/100,000 mile (whichever occurs first) High-Voltage Battery
- 12 Year Limited Warranty Against Corrosion Perforation

URER'S SUGGESTED RETAIL PRICE

Sportback e-tron ultra **$37,900.00**

)PTIONS

earl effect

ackage
navigation plus w/ MMI touch
ect® w/ online services (6-month subscriptio
assist

l pedal caps
-weather floor mats

heel lock kit
e for Audi music interface
ox
Kit

harge

fees, taxes and dealer-installed accessories are not i

RNMENT 5-STAR SAFETY R

IDE RD
91355
DRPOR

06
A
IDE RD
91355

Method:

EPA
DOT **Fuel E**

Plug-In Hybrid Vehicle
Electricity-Gasoline

Compact Cars range from 14 to 116 MPG. The best vehicle rates 119 MPGe.

Electricity + Gasoline
Charge Time: 2.5 hours (240V)
86 MPGe
0.0 gallons per 100 miles
38 kW-hrs per 100 miles
combined city/highway

Gasoline Only
39 MPG
2.6 gallons per 100 miles
combined city/highway

You save
$3,750
in fuel costs

Driving Range
Electric + Gasoline | Gasoline only
0 5 10 22 430
All Electric Range = 0 to 17 miles
17 miles

Annual fuel cost
$1,050

Fuel Economy & Greenhou

1 10 8

This vehicle emits 138 grams of CO
distributing fuel & electricity also cre

Calculate personalized estimates and compare vehicles

Smartphone QR Code™

To: Good, David[good.david@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Wed 11/18/2015 7:29:02 PM
Subject: RE: 2016 Audi A3 e-tron and A3 e-tron ultra FE Label Samples - [they look OK to me]

Thanks Dave.

From: Good, David [mailto:good.david@epa.gov]
Sent: Wednesday, November 18, 2015 2:21 PM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Cc: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: FW: 2016 Audi A3 e-tron and A3 e-tron ultra FE Label Samples - [they look OK to me]

Richard,

I double checked the values on the two labels and they looked fine to me.

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Monday, November 16, 2015 11:37 AM
To: Good, David
Subject: 2016 Audi A3 e-tron and A3 e-tron ultra FE Label Samples

Hi Dave;

Our IT department and NEPS have finally worked the bugs out of these first VWGoA PHEV fuel economy labels. Please see Monroney label samples for both the Audi A3 e-tron and A3 e-tron ultra carlines. Please let me know if you find anything that needs to be corrected.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Good, David[good.david@epa.gov]
From: Thomas, Richard (EEO)
Sent: Wed 11/18/2015 7:32:47 PM
Subject: RE: CD-15-27

Thanks Dave. We will begin to use the new class ranges on our 2016 very soon.

From: Good, David [mailto:good.david@epa.gov]
Sent: Wednesday, November 18, 2015 1:34 PM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Cc: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: CD-15-27

Richard,

You are correct. The 2016 Fiat 500e minicompact (EV) was not in Verify at the time the letter came out. The other values for the minicompact class look correct---the Fiat 500 1.4L M5 is the current leader of the minicompact class at 34 mpg.

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Monday, November 16, 2015 2:18 PM
To: Good, David
Cc: Snyder, Jim
Subject: CD-15-27

Hi Dave;

I was looking over the guidance letter dated November 16, and noticed that the "Estimated Fuel Economy Range" for Minicompact Cars is now 15-34 MPG. This class of vehicle last year was 15-116 MPG. This looked a little suspicious to me, so I thought I would mention it and perhaps there was an error in this chart. All the other Carline Class values seem to be within a mile or two of last year's values.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Fogarty, Johnpc[Fogarty.Johnpc@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Shinkman, Susan[Shinkman.Susan@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Senn, John[Senn.John@epa.gov]
From: Conger, Nick
Sent: Wed 11/18/2015 9:53:16 PM
Subject: FW: Tonight- WSJ VW story

FYI- we're expecting this story to run tonight.

Nick

Nick Conger

Deputy Press Secretary

U.S. Environmental Protection Agency

Office: (202) 564-6287

Cell: (202) 412-2655

From: Spector, Mike [mailto:Mike.Spector@wsj.com]
Sent: Friday, November 06, 2015 9:48 AM
To: Conger, Nick <Conger.Nick@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>
Subject: WSJ VW story

Nick/Laura,

I wanted to give you a heads up on facts below that may or may not appear in an upcoming WSJ story. Please let me know if you'd like to comment on or dispute any of the below. The timing on this story remains in flux, though it's possible it publishes later in the day today. You may also receive additional emails from me with other items but wanted to get the ball rolling now. Please let me know if you'd like to make anyone from EPA named below available to comment. Some of this isn't totally related to EPA but much of it is. Thanks.

1) Volkswagen didn't support the Obama administration's fuel-economy targets unveiled in 2011 in part because the regulations didn't give diesel models special credit that electric vehicles received.

2) Volkswagen was among the only car makers that didn't send a representative to join President Obama when he unveiled the new fuel-economy targets in July 2011.

3) In October 2014, Ex. 7 a Ex. 7 in Auburn Hills, Mich., held a conference call with California regulators to respond to the results of tests conducted by West Virginia University that showed VW diesel models emitting more on the road than during laboratory tests. The call was for Ex. 7 and others at VW to share the results of VW's own tests. At this time, VW told regulators the discrepancies stemmed from technical issues.

4) In November 2014, Ex. 7 invited four California regulators to an hour-long presentation on fuel-cell vehicles that use hydrogen for fuel during the Los Angeles Auto Show at the Los Angeles convention center. This was in part an attempt to share VW's environmental efforts with regulators, or, put another way, show the company's environmental bona fides.

5) In December 2014, VW recalled nearly a half million diesel models to address emissions discrepancies but regulatory tests the following year showed the recall repairs didn't address the problem.

6) In early August, Ex. 7, previously a senior regulatory affairs official in the Auburn Hills, Mich., office, flew from Germany to Traverse City, Mich., to meet with Ex. 7 Ex. 7 again told Ex. 7 that emissions discrepancies were the result of technical glitches. They also conveyed that later-year model diesel vehicles could be fixed.

7) Around this time, VW officials were insisting to EPA and CARB that the agencies certify 2016 diesel models. VW told them dealers were running out of older models and newer ones were piling up at ports.

8) Regulators later learned that VW had lots of unsold older diesel models.

9) In late August, Ex. 7 told Ex. 7 that VW was using defeat devices on diesel models. Ex. 7 separately made the same admission to the EPA's Christopher Grundler. This was at a transportation conference in Pacific Grove, Calif.

10) VW officials, even after acknowledging the use of defeat devices, still insisted to EPA and CARB that they should certify 2016 diesel models.

11) VW has hired three public relations firms: Hering Schuppener in Germany; Finsbury in the U.K. and Kekst and Co. in the U.S.

12) On Oct. 7, VW revealed in Ex. 7 prepared testimony posted by the House Energy and Commerce Committee Subcommittee on Oversights and Investigations that the company had withdrawn a request for certification of 2016 diesel models because they contained an auxiliary emissions control device that wasn't disclosed to regulators. There isn't evidence that the AECD can game emissions tests. VW has said that the AECD's function is to warm up the engine.

13) The week of Ex. 7 testimony, the EPA expected to receive an explanation from VW of the 2016 2.0L diesel engine AECD's capabilities. It didn't. Calls between EPA and VW were cancelled because VW couldn't make the right people available to EPA.

14) In late October, senior EPA officials, including Ex. 7 expressed frustration to the German Transport Minister about what they viewed as VW's lackluster communications with the agency.

15) A VW spokesman rejects suggestions that communications with EPA are lackluster, saying the company has senior engineers interacting with agency daily.

16) As of late October, VW still hadn't fully explained the AECD on the 2016 2.0L diesel-engine models to EPA.

17) Communications between VW and EPA begun to slightly improve in late October, with knowledgeable VW executives starting to talk to EPA officials.

18) In November, VW stopped previous contrition and disputed new allegations from EPA that additional models with 3.0L diesel engines contained defeat devices.

19) A VW spokesman said the company had no intention of halting sale of the implicated 3.0L diesel models.

20) VW overnight Tuesday and into Wednesday reversed course and halted sales of the implicated 3.0L diesel models and additional diesel models.

21) VW's "Diesel Information" website doesn't yet tell consumers there is a stop-sale order on those other models. It only has information about the 2.0L models.

22) Charles Taylor, a 74-year-old retired athletic director in Brevard, N.C., leased a 2015 Audi TDI Q7 from Harmony Motors of Asheville, N.C. last week. He now wants the dealership to take back the vehicle and make him whole. He is concerned the residual value will suffer as a result of the stop-sale order and feels Audi should have taken the vehicle off the market months ago. He expects to take a loss on the lease and doesn't feel he should.

23) Many experts and other observers fault VW for the way it has responded to the crisis thus far, including for mixed and incomplete messages and tussling with government officials. The response has left regulators, lawmakers, investors and customers around the

world exasperated.

24) The U.S. Justice Department cited GM for cooperating in its investigation of a defective ignition switch linked to more than 100 deaths and noted it conducted a swift and robust internal probe, fired wrongdoers and furnished prosecutors with unvarnished facts, including volunteering documents ordinarily protected by attorney client privilege. Prosecutors also noted a compensation fund that doled out hundreds of millions of dollars to victims.

25) Investors are questioning VW's longstanding corporate governance, which features a board dominated by VW workers and the Porsche and Piech families. The newly appointed board chairman is also VW's finance chief. The extended family of the grandson of VW's founder still controls most decisions.

I know that's a long list but want to ensure you aren't surprised. More as things develop.

Best,

Mike

Mike Spector

The Wall Street Journal

1211 Avenue of the Americas

5th Floor

New York, NY 10036

(212) 416-2572 (office)

(313) 320-7388 (cell)

mike.spector@wsj.com

To: Bunker, Byron[bunker.byron@epa.gov]
From: Morning Consult
Sent: Thur 11/19/2015 1:08:25 PM
Subject: Morning Consult Energy, Presented by the American Coalition for Ethanol: EPA Administrator Says Clean Power Plan Repeals Won't Hold; TransCanada Pulls Out of Nebraska Bids

By Asha Glover

We are excited to launch our newest briefing, ***Morning Consult Campaigns****, which will cover the world of politics and elections. Go* ***here*** *to subscribe in one click.*

Today's Washington Brief

- EPA Administrator Gina McCarthy said a recent Senate vote to repeal aspects of the Clean Power Plan will not prevail. She went on to say that efforts to disassemble the plan will not halt the plan's progress. (The Chicago Tribune)

- The Obama administration is against GOP efforts to make changes to the nation's conservation fund. The new reform will create minimum funding for training oil and coal workers, and build an urban parks program. (The Hill)

- Two Republican hearings Wednesday were dedicated to voicing concerns about the upcoming Paris climate talks. Disagreements between U.S. and EU expectations that the talks will produce a legally binding treaty, Senate Republicans pointed out. (The Hill)

Today's Business Brief

- TransCanada withdrew a route-approval application in Nebraska Wednesday in the wake of President Obama's rejection of the Keystone XL pipeline. Despite the corporation's persistence regarding a new project, the company has stepped away from bids in Nebraska. (The Wall Street Journal)

- NextEra Energy Seabrook nuclear power plant is being backed by town officials. The plant is currently in the process of getting approved by the Nuclear Regulatory Commission. (Eagle Tribune)

- Former Massey Energy CEO is facing charges for a deadly mine explosion in 2010. The case has been turned over to a jury by a federal judge. (The Wall Street Journal)

Today's Chart Review

Year-to-Date Global Temperature

The Washington Post

Mark Your Calendars (All Times Eastern)

Thursday
ICF International holds discussion on the Paris climate talks @ 8 a.m.
The Texas Public Policy Foundation holds summit on energy and climate policy @ 11:30 a.m.
The Environmental Protection Agency holds webinar on U.S. climate preparedness @ 12 p.m.
The Environmental Law Institute holds a discussion on Toxic Substances Control Act reform @ 12 p.m.

Friday
The Texas Public Policy Foundation holds summit on energy and climate policy @ 7:30 a.m.

General

EPA Chief Says Senate Vote to Scrap Power-Plant Rules Will Fail
Laura Curtis et al., The Chicago Tribune

One day after the Senate voted to block the Obama administration's plan to throttle greenhouse-gas emissions from power plants, the head of the Environmental Protection Agency predicted the rules would survive all challenges in Congress, the courts and on the presidential campaign trail.

Obama Official Objects to GOP Conservation Bill
Timothy Cama, The Hill

A top federal official said Wednesday that the Obama administration opposes Republican efforts to reform the nation's main conservation fund. The Interior Department's Kristen Sarri objected to the GOP's proposal to mandate that specific amounts from the conservation fund go to particular purposes.

TransCanada Withdraws Nebraska Application for Rejected Keystone XL Pipeline
Chester Dawson, The Wall Street Journal

TransCanada Corp. on Wednesday said it withdrew a route-approval application filed with Nebraska authorities for its proposed Keystone XL pipeline after the Obama administration rejected the project earlier this month. The Calgary-based pipeline operator called the move a “pause” while it considers the next steps for the controversial project, which TransCanada said it remained committed to completing.

Bill to Ban Microbeads in Soap Advances in House
Lydia Wheeler, The Hill

The House Energy and Commerce Committee passed a environmentally conscious bill Wednesday that aims to keep the small plastic beads found in body washes, soaps and other personal care products out of the nation’s lakes and streams. The committee approved an amendment to establish a substitute for the Microbeads Free Waters Act of 2015 to ban microbeads from personal care products and set up an aggressive timeline for the phasing out of these products beginning in 2017.

New Bid From NextEra in Energy Future Bankruptcy
Peg Brickley, The Wall Street Journal

NextEra Energy Inc. on Wednesday offered to buy Energy Future Holdings Corp.’s Oncor transmissions business, which is slated to be sold to an investment group led by Hunt Consolidated. NextEra, a Florida power company, flung down the gauntlet in a filing with the U.S. Bankruptcy Court in Wilmington, Del., which is reviewing Energy Future’s chapter 11 exit plan.

USDA Chief Played Major Backstage Role on Hot-Button Rule
Annie Snider and Kevin Bogardus, E&E

Agriculture Secretary Tom Vilsack was a key player behind the scenes over the past two years as the Obama administration tried to keep its contentious Waters of the U.S. rule afloat in the face of swelling opposition from rural America. Schedules obtained by *Greenwire* under the Freedom of Information Act show that U.S. EPA Administrator Gina McCarthy had frequent meetings and phone calls with her fellow senior administration official between the spring of 2014 and the day the final rule was unveiled this May.

House Panel Approves Bills Undoing Obama Climate Rules
Devin Henry, The Hill

The House Energy and Commerce Committee has approved legislation to block new power plant rules from the Obama administration. The panel passed two resolutions Wednesday from Rep. Ed Whitfield (R-Ky.) to undo the Environmental Protection Agency’s Clean Power Plan limiting emissions from existing power plants and a similar rule for new power stations.

Oil & Natural Gas

U.S. Crude Prices Edge Up On Short Covering, But Oversupply Still Bites
Henning Gloystein, Reuters

U.S. crude oil prices edged up in early trading in Asia on Thursday but are struggling to break away from the $40 per barrel mark as oversupply and high inventory levels ensure an ongoing glut. U.S. West Texas Intermediate (WTI) crude futures CLc1 were trading at $40.88 per barrel at 0031 GMT (1931 ET), up 13 cents from their last settlement.

Oil, Gas Lobby Groups to Merge
Timothy Cama, The Hill

Washington, D.C.'s major oil industry lobbying group is taking over the association representing natural gas drillers, the organizations announced on Wednesday. Taking over the younger America's Natural Gas Alliance (ANGA) will make the American Petroleum Institute (API), one of the top lobbying associations in Washington, an even greater powerhouse.

Dallas Fed CEO says Crude Glut Could Persist Until 2017
Rhiannon Meyers, The Houston Chronicle

The state's economy has remained surprisingly strong despite an energy slump that has forced tens of thousands of Texans out of work in recent months. But the tough times in the oil and gas industry are far from over, the new head of the Federal Reserve Bank of Dallas said Wednesday.

No New Date Set For Utah Oil Lease Sale Delayed By Activists
Timothy Gardner, Reuters

The U.S. government has not set a new date for an oil and natural gas lease auction of federal lands in Utah postponed this week following overwhelming interest from the public, including climate activists, who wanted to attend the event. Officials want to hold the auction as soon as possible but rescheduling the sale is tricky going into the holidays, Megan Crandall, a spokeswoman for the Bureau of Land Management office in Utah, said on Wednesday.

Cheap Gasoline Spurring Record Truck Sales, Hurting Fuel Economy

Joshua Cain, The Houston Chronicle

With gasoline prices at their lowest in years, Americans are buying more trucks and driving more overall. The result, according to Houston-based investment bank Tudor Pickering & Holt, was a slowdown in fuel economy growth last month. So far this year, sales of light trucks have made up a little more than 56 percent of all vehicle sales in the U.S., their biggest share of the market in years, TPH said in a research

note Wednesday.

Wastewater Spills Untracked in Texas, Masking Pollution
Mike Soraghan, E&E

Drilling wastewater spilled from aging oil field pipes in February 2012 in the Hagerman National Wildlife Refuge north of Dallas. The leak killed 84 mature oaks, cottonwoods and hackberry trees, some of them more than 150 years old. U.S. Fish and Wildlife officials estimated the damage at $154,000.

Husky Energy Plans Saskatchewan Heavy-Oil Thermal Project
Carolyn King, The Wall Street Journal

Husky Energy Inc. on Wednesday said it would proceed with another heavy-oil thermal development in Saskatchewan, and announced an investment in its Lima, Ohio, refinery to allow the facility to shift between light and heavy crude oil. The new 10,000-barrel-a-day thermal-oil project, dubbed Rush Lake 2, is one of a number of small-scale, heavy-oil sites in the western Canadian province.

Natural Gas Keeps Falling on Inventory Revision
Timothy Puko, The Wall Street Journal

Natural gas futures retreated for a second-straight session from an adjustment in federal data that show inventories of the fuel are higher than previously reported. Futures for December delivery recently traded down 1.7 cents, or 0.7%, at $2.354/mmBtu on the New York Mercantile Exchange.

Utilities & Infrastructure

The Clean-Energy Revolution Gathers Speed
David Biello, Scientific American

LEDs are just one of the technologies at the forefront of a clean revolution sweeping the U.S. The solid-state light sources have grown from 400,000 installations in 2009 to some 78 million in 2014, according to the DoE's latest analysis of the fastest growing clean-energy technologies—and LEDs are not alone.

The Future of Behavioral Demand Response: Utilities Warm to a Bullish New Market
Robert Walton, Utility Dive

If Navigant's new predictions for growth of behavioral and analytical demand management seem steep, keep in mind that the sector is just getting started. Consumers now react to a wide range of signals through smart phones – they can track packages, pets, their children and the mail – why not energy, too?

Renewables

GE Moves Renewable Energy Headquarters From Schenectady to Paris
Larry Rulison, Times Union

General Electric Co. has officially moved its renewable energy business from Schenectady to Paris following its $10 billion acquisition of the energy business of French conglomerate Alstom SA. GE's renewable enrergy business was located in Schenectady and operated under Anne McEntee until the Alstom deal closed on Nov. 2.

White House Pushes Community Solar Power As Rooftop Alternative
Gregory Korte, USA Today

About half of electric customers can't install solar panels because they don't own their building, don't get enough sun or don't have a large, south-facing roof to install solar panels, according to the U.S. Department of Energy.

MIT' Spinoff's Microbes Turn Beer Waste Into Clean Water, Enegry
Chris Martin, Bloomberg News

Cambrian Innovation is extracting clean water and energy from waste streams at two California breweries with a secret set of microbes.The Boston-based startup has raised $30 million to install its EcoVolt systems, and plans to market them using a model that's similar to the leases that are driving the residential solar market, Chief Executive Officer Matthew Silver said in an interview.

Potomac Residents Decry School System Plan to Install Solar Panels at Former Organic Farm
Aaron Kraut, Bethesda Magazine

Montgomery County Public Schools, which says the roughly 20-acre site is reserved for a future school, is evaluating a proposal from Missouri-based SunEdison and Rockville-based Standard Solar to install an array of ground-mounted solar panels that could produce as much electricity as a standard county high school uses in a year.

Massachusetts House Passes Bill to Lift Solar Net Metering Cap
Shira Schoenberg, Mass Live

The Massachusetts House on Tuesday, over the objections of the solar industry, passed a bill that would increase a cap on the financial incentives given to solar energy projects but would change the amount of the payments.

Coal

Export Subsidies for Coal Power Stations Reined in by OECD
Pilita Clark, Energy

A group of the world's richest countries has agreed to rein in export subsidies for coal power stations in a move likely to make it harder to build many of the plants that help fuel global warming. A group of the world's richest countries has agreed to rein in export subsidies for coal power stations in a move likely to make it harder to build many of the plants that help fuel global warming.

Fate of Former Coal Mining CEO in Hands of Jury
Kris Maher, The Wall Street Journal

The fate of former Massey Energy CEO Don Blankenship, who faces criminal charges in connection with a deadly 2010 coal mine explosion, is now in the hands of a West Virginia jury. Mr. Blankenship, 65 years old, has been charged with three felony counts that carry a maximum of 30 years in prison, in a rare prosecution of a top corporate executive following an industrial accident.

Nuclear

Officials Pledge Full Support For Nuclear Plant
Angeljean Chiaramida, Eagle-Tribune

While some local officials in Massachusetts have written voluminous letters to the Nuclear Regulatory Commission criticizing NextEra Energy Seabrook nuclear power plant and calling for its closure, Seabrook town officials are praising the plant, pledging "unconditional support" for its application to extend its operating license 20 years to 2050. The application is currently before the NRC.

Climate

Politicization of Climate Change Hinders Adaption in Cities
Brittany Patterson, E&E

Published this month in the journal *Global Environmental Change*, the six-city case study looked at the levels and types of climate planning in Portland; Boston; Los Angeles; Tucson, Ariz.; Raleigh, N.C.; and Tampa, Fla. At the bottom of the list fell Tampa. Despite having a high climate risk — with thousands of people below sea level and the increased possibility of being hit by a hurricane — the city of about 350,000 has very little in the way of adaptation plans.

What We Don't Know About the Carbon Cycle Could Hurt You
Gayathri Vaidyanathan, E&E

Over the next decade, the assembled scientists will learn how tropical forests work. Since 2010, boosted by a pro-climate-science president, the Department of Energy, the National Oceanic and Atmospheric Administration, NASA, and other federal agencies have invested hundreds of millions of dollars in earth science.

Paris Climate Summit March in Doubt After Talks Deadlock
Arthur Nelsen and Fiona Harvey, The Guardian

Talks between the French foreign minister, Laurent Fabius, and campaigners over the fate of a huge march before the forthcoming Paris climate summit have ended without agreement. In the wake of attacks in Paris last Friday, the French government proposed scaling down the protest from a march on 29 November – which organizers had hoped would draw hundreds of thousands of people – to a stationary rally.

Billions of People Depend on Water From Shrinking Snowpacks
Sindya N. Bhanoo, The New York Times

Snowpacks are a vital source of water for humans, but they may shrink in some regions as the climate warms. A new study estimates how changes in snowfall will affect water supplies.

2015 Almost Certain to Be Earth's Warmest Year on Record by an Enormous Margin
Jason Samenow, The Washington Post

Barring the unforeseeable, the latest monthly climate report from the National Oceanic and Atmospheric Administration is a clincher. There can no longer be any meaningful doubt that 2015 will be the Earth's warmest year on record, at an entirely different level from the previous warmest years.

Mapping Regions Polluted by Rigged VW Diesels
Andrew C. Revkin, The New York Times

This interactive map, using car registration information and other data, provides Californians with a statewide view of the hidden and illegal air pollution from the 193,000 Volkswagen diesels sold in the state between 2009 and this year with rigged software masking high emissions. The Volkswagens are represented by orange dots.

NASA Chief: Government Climate Scientists Won't Be Intimidated
Eric Berger, Ars Technica

As NOAA has endured a series of Congressional attacks this fall for its climate change research, the agency's administrator, Kathryn Sullivan, has largely remained

silent. But the former astronaut's wingmate for two spaceflights, Charles Bolden, has not been so reticent. The NASA administrator this week continued to blister Congress for its tack on climate change science.

Is Uber Transit's Enemy of Its Friend?
Laura Bliss, City Lab

The Natural Resources Defense Council has announced that it will partner with UC Berkeley's Transportation Sustainability Research Center (TSRC) to analyze the environmental impact of Uber and Lyft nationwide. The central question is whether these services reduce, or add to, the number of car trips taken in major cities.

Polar Bears Are Spending More Time On Land, Where They Can Encounter Humans
Chelsea Harvey, The Washington Post

As their preferred sea ice habitat continues to diminish year after year, thanks to warming temperatures in the region, it seems there's no end to the polar bear's troubles.

A Message from the American Coalition for Ethanol:

The Renewable Fuel Standard is a win-win for the environment and American communities. It spurred the rise of clean fuels that reduce carbon emissions and drive economic development in places that need it the most. By giving entrepreneurs from rural America a seat at the environmental table, the RFS sparks sustainable technologies that create opportunities for everyone. That's why the administration should feel proud to implement the RFS to ensure further innovation. Learn more at ethanol.org.

Opinions, Editorials & Perspectives

EPA Administrator 'Confident' Global Climate Agreement Can Be Reached
Gina McCarthy, Bloomberg News

This month, governments around the world will have an unprecedented opportunity to set our planet on a sustainable course for generations to come. Heading into the Paris talks, I'm confident that an ambitious global climate agreement can and will be reached.

Nuclear, Not Natural Gas, Will Protect Environment
Ted Besmann, The State

The Nuclear Regulatory Commission's decision to grant an operating license to the Tennessee Valley Authority for a new nuclear reactor marks the first such decision in

decades. Within the next decade two new nuclear units in Georgia and two at V.C. Summer here in South Carolina will join Watts Bar.

Hydropower is a Star Among Renewables
Linda Church Ciocci, The Star Tribune

At the national level, hydropower is combating climate change more than any other renewable resource. Thanks to hydropower, the U.S. avoids approximately 200 million metric tons of CO2 annually — the equivalent of taking 42 million cars off the road.

A Message from the American Coalition for Ethanol:

Spurred on by a sense of opportunity in the Renewable Fuel Standard, scientists and engineers at Quad County Corn Processors in Northwest Iowa developed a technology to produce cellulosic biofuel from leftover fiber from corn.

Just like that, one harvest can now produce both conventional and cellulosic biofuel — but with less energy and a better emissions profile.

That makes the RFS a win for the environment and the rural economy. Learn more at ethanol.org.

Research Reports, Issue Briefs & Case Studies

Injection Wells And Earthquakes: Quantifying the Risk

Energy in Depth

According to the U.S. Geological Survey (USGS), approximately 150,000 Class II injection wells are used in connection with oil and natural gas activities across the United States. These include wells for secondary or enhanced recovery (in which wastewater is returned to the reservoir from where it originated to “enhance” the flow of hydrocarbons) as well as disposal wells, where wastewater is disposed in non-producing formations. Roughly 40,000 of these wells are designated for disposal, according to the USGS.

SUBSCRIBE

Morning Consult
P.O. Box 27068
Washington, District of Columbia 20038

You received this email because you are subscribed to Energy from Morning Consult.
Update your email preferences to choose the types of emails you receive.
Unsubscribe from all future emails

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: Morning Consult
Sent: Thur 11/19/2015 1:08:37 PM
Subject: Morning Consult Energy, Presented by the American Coalition for Ethanol: EPA Administrator Says Clean Power Plan Repeals Won't Hold; TransCanada Pulls Out of Nebraska Bids

By Asha Glover

We are excited to launch our newest briefing, ***Morning Consult Campaigns****, which will cover the world of politics and elections. Go* ***here*** *to subscribe in one click.*

Today's Washington Brief

- EPA Administrator Gina McCarthy said a recent Senate vote to repeal aspects of the Clean Power Plan will not prevail. She went on to say that efforts to disassemble the plan will not halt the plan's progress. (The Chicago Tribune)

- The Obama administration is against GOP efforts to make changes to the nation's conservation fund. The new reform will create minimum funding for training oil and coal workers, and build an urban parks program. (The Hill)

- Two Republican hearings Wednesday were dedicated to voicing concerns about the upcoming Paris climate talks. Disagreements between U.S. and EU expectations that the talks will produce a legally binding treaty, Senate Republicans pointed out. (The Hill)

Today's Business Brief

- TransCanada withdrew a route-approval application in Nebraska Wednesday in the wake of President Obama's rejection of the Keystone XL pipeline. Despite the corporation's persistence regarding a new project, the company has stepped away from bids in Nebraska. (The Wall Street Journal)

- NextEra Energy Seabrook nuclear power plant is being backed by town officials. The plant is currently in the process of getting approved by the Nuclear Regulatory Commission. (Eagle Tribune)

- Former Massey Energy CEO is facing charges for a deadly mine explosion in 2010. The case has been turned over to a jury by a federal judge. (The Wall Street Journal)

Today's Chart Review

Year-to-Date Global Temperature

The Washington Post

Mark Your Calendars (All Times Eastern)

Thursday
ICF International holds discussion on the Paris climate talks @ 8 a.m.
The Texas Public Policy Foundation holds summit on energy and climate policy @ 11:30 a.m.
The Environmental Protection Agency holds webinar on U.S. climate preparedness @ 12 p.m.
The Environmental Law Institute holds a discussion on Toxic Substances Control Act reform @ 12 p.m.

Friday
The Texas Public Policy Foundation holds summit on energy and climate policy @ 7:30 a.m.

General

EPA Chief Says Senate Vote to Scrap Power-Plant Rules Will Fail
Laura Curtis et al., The Chicago Tribune

One day after the Senate voted to block the Obama administration's plan to throttle greenhouse-gas emissions from power plants, the head of the Environmental Protection Agency predicted the rules would survive all challenges in Congress, the courts and on the presidential campaign trail.

Obama Official Objects to GOP Conservation Bill
Timothy Cama, The Hill

A top federal official said Wednesday that the Obama administration opposes Republican efforts to reform the nation's main conservation fund. The Interior Department's Kristen Sarri objected to the GOP's proposal to mandate that specific amounts from the conservation fund go to particular purposes.

TransCanada Withdraws Nebraska Application for Rejected Keystone XL Pipeline
Chester Dawson, The Wall Street Journal

TransCanada Corp. on Wednesday said it withdrew a route-approval application filed with Nebraska authorities for its proposed Keystone XL pipeline after the Obama administration rejected the project earlier this month. The Calgary-based pipeline operator called the move a “pause” while it considers the next steps for the controversial project, which TransCanada said it remained committed to completing.

Bill to Ban Microbeads in Soap Advances in House
Lydia Wheeler, The Hill

The House Energy and Commerce Committee passed a environmentally conscious bill Wednesday that aims to keep the small plastic beads found in body washes, soaps and other personal care products out of the nation’s lakes and streams. The committee approved an amendment to establish a substitute for the Microbeads Free Waters Act of 2015 to ban microbeads from personal care products and set up an aggressive timeline for the phasing out of these products beginning in 2017.

New Bid From NextEra in Energy Future Bankruptcy
Peg Brickley, The Wall Street Journal

NextEra Energy Inc. on Wednesday offered to buy Energy Future Holdings Corp.’s Oncor transmissions business, which is slated to be sold to an investment group led by Hunt Consolidated. NextEra, a Florida power company, flung down the gauntlet in a filing with the U.S. Bankruptcy Court in Wilmington, Del., which is reviewing Energy Future’s chapter 11 exit plan.

USDA Chief Played Major Backstage Role on Hot-Button Rule
Annie Snider and Kevin Bogardus, E&E

Agriculture Secretary Tom Vilsack was a key player behind the scenes over the past two years as the Obama administration tried to keep its contentious Waters of the U.S. rule afloat in the face of swelling opposition from rural America. Schedules obtained by *Greenwire* under the Freedom of Information Act show that U.S. EPA Administrator Gina McCarthy had frequent meetings and phone calls with her fellow senior administration official between the spring of 2014 and the day the final rule was unveiled this May.

House Panel Approves Bills Undoing Obama Climate Rules
Devin Henry, The Hill

The House Energy and Commerce Committee has approved legislation to block new power plant rules from the Obama administration. The panel passed two resolutions Wednesday from Rep. Ed Whitfield (R-Ky.) to undo the Environmental Protection Agency’s Clean Power Plan limiting emissions from existing power plants and a similar rule for new power stations.

Oil & Natural Gas

U.S. Crude Prices Edge Up On Short Covering, But Oversupply Still Bites
Henning Gloystein, Reuters

U.S. crude oil prices edged up in early trading in Asia on Thursday but are struggling to break away from the $40 per barrel mark as oversupply and high inventory levels ensure an ongoing glut. U.S. West Texas Intermediate (WTI) crude futures CLc1 were trading at $40.88 per barrel at 0031 GMT (1931 ET), up 13 cents from their last settlement.

Oil, Gas Lobby Groups to Merge
Timothy Cama, The Hill

Washington, D.C.'s major oil industry lobbying group is taking over the association representing natural gas drillers, the organizations announced on Wednesday. Taking over the younger America's Natural Gas Alliance (ANGA) will make the American Petroleum Institute (API), one of the top lobbying associations in Washington, an even greater powerhouse.

Dallas Fed CEO says Crude Glut Could Persist Until 2017
Rhiannon Meyers, The Houston Chronicle

The state's economy has remained surprisingly strong despite an energy slump that has forced tens of thousands of Texans out of work in recent months. But the tough times in the oil and gas industry are far from over, the new head of the Federal Reserve Bank of Dallas said Wednesday.

No New Date Set For Utah Oil Lease Sale Delayed By Activists
Timothy Gardner, Reuters

The U.S. government has not set a new date for an oil and natural gas lease auction of federal lands in Utah postponed this week following overwhelming interest from the public, including climate activists, who wanted to attend the event. Officials want to hold the auction as soon as possible but rescheduling the sale is tricky going into the holidays, Megan Crandall, a spokeswoman for the Bureau of Land Management office in Utah, said on Wednesday.

Cheap Gasoline Spurring Record Truck Sales, Hurting Fuel Economy

Joshua Cain, The Houston Chronicle

With gasoline prices at their lowest in years, Americans are buying more trucks and driving more overall. The result, according to Houston-based investment bank Tudor Pickering & Holt, was a slowdown in fuel economy growth last month. So far this year, sales of light trucks have made up a little more than 56 percent of all vehicle sales in the U.S., their biggest share of the market in years, TPH said in a research

note Wednesday.

Wastewater Spills Untracked in Texas, Masking Pollution
Mike Soraghan, E&E

Drilling wastewater spilled from aging oil field pipes in February 2012 in the Hagerman National Wildlife Refuge north of Dallas. The leak killed 84 mature oaks, cottonwoods and hackberry trees, some of them more than 150 years old. U.S. Fish and Wildlife officials estimated the damage at $154,000.

Husky Energy Plans Saskatchewan Heavy-Oil Thermal Project
Carolyn King, The Wall Street Journal

Husky Energy Inc. on Wednesday said it would proceed with another heavy-oil thermal development in Saskatchewan, and announced an investment in its Lima, Ohio, refinery to allow the facility to shift between light and heavy crude oil. The new 10,000-barrel-a-day thermal-oil project, dubbed Rush Lake 2, is one of a number of small-scale, heavy-oil sites in the western Canadian province.

Natural Gas Keeps Falling on Inventory Revision
Timothy Puko, The Wall Street Journal

Natural gas futures retreated for a second-straight session from an adjustment in federal data that show inventories of the fuel are higher than previously reported. Futures for December delivery recently traded down 1.7 cents, or 0.7%, at $2.354/mmBtu on the New York Mercantile Exchange.

Utilities & Infrastructure

The Clean-Energy Revolution Gathers Speed
David Biello, Scientific American

LEDs are just one of the technologies at the forefront of a clean revolution sweeping the U.S. The solid-state light sources have grown from 400,000 installations in 2009 to some 78 million in 2014, according to the DoE's latest analysis of the fastest growing clean-energy technologies—and LEDs are not alone.

The Future of Behavioral Demand Response: Utilities Warm to a Bullish New Market
Robert Walton, Utility Dive

If Navigant's new predictions for growth of behavioral and analytical demand management seem steep, keep in mind that the sector is just getting started. Consumers now react to a wide range of signals through smart phones – they can track packages, pets, their children and the mail – why not energy, too?

Renewables

GE Moves Renewable Energy Headquarters From Schenectady to Paris
Larry Rulison, Times Union

General Electric Co. has officially moved its renewable energy business from Schenectady to Paris following its $10 billion acquisition of the energy business of French conglomerate Alstom SA. GE's renewable enrergy business was located in Schenectady and operated under Anne McEntee until the Alstom deal closed on Nov. 2.

White House Pushes Community Solar Power As Rooftop Alternative
Gregory Korte, USA Today

About half of electric customers can't install solar panels because they don't own their building, don't get enough sun or don't have a large, south-facing roof to install solar panels, according to the U.S. Department of Energy.

MIT' Spinoff's Microbes Turn Beer Waste Into Clean Water, Enegry
Chris Martin, Bloomberg News

Cambrian Innovation is extracting clean water and energy from waste streams at two California breweries with a secret set of microbes.The Boston-based startup has raised $30 million to install its EcoVolt systems, and plans to market them using a model that's similar to the leases that are driving the residential solar market, Chief Executive Officer Matthew Silver said in an interview.

Potomac Residents Decry School System Plan to Install Solar Panels at Former Organic Farm
Aaron Kraut, Bethesda Magazine

Montgomery County Public Schools, which says the roughly 20-acre site is reserved for a future school, is evaluating a proposal from Missouri-based SunEdison and Rockville-based Standard Solar to install an array of ground-mounted solar panels that could produce as much electricity as a standard county high school uses in a year.

Massachusetts House Passes Bill to Lift Solar Net Metering Cap
Shira Schoenberg, Mass Live

The Massachusetts House on Tuesday, over the objections of the solar industry, passed a bill that would increase a cap on the financial incentives given to solar energy projects but would change the amount of the payments.

Coal

Export Subsidies for Coal Power Stations Reined in by OECD
Pilita Clark, Energy

A group of the world's richest countries has agreed to rein in export subsidies for coal power stations in a move likely to make it harder to build many of the plants that help fuel global warming. A group of the world's richest countries has agreed to rein in export subsidies for coal power stations in a move likely to make it harder to build many of the plants that help fuel global warming.

Fate of Former Coal Mining CEO in Hands of Jury
Kris Maher, The Wall Street Journal

The fate of former Massey Energy CEO Don Blankenship, who faces criminal charges in connection with a deadly 2010 coal mine explosion, is now in the hands of a West Virginia jury. Mr. Blankenship, 65 years old, has been charged with three felony counts that carry a maximum of 30 years in prison, in a rare prosecution of a top corporate executive following an industrial accident.

Nuclear

Officials Pledge Full Support For Nuclear Plant
Angeljean Chiaramida, Eagle-Tribune

While some local officials in Massachusetts have written voluminous letters to the Nuclear Regulatory Commission criticizing NextEra Energy Seabrook nuclear power plant and calling for its closure, Seabrook town officials are praising the plant, pledging "unconditional support" for its application to extend its operating license 20 years to 2050. The application is currently before the NRC.

Climate

Politicization of Climate Change Hinders Adaption in Cities
Brittany Patterson, E&E

Published this month in the journal *Global Environmental Change*, the six-city case study looked at the levels and types of climate planning in Portland; Boston; Los Angeles; Tucson, Ariz.; Raleigh, N.C.; and Tampa, Fla. At the bottom of the list fell Tampa. Despite having a high climate risk — with thousands of people below sea level and the increased possibility of being hit by a hurricane — the city of about 350,000 has very little in the way of adaptation plans.

What We Don't Know About the Carbon Cycle Could Hurt You
Gayathri Vaidyanathan, E&E

Over the next decade, the assembled scientists will learn how tropical forests work. Since 2010, boosted by a pro-climate-science president, the Department of Energy, the National Oceanic and Atmospheric Administration, NASA, and other federal agencies have invested hundreds of millions of dollars in earth science.

Paris Climate Summit March in Doubt After Talks Deadlock
Arthur Nelsen and Fiona Harvey, The Guardian

Talks between the French foreign minister, Laurent Fabius, and campaigners over the fate of a huge march before the forthcoming Paris climate summit have ended without agreement. In the wake of attacks in Paris last Friday, the French government proposed scaling down the protest from a march on 29 November – which organizers had hoped would draw hundreds of thousands of people – to a stationary rally.

Billions of People Depend on Water From Shrinking Snowpacks
Sindya N. Bhanoo, The New York Times

Snowpacks are a vital source of water for humans, but they may shrink in some regions as the climate warms. A new study estimates how changes in snowfall will affect water supplies.

2015 Almost Certain to Be Earth's Warmest Year on Record by an Enormous Margin
Jason Samenow, The Washington Post

Barring the unforeseeable, the latest monthly climate report from the National Oceanic and Atmospheric Administration is a clincher. There can no longer be any meaningful doubt that 2015 will be the Earth's warmest year on record, at an entirely different level from the previous warmest years.

Mapping Regions Polluted by Rigged VW Diesels
Andrew C. Revkin, The New York Times

This interactive map, using car registration information and other data, provides Californians with a statewide view of the hidden and illegal air pollution from the 193,000 Volkswagen diesels sold in the state between 2009 and this year with rigged software masking high emissions. The Volkswagens are represented by orange dots.

NASA Chief: Government Climate Scientists Won't Be Intimidated
Eric Berger, Ars Technica

As NOAA has endured a series of Congressional attacks this fall for its climate change research, the agency's administrator, Kathryn Sullivan, has largely remained

silent. But the former astronaut's wingmate for two spaceflights, Charles Bolden, has not been so reticent. The NASA administrator this week continued to blister Congress for its tack on climate change science.

Is Uber Transit's Enemy of Its Friend?
Laura Bliss, City Lab

The Natural Resources Defense Council has announced that it will partner with UC Berkeley's Transportation Sustainability Research Center (TSRC) to analyze the environmental impact of Uber and Lyft nationwide. The central question is whether these services reduce, or add to, the number of car trips taken in major cities.

Polar Bears Are Spending More Time On Land, Where They Can Encounter Humans
Chelsea Harvey, The Washington Post

As their preferred sea ice habitat continues to diminish year after year, thanks to warming temperatures in the region, it seems there's no end to the polar bear's troubles.

A Message from the American Coalition for Ethanol:

The Renewable Fuel Standard is a win-win for the environment and American communities. It spurred the rise of clean fuels that reduce carbon emissions and drive economic development in places that need it the most. By giving entrepreneurs from rural America a seat at the environmental table, the RFS sparks sustainable technologies that create opportunities for everyone. That's why the administration should feel proud to implement the RFS to ensure further innovation. Learn more at ethanol.org.

Opinions, Editorials & Perspectives

EPA Administrator 'Confident' Global Climate Agreement Can Be Reached
Gina McCarthy, Bloomberg News

This month, governments around the world will have an unprecedented opportunity to set our planet on a sustainable course for generations to come. Heading into the Paris talks, I'm confident that an ambitious global climate agreement can and will be reached.

Nuclear, Not Natural Gas, Will Protect Environment
Ted Besmann, The State

The Nuclear Regulatory Commission's decision to grant an operating license to the Tennessee Valley Authority for a new nuclear reactor marks the first such decision in

decades. Within the next decade two new nuclear units in Georgia and two at V.C. Summer here in South Carolina will join Watts Bar.

Hydropower is a Star Among Renewables
Linda Church Ciocci, The Star Tribune

At the national level, hydropower is combating climate change more than any other renewable resource. Thanks to hydropower, the U.S. avoids approximately 200 million metric tons of CO2 annually — the equivalent of taking 42 million cars off the road.

A Message from the American Coalition for Ethanol:

Spurred on by a sense of opportunity in the Renewable Fuel Standard, scientists and engineers at Quad County Corn Processors in Northwest Iowa developed a technology to produce cellulosic biofuel from leftover fiber from corn.

Just like that, one harvest can now produce both conventional and cellulosic biofuel — but with less energy and a better emissions profile.

That makes the RFS a win for the environment and the rural economy. Learn more at ethanol.org.

Research Reports, Issue Briefs & Case Studies

Injection Wells And Earthquakes: Quantifying the Risk

Energy in Depth

According to the U.S. Geological Survey (USGS), approximately 150,000 Class II injection wells are used in connection with oil and natural gas activities across the United States. These include wells for secondary or enhanced recovery (in which wastewater is returned to the reservoir from where it originated to “enhance” the flow of hydrocarbons) as well as disposal wells, where wastewater is disposed in non-producing formations. Roughly 40,000 of these wells are designated for disposal, according to the USGS.

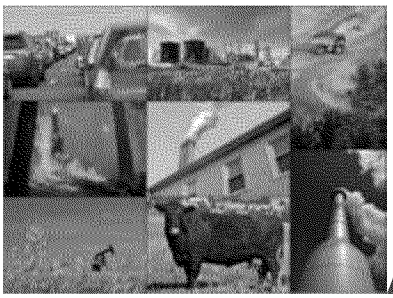
SUBSCRIBE

Morning Consult
P.O. Box 27068
Washington, District of Columbia 20038

You received this email because you are subscribed to Energy from Morning Consult.
Update your email preferences to choose the types of emails you receive.
Unsubscribe from all future emails

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; kaminer, joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]
From: Turley, Jennifer
Sent: Thur 11/19/2015 4:15:42 PM

Subject: Air & Radiation Law News for November 19, 2015



Air & Radiation Law News

for November 19, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

New Air Monitoring Methods Approved by EPA

The Environmental Protection Agency has approved a pair of air monitoring methods for use by state and local air regulators tasked with collecting data that are used to determine compliance with national ambient air quality standards. The...

Climate Change

Jackson Calls Companies 'Beacons' in Climate Debate

Companies can serve as "beacons" in the political debate over climate science and policy by setting a leading example in reducing carbon emissions, a former Environmental Protection Agency administrator who now works for Apple...

Climate Change

Senators Seek GAO Report on Climate Inaction Costs

Sens. Maria Cantwell (D-Wash.) and Susan Collins (R-Maine) have asked the Government Accountability Office to conduct an analysis of the costs of failing to address climate change....

Climate Regulation

Biomass Power Opposed at Clean Power Plan Hearing

Environmental advocates called on the Environmental Protection Agency to eliminate incentives for burning biomass in its proposed federal plan to implement the Clean Power Plan at a public hearing Nov. 18....

Climate Regulation

House Panel Passes Measures to Kill EPA Climate Rules

Members of the House Energy and Commerce Committee advanced what will almost surely be futile efforts to take down centerpieces of the Obama administration's efforts to address climate change Nov. 18 on two party-line votes. ...

Climate Regulation

Obama Looking for Success in Paris, EPA's McCarthy Says

The Environmental Protection Agency has "a lot of momentum" going into President Barack Obama's final year in office on issues ranging from climate change to vehicle efficiency, but the president also is placing a lot of weight...

Emissions Trading

Ontario Proposes Emissions Cap-and-Trade System for 2017

Ontario plans to implement a cap-and-trade system for greenhouse gas emissions that would align with the programs in place in Quebec and California, the government has confirmed. ...

Emissions Trading

RGGI Fine-Tuning Program to Meet Clean Power Plan

The nine states in the Regional Greenhouse Gas Initiative have known for some time that their cap-and-trade program was a good fit with the Environmental Protection Agency's Clean Power Plan but that it would need some tinkering and...

Energy Efficiency

DOE Adopts Stakeholder Input on Air Conditioner Rule

The Energy Department adopted stakeholder recommendations in a proposed rule on enforcement of how distributors and contractors follow regional central air conditioner energy efficiency standards....

Energy

Enbridge Seeks Talks with Canada on Oil Tanker Moratorium

The proponent of a proposed pipeline from Alberta's oil sands to Canada's West Coast said it is seeking consultations with the government after Prime Minister Justin Trudeau announced a moratorium on British Columbia coastal oil...

Energy

Gas Capacity OK, Says Massachusetts Report

Increased gas capacity isn't needed to meet New England's demands for electricity over the next 15 years, and additional energy needs can be met more cheaply through energy efficiency and programs to reduce peak electricity use,...

Energy

U.K. Proposes End to Conventional Coal-Fired Power

The U.K. government has proposed closing all conventional coal power stations by 2025 and restricting the use of coal after 2023, Energy and Climate Change Secretary Amber Rudd said Nov. 18....

General Policy

European Commission Calls for Input on Streamlining Laws

The European Commission Nov. 18 called for comments through Feb. 10 on how monitoring and reporting obligations in European Union environmental laws could be streamlined....

Hazmat Transport

Highway Bill Conference Begins, Mentions Crude-by-Rail

Sixty-five House and Senate conferees held their first public conference meeting on a multi-year highway bill Nov. 18 where several members identified key priorities, including crude-by-rail and environmental issues....

International Climate

Obama Tells CEOs to Keep Up Efforts to Cut Emissions

Speaking in a city where air pollution is often visible and palpable, U.S. President Barack Obama challenged governments and businesses in Asia-Pacific nations to keep up efforts to cut emissions that cause climate change....

International Climate

Senators Warn Obama on Binding Climate Accord

President Barack Obama must submit to Congress for review any international agreement reached at a December UN climate summit that includes binding emissions targets or timetables, the Senate Environment Committee chairman said in a letter...

International Climate

UN Body Outlines Pathways to Curb Climate Change

The United Nations climate change body released a report Nov. 18 giving the most detailed explanation yet on ways in which nations can keep climate change to within "safe" levels....

International Climate

Whitfield, Pelosi to Bring House Delegation to Climate Talks

A group of Republican and Democratic House members, including Reps. Ed Whitfield (R-Ky.), Joe Barton (R-Texas) and House Minority Leader Nancy Pelosi (D-Calif.), plan to be in Paris for the international climate talks that are to begin there...

Natural Gas

China Cuts Gas Price for Industrial Users to Boost Demand

China cut natural gas prices for business and industrial users as the world's second-largest economy seeks to boost use of the fuel in its energy mix and reduce pollution....

Natural Gas

IEA Says Natural Gas to Play Key Role in Climate Talks

Natural gas, the "least carbon-intensive fossil fuel," could play a key role in reaching global climate goals, an issue at the center of upcoming talks in Paris, said the head of the International Energy Agency. ...

Natural Resources

China Sets Up Pilot to Better Account for Resources

China is launching a pilot program to gather accurate data on land and water resources to evaluate environmental and development impacts and promote sustainable development nationwide, the State Council said Nov. 17. Detailed data will...

Natural Resources

Democrats Oppose Revamp of Land-Water Fund

A discussion draft bill for revamping and reauthorizing the Land and Water Conservation Fund ran into opposition by Democrats during a congressional hearing Nov. 18....

Oil & Gas

BLM Releases Plan for Drilling on Roan Plateau

The Bureau of Land Management has released its draft plan to allow oil and gas drilling near Colorado's Roan Plateau consistent with a 2014 landmark settlement agreement for the ecologically sensitive area....

Oil & Gas

Definition of Large Facilities Debated in Colorado

Witnesses at a two-day public hearing before the Colorado Oil and Gas Conservation Commission presented very different ideas about how the state should define "large-scale" drilling operations. ...

Oil & Gas

Drilling Approval on California Hiking Trail Sparks Lawsuit

Environmental groups want a California court to block the drilling of new oil wells along a popular Ventura County hiking trail and order a new environmental analysis for the project (Los Padres ForestWatch v. Ventura Cnty., Cal. Super. Ct.,...

Renewable Energy

EU Publishes Post-2020 Renewables Consultation

The European Commission Nov. 18 said it would prepare during 2016 a draft European Union directive setting out a post-2020 renewable energy strategy for the 28-country bloc....

Renewable Energy

Tongwei Group Plans World's Biggest Solar-Cell Plant

Tongwei Group Co. is planning to build the world's largest plant to make solar cells in China's southwestern province of Sichuan at a possible cost of about $1 billion....

Vehicle Fuels

China Eyes Charging Network for 5M Electric Cars by 2020

China plans to add more than 4.8 million single-vehicle charging points in the next five years to accommodate 5 million electric cars in an effort to curb automobile emissions....

CORRECTION

An article in the Nov. 18 report about a Philadelphia company being fined for violating air pollution laws mischaracterized what PQ Corp. produces. PQ Corp. is a Malvern, Pa.-based manufacturer of soluble silicates and magnesium sulfate,...

Inside EPA's **Weekly Report**, 11/20/2015

http://insideepa.com/newsletters/inside-epa

Latest News

TSCA Bill Might Struggle To Get Floor Vote Regardless Of LWCF Dispute

Senate legislation to overhaul the Toxic Substances Control Act (TSCA) might struggle to get floor debate and a vote before the end of the year regardless of whether senators are able to resolve a dispute over reauthorizing the Land & Water Conservation Fund (LWCF) that has stalled the bill, according to chemical industry officials.

Advisors Raise Early Concerns Over Possible EPA Radiation Rule Update

EPA science advisors are raising early concerns about EPA's effort to revise its decades-old standards for limiting exposure to radiation from nuclear power facilities, seeking clarification on issues raised in environmentalists' criticisms, including whether the agency expresses any updated standards in terms of radiation dose or risk.

OTC States Seek EPA Clarity On Air Pollution Implications Of VW Scandal

BALTIMORE -- Northeastern and Mid-Atlantic states in the Ozone Transport Commission (OTC) area are calling on EPA to provide more information on the air pollution implications of car manufacturer Volkswagen's (VW) use of "defeat devices" to cheat on emissions tests, as states wrestle with potential uncounted emissions increases.

News Briefs

House, Senate Bills Target EPA's Stricter Ozone NAAQS

House and Senate lawmakers are pushing new bills targeting EPA's decision to tighten its ozone national ambient air quality standard (NAAQS) from 75 parts per billion (ppb) to 70 ppb, with a Senate measure

seeking to undo the rule entirely and a new House bill aiming to "harmonize" deadlines for states' compliance plans for the new standard.

Greenwire

CLEAN POWER PLAN:

Republicans send CRA bids to kill climate rule to House floor

Amanda Reilly, E&E reporter

Published: Wednesday, November 18, 2015

The House Energy and Commerce Committee today sent two resolutions to the floor that would block the Obama administration's carbon rules for power plants.

The panel voted to approve both joint resolutions by a vote of 28-21. No Democrats voted in favor of the resolutions, and no Republicans voted in opposition.

Energy and Commerce Subcommittee on Energy and Power Chairman Ed Whitfield (R-Ky.) introduced both resolutions targeting the climate rules under the rarely used Congressional Review Act, which gives Congress a means of striking down administrative rules in an expedited manner.

H.J. Res. 71 would block U.S. EPA's rule restricting carbon dioxide emissions from new power plants, while H.J. Res. 72 would kill the Clean Power Plan to address emissions from existing power plants.

"I think Congress has the responsibility to raise issues when they think the president and administration is exceeding their authority," Whitfield said today.

The vote to send the resolutions to the House comes a day after the full Senate approved both resolutions by a vote of 52-46 mostly along party lines (*E&E Daily*, Nov. 18).

The White House yesterday said President Obama would veto both resolutions because they would "undermine the public health protections of the Clean Air Act (CAA) and stop critical U.S. efforts to reduce dangerous carbon pollution from power plants." The vote in the Senate yesterday signals that backers of the resolutions do not have enough votes to override a veto.

But opponents of EPA's power plant rules are hoping the votes will send a message to the international community ahead of climate change negotiations that kick off Nov. 30 in Paris that Congress is not behind Obama's agenda.

The Senate Environment and Public Works Committee and House Science, Space and Technology Committee today separately held hearings questioning the upcoming international climate talks and the U.S. role (*see related story*).

"Congress is sending a clear message to countries around the world that there is significant opposition to President Obama's unlawful carbon regulations," Thomas Pyle, president of the American Energy Alliance, said today. "World leaders who are banking on the U.S., and our resources, being a part of a global agreement should take note of this opposition."

The full House, however, will not take up the CRA resolutions until after the Thanksgiving recess once the Paris talks have already commenced, Whitfield said yesterday (*E&E Daily*, Nov. 18).

Democrats on the Energy and Commerce Committee today slammed the resolutions as wasting committee time and being indicative of Republicans' unwillingness to address climate change.

"These two proposals to nullify a Clean Power Plan are not only misguided," Rep. Anna Eshoo (D-Calif.) said, "I think that they stand as one bookend that represents the past and nothing about our collective future, the protection of our people, the recognition of science."

CLIMATE:

Republicans vow 'no money' for Paris deal

Jean Chemnick and Daniel Bush, E&E reporters

Published: Wednesday, November 18, 2015

Republicans made a play today to seize control of the U.S. role in upcoming United Nations climate talks in Paris, warning in two Capitol Hill hearings and in a letter to President Obama that Congress would exercise the "power of the purse" to stop the administration from making good on its pledges of international climate aid.

Sen. John Barrasso (R-Wyo.) previewed the new Republican position in a letter released today and in his statement at a Senate Environment and Public Works Committee hearing.

"Without Senate approval, there will be no money. Period," he said at the hearing.

Barrasso and EPW Chairman James Inhofe (R-Okla.) released a letter warning that Congress would withhold funds if the administration does not submit an agreement for Senate advice and consent. The administration has said it expects the deal brokered later this month in the French capital to include emissions pledges that would be politically rather than legally binding, precluding the need for formal Senate approval. The agreement could include both emissions reduction and climate financing elements.

Republicans have been hunting for a way to carve out a role for Congress in the negotiations, and today's Barrasso-Inhofe letter appears to be their solution.

The senators noted that Obama "unilaterally" pledged last year the United States would provide $3 billion over four years to the United Nations' Green Climate Fund. But they reminded Obama that would require congressional cooperation.

"We pledge that Congress will not allow U.S. taxpayer dollars to go to the Green Climate Fund until the forthcoming international climate agreement is submitted to the Senate for its constitutional advice and consent," they said.

The two asked Obama to direct U.S. Special Envoy for Climate Change Todd Stern to give foreign delegations "a full picture" at the talks of the division of power between the executive and legislative branches of the U.S. government.

"He must explain that Congress will not be forthcoming with funds in the future without a vote in the Senate on any final agreement as required in the U.S. Constitution," Barrasso and Inhofe wrote.

Barrasso, who chairs a key Foreign Relations subcommittee, and Inhofe have been generally critical of Obama's ambition to help forge an international climate agreement, arguing that it's primarily a scheme to transfer wealth from the U.S. Treasury to developing countries that will do little to limit their own greenhouse gas emissions.

They also complain that the administration routinely circumvents Congress on environmental issues, as when U.S. EPA promulgated power plant carbon rules after Congress did not enact carbon legislation. The Senate voted narrowly last night to scuttle the two marquee rules (*E&E Daily*, Nov. 18).

The administration argues that the U.N. negotiations are on track to produce an agreement that would legally obligate the U.S. only to submit pledges and adhere to a review process. The substance of national commitments would be only politically binding -- and in the case of the U.S., it relies on domestic laws that have already been enacted, including the Clean Air Act.

But Sen. Shelley Moore Capito (R-W.Va.), who sponsored the resolution to kill the Clean Power Plan, said at the top of the hearing that last night's Congressional Review Act votes show how vulnerable the Obama administration's domestic climate policy is.

The EPW Clean Air and Nuclear Safety Subcommittee chairwoman presided over the hearing while Inhofe sat on the House-Senate conference committee for transportation funding legislation. She noted that neither the House nor the Senate version of the fiscal 2016 appropriations bill for the State Department includes a dime for the Green Climate Fund (GCF) -- meaning the Obama administration will effectively go to Paris empty-handed, she said. That is unlikely to change when the 12 spending bills are combined ahead of a Dec. 11 deadline to fund the federal government, she said.

"I don't see a scenario where this Senate is going to approve in the omnibus bill any language that would open any door for any Green Climate Fund," she said, adding that her assertion would be true even if the administration reversed course and submitted the deal to Senate advice and consent.

Republican-invited witnesses testified at the EPW hearing that the $3 billion Obama has pledged to the GCF would only be a beginning. Oren Cass of the conservative Manhattan Institute for Policy Research urged congressional Republicans to move a resolution or other vote before the talks conclude making it clear that Congress would not provide the funds.

And Stephen Eule of the U.S. Chamber of Commerce proposed that the U.S. share of international climate aid could rise to $45 billion. The developed world has promised poor countries a collective $100 billion in public and private funds a year by 2020. Eule proposed the figure in response to a question by Sen. Jeff Sessions (R-Ala.) and said later that it relied on the senator's assumptions for how responsibility for the $100 billion would eventually be allocated.

The GCF, which seeks to provide $10 billion by 2020 to help poor countries cope with warming and reduce their emissions, is funded by public money. But the vast majority of the $100 billion commitment is expected to come from leveraged private investment.

There is disagreement about whether Congress must explicitly provide the $500 million the administration seeks in fiscal 2016 for the GCF, or whether the State and Treasury departments can provide some or all of that money by shifting it from other funds. The Senate Appropriations Committee passed a bipartisan amendment in July stripping language from the State Department spending bill that would have explicitly barred the administration from spending any money on the U.N. fund.

House hearing

House Republicans also slammed the Clean Power Plan today and criticized the Obama administration

for seeking an international agreement in Paris that faces deep opposition in the GOP-controlled Congress.

"The so-called Clean Power Plan will cost billions of dollars, cause financial hardship for American families and diminish the competitiveness of American industry around the world," Science, Space and Technology Chairman Lamar Smith (R-Texas) said at a hearing.

A vocal critic of EPA and the finalized carbon rule, Smith added that an international climate deal in Paris would give "control of U.S. energy policy to unelected United Nations officials."

"The president should come back to Congress with any agreement that is made in Paris on carbon emissions. He won't, because he knows the Senate will not ratify it," Smith said.

Other GOP lawmakers on the committee downplayed the Paris talks as well, arguing that an agreement would hurt the U.S. economy and developing countries that rely on coal-fired power generation.

"The world is hungry for energy, and whether we like or not, coal is going to fill that gap. Nothing that happens in Paris is going to change that," said Rep. Bill Posey (R-Fla.).

Democrats defended the carbon rule and the White House's efforts to broker a climate deal in Paris.

"The cost of inaction [on] climate change far outweighs the costs of action," Rep. Donna Edwards (D-Md.) said. "If we don't do something now, we're in big trouble."

Katie Dykes, deputy commissioner of the Connecticut Department of Energy and Environmental Protection, testified that the final carbon rule signaled the United States' commitment to taking action on climate change.

"It's so critical that the Obama administration is putting our nation on track to reduce carbon emissions from our largest source sector ahead of the Paris negotiations," Dykes told the panel.

RENEWABLES:

House Dems float 2-year extension of wind credit

Geof Koss, E&E reporter

Published: Wednesday, November 18, 2015

House Democrats have introduced a bill to extend the expired renewable production tax credit for one year while expanding the qualification requirements for a separate key incentive for solar and other renewables.

Rep. Earl Blumenauer (D-Ore.) yesterday introduced H.R. 4040, the "Bridge to a Clean Energy Future Act of 2015," which would extend the PTC and an assortment of other breaks for two years.

"With the impacts of climate change already upon us, now more than ever our focus should be on helping clean energy industries grow and thrive," said Blumenauer, a member of the Ways and Means Committee, in a statement. "At the federal and state level -- including in Oregon -- we've already made notable investments in renewable energy resources, and this legislation will expand these efforts."

Also included in the measure are extensions of credits for alternative fuel vehicles and properties, biodiesel and cellulosic ethanol, and efficiency improvements, according to a summary.

The expired credits track with those that were extended for two years under a broad extenders package approved by the Senate Finance Committee earlier this year (*E&ENews PM*, July 21).

However, the clean energy breaks were left out of an extenders bill approved by the House Ways and Means Committee in September, raising questions over how the lower chamber will respond to the annual tussle over extending the PTC (*E&ENews PM*, Sept. 17).

Blumenauer's bill additionally would modify several existing tax provisions to boost their usefulness for clean energy sources.

Significantly, it would base the applicability of the investment tax credit (ITC) on the start of construction, rather than the current "placed-in-service" requirement, which means the credit starts when power is generated. The PTC has already been adjusted to a start-construction requirement.

Sen. Dean Heller (R-Nev.), a member of the Finance Committee, is pushing for the change to be included in the upper chamber's extender package. He floated the plan during the July extenders markup but withdrew it because the ITC doesn't expire until the end of next year.

The House measure, which has 18 co-sponsors, is paid for by cancelling "outdated and wasteful tax breaks" for the oil and gas industry, according to Blumenauer's statement. Republicans have long resisted the Obama administration's calls to cancel the breaks.

The legislation comes as business interests are stepping up efforts to see the expired tax extenders reinstated before the end of the year, with an omnibus appropriations bill considered the likely vehicle.

Still, any extension of the PTC will face headwinds in the House, where critics of the incentive have focused their efforts to keep it lapsed.

TRANSPORTATION:

26 Senate Dems urge more funding, shorter reauthorization

Ariel Wittenberg, E&E reporter

Published: Wednesday, November 18, 2015

A group of almost 30 Senate Democrats sent a letter to congressional negotiators today urging them to increase surface transportation funding levels over a shorter authorization period.

Spearheaded by Sens. Tom Carper of Delaware and Cory Booker of New Jersey, the letter was sent as conferees working to hammer out differences between House and Senate legislation met for the first time this morning.

"We urge you to consider the urgent need for an increase in infrastructure investment around the country, and report a final proposal that can best address these needs by maximizing annual investment levels for all surface transportation programs over a shorter authorization period," the letter says. "We strongly urge you to finalize a surface transportation conference report that can provide the maximum amount of benefits to American families and businesses by prioritizing increased investment for all surface transportation programs over the length of the authorization."

Determining how to finance the $325 billion road and public transit package has been a major point of contention as the bills moved through Congress, and remains the main sticking point for the conference committee (*E&E Daily*, Nov. 5).

Currently, the Senate bill authorizes funding for six years but provides enough money only to pay for the first three. The House was able to cover five years of the bill's cost thanks to an amendment by Rep. Randy Neugebauer (R-Texas) that would help finance the bill by reducing dividends that the Federal Reserve pays to some large member banks (*Greenwire*, Nov. 5).

That fix has some members of the conference committee considering authorizing a fully funded five-year authorization package.

The letter from Senate Democrats not on the conference committee notes that prior to the 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21), "each successive transportation package contained significant increases in annual funding levels."

"While the proposed Senate investment levels exceed baseline funding, they would still only be sufficient to cover expected increases in construction materials costs," the letter says. "These funding levels are certainly insufficient to rebuild and modernize our nation's transportation infrastructure."

Additional conferees

Neugebauer was among 16 last-minute additions to the House delegation to the conference committee.

House Speaker Paul Ryan (R-Wis.) assigned the additional legislators last night, saying they would help deliver "a final highway bill that cuts waste, prioritizes infrastructure, and helps create good-paying jobs across the country."

The additional members are: Reps. Mac Thornberry (R-Texas), Mike Rogers (R-Ala.), Fred Upton (R-Mich.), Markwayne Mullin (R-Okla.), Jeb Hensarling (R-Texas), Bob Goodlatte (R-Va.), Tom Marino (R-Pa.), Darin LaHood (R-Ill.), Glenn Thompson (R-Pa.), Will Hurd (R-Texas), John Mica (R-Fla.), Lamar Smith (R-Texas), Barbara Comstock (R-Va.), Kevin Brady (R-Texas) and Dave Reichert (R-Wash.).

Mica is a former chairman of the Transportation and Infrastructure Committee. LaHood's father, Ray LaHood, served as President Obama's first Transportation secretary.

The Senate appointed 11 conferees, and the House appointed 30 earlier this month (*E&E Daily*, Nov. 16).

CLIMATE:

Collins, Cantwell ask GAO to assess warming's impacts

Amanda Reilly, E&E reporter

Published: Wednesday, November 18, 2015

Two senators asked the Government Accountability Office to embark on a study of the costs and risks of climate change to the federal government.

In a letter to the U.S. comptroller general, Sens. Susan Collins (R-Maine) and Maria Cantwell (D-Wash.)

asked GAO to recommend the best policies for offsetting costs associated with climate change to the federal government.

"Understanding the risks and costs associated with climate change over time," the senators wrote, "and the implications of policy actions to reduce those risks and costs is essential to planning for and evaluating near-term federal investments and policy decisions."

The letter comes a day after the Senate voted to pass resolutions that would kill U.S. EPA's carbon rules for new and existing power plants, the centerpiece of the Obama administration's domestic climate change agenda (*E&E Daily*, Nov. 18).

Collins was one of three Republican senators who yesterday voted against the resolutions. In a short interview yesterday, she said she was concerned about increases in pollution-related asthma attacks and the migration of ticks northward linked to climate change.

The two senators cited several other impacts on the United States tied to climate change in their letter, including effects on the U.S. economy and several sectors, including energy, agriculture and water supply. They also said they were concerned about droughts, wildfires and reduced snowpack in the West.

"Numerous studies indicate that the costs of climate change are already significant and will become even more so in the coming decades," they wrote.

Cantwell and Collins want GAO to examine both the benefits and costs of climate change in the United States and how those estimates are determined.

AIR POLLUTION:

EPA changing testing program in wake of VW scandal -- McCabe

Sean Reilly, E&E reporter

Published: Wednesday, November 18, 2015

U.S. EPA is upping its game with a more unpredictable testing regimen in the wake of the Volkswagen emissions cheating scandal, acting air chief Janet McCabe said this morning at the fall meeting of the agency's Clean Air Act Advisory Committee.

"We are very committed to getting this under control, dealing with the vehicles that are out there," McCabe said in response to a question from one of some 30 panel members gathered for the all-day session at a Northern Virginia hotel. Besides the usual cycle of vehicle emissions testing, the agency is doing both off-cycle and on-road testing, she said, adding that one light-duty diesel engine has already been certified.

McCabe's comments echoed previous statements by other EPA officials in the wake of the scandal, which was uncovered by West Virginia University researchers working for the International Council on Clean Transportation, a Washington, D.C.-based nonprofit.

In a presentation to the committee that lasted more than an hour, McCabe also provided a rundown of EPA's regulatory initiatives related to air quality, including the Clean Power Plan and its proposed revisions to the Cross-State Air Pollution Rule unveiled yesterday (*Greenwire*, Nov. 17).

The latter is "critical" to reducing downwind power plant nitrogen oxide emissions, McCabe said. In regard

to the Clean Power Plan, which is geared to cutting power plants' greenhouse gas releases, EPA officials are well into the implementation phase and are "very encouraged" by the dialogue so far, she said.

"We are all in on this in terms of being available to help the states to the extent that they would like our help as we go forward," she said.

Despite a wave of lawsuits from states and industry groups, McCabe added, "we remain very confident about the legal underpinnings of the rules and also the critical importance of moving forward with action to reduce carbon emissions."

The advisory committee, which meets twice a year, also voted to accept a slate of draft recommendations from an air toxics work group. Much of the afternoon portion of the meeting will be devoted to the Clean Power Plan and a tribal indoor air update, according to a draft agenda.

COAL:

Dems press GOP to get on board with energy transition

Manuel Quiñones and Amanda Reilly, E&E reporters

Published: Wednesday, November 18, 2015

U.S. EPA Administrator Gina McCarthy and prominent Democrats are pressing pro-coal politicians to accept what they see as the new reality for the coal industry.

The GOP has for years been using the debate about coal's future to make electoral gains in traditionally Democratic strongholds, particularly in Appalachia, blaming President Obama for the fuel's downturn and the region's economic woes.

Now Democrats and other supporters of increased regulations affecting coal are increasingly fighting back, accusing the GOP of turning its back on the very communities it is trying to woo.

McCarthy, during an event in Washington, D.C., this morning, said, "There has been a transition since the '80s away from coal being the fuel of choice in the U.S." And she called on lawmakers like Senate Majority Leader Mitch McConnell (R-Ky.) to help address the fallout.

Just yesterday, McConnell's chamber voted for a resolution to block EPA's new rule to cut greenhouse gas emissions from power plants, known as the Clean Power Plan (*E&E Daily*, Nov. 18).

Analysts say such rules, plus competition from natural gas and other market factors, including renewable sources becoming a cheaper alternative, are hurting coal's future.

"That's why it's not all about the Clean Power Plan, it's also about proposals that the president has put on the table to try to address those real community concerns," McCarthy said at a forum sponsored by Bloomberg. "And until we embrace both of those, I think the senator will continue to have his position."

McCarthy was referring to the president's Power Plus Plan to help displaced communities and workers. Pro-coal lawmakers like McConnell have embraced at least some of its tenets, but others have generated some controversy (*E&E Daily*, Sept. 11).

Democratic presidential candidate Hillary Clinton in recent days released a plan of her own to provide coal communities with tools like worker aid and repurposing old plants and mines (*Greenwire*, Nov. 13).

"Coal's would-be friends in Washington have decided to bash the administration and defend the status quo rather than offer a way forward," Arizona Rep. Raúl Grijalva, top Democrat on the House Natural Resources Committee, wrote in a *New York Times* op-ed.

Yesterday Cliff Forrest, president of Pennsylvania-based Rosebud Mining Co., laughed off Clinton's plan. "Thanks a lot, Mrs. Clinton," he said (*E&E Daily*, Nov. 18).

It's not that many coal executives and allies in Congress are against aid for communities, but they also want to see regulatory relief.

"There's no better indication that our pushback on these wrongheaded regulations is working than Gina McCarthy's comments today," said Bill Bissett, president of the Kentucky Coal Association.

He said, "We've heard internally that EPA was absolutely unprepared for this level of resistance for their anti-coal regulations on greenhouse gases."

And he added, "I'm pretty sure Leader McConnell will pass on her guidance."

House Appropriations Chairman Hal Rogers (R-Ky.) has been among the most outspoken Republicans about the need to help diversify struggling communities but is also pushing for policies to scrap EPA regulations.

Still, McCarthy says the agency is not trying to shape the nation's energy landscape, as critics say, or hurt the economy.

"EPA is not doing an end-of-pipe strategy," she said. "We are looking at where the energy transition is already happening."

COAL:

Jury begins deliberating in trial of ex-Massey CEO Don Blankenship

Published: Wednesday, November 18, 2015

A jury is now deliberating in the trial of former Massey Energy CEO Don Blankenship after prosecutors and defense attorneys completed closing arguments yesterday.

Prosecutors have accused Blankenship of routinely conspiring to violate mine safety standards to increase profits. Blankenship's attorneys argued that there was no evidence he was involved in a conspiracy.

The company's poor safety record was exposed when the Upper Big Branch mine exploded in 2010, killing 29 workers, prosecutors said.

"Instead of hitting the brakes, he pushed his foot down on the gas as far as it would go," Assistant U.S. Attorney Steven Ruby said.

Defense attorney William Taylor said Blankenship's leadership of the company did not mean he was culpable for the violations.

"We require the government to prove more than the man was in charge of a company when a terrible disaster occurred," Taylor said (Pittsburgh *Tribune News*, Nov. 18).

Family members of the deceased miners say the trial has been difficult for them.

Judy Jones Petersen said she found it frustrating that jurors heard so much about Blankenship's safety concerns but little about how the 29 miners died.

Though criminal charges in these cases are rare, the prosecution has been largely unable to use details of how the miners were killed against the former CEO.

"We can't say a word about the loss of life here," Petersen said. "My brother's life doesn't mean anything here to these jurors."

Blankenship could face up to 30 years in prison if convicted (Jonathan Mattise, AP/ABC News, Nov. 18). -- **SP**

DEFENSE:

Army looks to connect extreme weather to climate change

Ariel Wittenberg, E&E reporter

Published: Wednesday, November 18, 2015

Army officials have begun trying to determine whether a series of unusual weather events at bases across the country can be tied to climate change.

After years of reports of hurricanes, floods, wildfires and other events that caused abnormally large amounts of damage, the Office of the Assistant Secretary of the Army for Installations, Energy and Environment is teaming up with its Training Support Systems Division in an attempt to track unusually strong weather events and potentially identify a trend.

Starting this month, the Army is asking that base commanders indicate whether damage caused by a weather event is considered abnormal when they fill out the requisite forms for repairs.

"We are not scientists, we are just folks that operate in our training and pay for its sustainment," said Training Support Systems Division Chief Thomas Macia. "We are looking for indicators that might alert us to the future, and whether what we see as out of the norm is actually out of the norm."

The anecdotal evidence is strong. In 2014, the Government Accountability Office wrote a report detailing how recent weather events have affected training throughout the Defense Department.

The report included an account of flash flooding in the Mojave Desert that rendered emergency runways at Fort Irwin unusable for eight months, grounding aircraft performing testing and training missions. It also described how fears of starting wildfires in the West had limited some bases' use of live fire during training.

The weather has not relented since the GAO report was published. This summer, training ranges across the country were affected by everything from melting permafrost in Alaska to wildfires in California and flooding in South Carolina.

In September, Richard Kidd, deputy assistant secretary of the Army for energy and sustainability, described the instances as causing an unprecedented decrease in Army preparedness.

"Right now, this year, the Army has never had as much training disrupted by weather-related events in our entire history," he said at a roundtable on energy security at the Pew Charitable Trusts. "It is degrading the quality of our readiness today."

The Army currently budgets for weather damage at all its training ranges, which are located outdoors and most vulnerable to weather. Damaged training areas typically receive the "minimal repair needed to get the facility back in service," Macia said.

Knowing whether "abnormal" weather events are part of a "consistent pattern" would help justify building more resilient ranges that mitigate the impacts of climate change.

"Any asset in an outdoor setting will be affected by weather, and we take that into account when we budget for maintenance, but if we see that this is a predictable pattern, we will have to adjust how we do that," he said.

Army training ranges have been the most affected. The training areas are diverse and can be used for everything from small firearms training to instructing troops on how to drive tanks. They can be as small as a local gun range or span hundreds of acres. Most Army installations have only one range for each type of training conducted at the base, so if an artillery firing range is flooded out, for example, those exercises would have to stop completely until the range was repaired.

"The absence of that asset is the real cost of this," he said.

Kathleen White of the Army Corps of Engineers said it can be difficult to prove that weather events like extreme drought or flooding are tied to climate change.

"It is difficult to tease out a signal in the noise and attribute it to climate change, other than anecdotally," said White, the senior lead for global and climate change at the Army Corps' Institute for Water Resources.

While the Army Corps has written guidance for climate change adaptation related to sea-level rise, she said that inland flooding caused by climate change is much more difficult to predict.

She did say that if the Army were able to prove a pattern of specific bases experiencing more frequent flooding or permafrost melt, it would help inform the Army Corps when designing how to rebuild damaged training ranges.

DEFENSE:

Group urges 'Marshall Plan' for climate change in Asia-Pacific

Ariel Wittenberg, E&E reporter

Published: Wednesday, November 18, 2015

The United States should take a page from its post-World War II playbook and rebuff Chinese influence in the Asia-Pacific region by helping smaller nations adapt to climate change, the Center for Climate and Security urges in a new report.

Calling the idea an "Asia-Pacific equivalent of a Marshall Plan," the report encourages policymakers to model their efforts on the 1949 initiative that provided a $13 billion package of developmental assistance to European countries that agreed to meet American diplomatic and defense priorities. The plan is often credited with helping to rebuild the region following World War II without having Western Europe succumb to Soviet influences.

"It stands to reason that such a broadly-successful strategy and plan be mined for ideas on how to flesh out a new U.S. strategy in the Asia-Pacific -- a region that is very vulnerable to climate change threats and grappling with the risks and benefits of a rising China," the report says. "In this context the U.S. requires the modern equivalent of the Marshall Plan for the region to assist nations in addressing climate-related threats, and to complement its current military and economic engagement in the area."

American military and diplomatic efforts are currently in the early stages of a policy initiative known as the "Asia-Pacific rebalance," the report says, to pivot the focus of the Defense Department, the State Department and the U.S. Agency for International Development toward the region.

At the same time, China's economic and military influence has been expanding in the region, with the report noting that nearby nations "have been slowly reorienting their foreign policies to accommodate an increasingly powerful Beijing."

Helping nations adapt to the effects of climate change is one way for the United States to maintain its influence, the report says. Such an effort could broaden alliances and deepen trust particularly with climate-vulnerable countries like Vietnam and Indonesia, with whom American relations have sometimes been rocky, it says.

"The U.S. must offer key countries in the region the opportunities they need to both grow their economies and combat significant transnational threats to their well-being," the report says. "In this context, taking a page out of George C. Marshall's book might make a lot of sense."

While the report does not suggest a specific dollar amount of investment that a "Climate Security Plan" would make in the Asia-Pacific, it does list a number of pre-existing programs that could be expanded as part of the plan.

For example, the report notes that the United States already supported the 2013 Majuro Declaration at the Pacific Islands Forum, which called on countries to create a fund for addressing climate risks in the area. The report also says that the United States could launch a program for climate change adaptation similar to the $6 billion U.S.-Asia-Pacific Comprehensive Partnership for a Sustainable Energy launched in 2012 with Brunei and Indonesia.

"If the U.S. were to lead now with the delivery and expansion of these investments and programs, it could bolster its efforts to remain an indispensable nation in the Asia-Pacific region and potentially do so in a way that makes a very small dent in the federal budget," the report says. "If not, the U.S. stands to either cede that ground to a rising China or ... act as a bystander to growing instability and disruption."

RENEWABLES:

Solar developers ask FERC to intervene in Conn. program

Hannah Northey, E&E reporter

Published: Wednesday, November 18, 2015

Solar investors want the federal government to intervene in Connecticut's implementation of a decades-old law to boost sales of renewables, arguing that the state is overstepping its jurisdictional authority.

Allco Renewable Energy Ltd., a New York-based firm that develops and invests in solar projects, petitioned the Federal Energy Regulatory Commission last week to initiate an enforcement action against two Connecticut state agencies -- the Department of Energy and Environmental Protection and the Public Utilities Regulatory Authority -- for improperly enforcing the Public Utility Regulatory Policies Act of 1978.

PURPA is aimed at bolstering renewables and efficiency by requiring utilities to buy power from "qualifying facilities," including cogeneration plants that use steam or heat from industrial and commercial processes, as well as solar, wind, biomass, waste and other facilities that are 80 megawatts or less. FERC has overseen the treatment of qualifying facilities for decades.

Thomas Melone, Allco's president, argued in the company's filing to FERC that Congress gave the commission -- not states -- the exclusive right to regulate wholesale, interstate electricity sales. Connecticut regulators in a 2013 law crafted under PURPA overstepped their authority and incorrectly applied PURPA, he said.

Melone pointed to the Department of Energy and Environmental Protection's decision in 2013 to compel utilities in the state to enter into a contract with a 250 MW wind farm, which he said was "much too large" to fit the qualifications of PURPA. As a result, a project Allco invested in was not selected, Melone said.

The Connecticut Department of Energy and Environmental Protection was not immediately available for comment.

Allco is threatening to sue the state agencies if FERC doesn't intervene.

"While PURPA thereby gives state regulatory agencies some discretion in implementing commission's rules, they cannot violate those rules," he wrote. "And, because states' only authority to regulate wholesale electricity sales is derived from PURPA, any state rule that conflicts with PURPA is necessarily preempted."

PURPA has recently gained attention on and off Capitol Hill.

Congressional Republicans earlier this month called on FERC to explore whether changes are needed to improve the law, which has long rankled utilities opposed to forced purchase of power.

Berkshire Hathaway Energy, for one, has argued that FERC's "overly restrictive" interpretation of the statute failed to keep up with the times or recognize that small generators once facing steep barriers can now reach emerging markets (*Greenwire*, Nov. 9).

NUCLEAR POWER:

Wash. plant suffers small reactor leak

Published: Wednesday, November 18, 2015

The Pacific Northwest's only commercial nuclear power plant suffered a reactor core fuel leak last week, but operators stressed that there was no danger to workers or the public.

Workers had to remove four fuel assemblies from service at the Columbia Generating Station in Richland, Wash., because of a pinhole leak, Energy Northwest spokesman John Dobken said. "Barely detectable"

levels of radioactive gases were seen in the plant's coolant water, he said, but officials were nonetheless notified.

The leak could have been caused by debris in the reactor or a manufacturing defect, Dobken said (Ted Sickinger, Portland *Oregonian*, Nov. 13). **-- BTP**

OIL AND GAS:

Tornado totals vacant Halliburton plant

Published: Wednesday, November 18, 2015

A vacant Halliburton plant located in Texas sustained extensive damage after a tornado tore through the area Monday, a chief deputy in the Gray County sheriff's office said.

The company's Pampa district office has been vacant since April after it announced a rollback plan that slashed costs and cut jobs as a result of the oil slowdown. No employees or chemicals were there when the tornado struck.

Reports say two deputies were exposed to natural gas that leaked from damaged lines, but they were assessed by medical personnel on-site and declined further attention. Initial reports claimed that the plant contained radioactive material, but those statements have been deemed inaccurate.

Company officials assessed the site but have not yet provided damage estimates (Rhiannon Meyers, *Fuel Fix*, Nov. 17). **-- AK**

DOE:

Hanford medical record whistleblower case underway

Hannah Hess, E&E reporter

Published: Wednesday, November 18, 2015

Two whistleblowers who lost their jobs at the Hanford nuclear site in Washington after exposing problems with the Hanford clinic's electronic medical records system in August 2012 head to court this week.

Kirtley Clem and Matthew Spencer worked for an Energy Department subcontractor, providing information technology support to implement a new health system. A few months into the project, after Computer Sciences Corp., or CSC, management dismissed their concerns, Clem and Spencer reported to DOE critical problems tracking medical restrictions, such as sensitivity to beryllium, a metal known to cause lung damage that was used at the facility.

"Specifically, Complainant and his co-worker explained that using [the system] risked violating patient confidentiality rules, potentially restricting individuals from work who should be allowed to work, and most importantly releasing individuals to work who should be restricted," according to the November 2014 ruling by the Department of Labor that found CSC retaliated against the whistleblowers.

CSC was ordered to pay back wages of $186,000 to the two former workers as part of that decision.

But the corporation, currently serving as a subcontractor for the Hanford medical clinic, appealed the

ruling.

Hearings in the case started yesterday in Kennewick, Wash., and are scheduled to last through 4 p.m. tomorrow, according to Hanford Challenge, which is involved in the workers' case.

CSC also faces scrutiny from DOE. On Sept. 21, the DOE Office of Enterprise Assessments' Office of Enforcement notified the corporation of its intent to conduct a worker safety and health investigation into the electronic medical records concerns raised by the two former employees. The office is also considering taking enforcement action against CSC for retaliating against Clem and Spencer.

RAIL:

Canadian Pacific offers $28B for Norfolk Southern

Published: Wednesday, November 18, 2015

Two of North American's largest railroads moved closer to a merger yesterday.

Canadian Pacific Railway Ltd. said it sent a letter to Norfolk Southern Corp. outlining a proposal valued at more than $28 billion to combine the two companies.

Canadian Pacific -- in a bid to amp up pressure on Norfolk Southern -- said the combined company could yield faster earnings growth and win regulatory approval.

Norfolk Southern described the overture in a statement as an "unsolicited, low-premium, nonbinding and highly conditional indication of interest."

The railroad said it would consider the offer but noted "any consolidation among large freight railroads would face significant regulatory hurdles" (Stevens/Benoit, *Wall Street Journal*, Nov. 17). **-- SP**

UNITED KINGDOM:

Nation to close coal-fired power plants by 2025

Published: Wednesday, November 18, 2015

The British government today said it will close all of the United Kingdom's coal-fired power plants by 2025 unless they are ready to capture and store all of their carbon emissions in compliance with tightening E.U. standards.

Secretary of State for Energy and Climate Change Amber Rudd said phasing out all "polluting, carbon-intensive 50-year-old coal-fired power stations" is critical for the United Kingdom to meet its legally binding pledge to cut carbon dioxide emissions to 80 percent below 1990 levels by 2050.

The plan emphasizes that gas and nuclear power will replace a third of British electricity currently generated by coal.

"One of the greatest and most cost-effective contributions we can make to emission reductions in electricity is by replacing coal-fired power stations with gas," Rudd said.

The shift ahead of the U.N. climate negotiations in Paris this month was hailed by some climate activists, but others critiqued the reliance on gas.

"Phasing out coal is essential for the climate. But switching from coal to gas is like an alcoholic switching from two bottles of whisky a day to two bottles of port," said Simon Bullock of Friends of the Earth (Susanna Twidale, Reuters, Nov. 18). **– DTB**

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Thu., November 19, 2015

READ FULL EDITION

1.SCIENCE:

Runaway global warming becomes a concern as permafrost melts

GOOSE LAKE, Northwest Territories -- Goose Lake is at the knife's edge of climate change. Half a century ago, this region, which is 250 miles from the Arctic Circle, used to contain mostly permafrost, or perennially frozen ground. Today, the ground has partially thawed and the region is predominantly wetland. The rapid changes have been catalyzed by climate change, which has warmed these environs by 4 degrees Fahrenheit in the past half-century.

2.UTILITIES:

Europe sees 2 major moves toward reliance on renewable energy

Enel SpA, the biggest utility in Italy and among the biggest in Europe, is buying out the minority shareholders of its renewable energy business, Enel Green Power. The company called the consolidation "beneficial," predicting it will reduce the volatility of producing electricity, smooth out grid connections and take advantage of the "acceleration in the pace of growth in the renewable business."

TODAY'S STORIES

3.POLITICS:
Republicans whap Obama with a 'power of the purse' gambit to deny climate funds
4.NATIONS:
China will push for a legally binding treaty in Paris climate talks
5.SCIENCE:
GOP chairman finds ally against NOAA in climate whistleblower
6.POLITICS:
Cruz accuses Democrats of lying about 'so-called global warming'
7.EXTREME WEATHER:
Deluge kills 75 people, strands thousands in southeast India
8.NEGOTIATIONS:
France bans major rally ahead of climate talks
9.RESEARCH:
Among corals, there are 'losers' and 'worst losers'
10.CLEAN POWER PLAN:
Dominion airs hopes for Va. state compliance plan
11.FORESTS:
A year after monumental agreement, action to stop deforestation remains sluggish
12.AUTOS:
Kia set to sell 11 low-emission car models in five years
13.ADAPTATION:
Global climate talks spur local discussion on adaptation
14.BUSINESS:
Chinese automaker bets it all on clean cars
15.STATES:
Iowa officials withhold climate funding for universities
16.CANADA:

Carbon tax in oil sands region could raise $5B

E&ETV'S ONPOINT

17.SECURITY:

'The Burden' filmmaker discusses climate, security debate as international tensions mount

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Thu., November 19, 2015

READ FULL EDITION

1.ECONOMY:

Fading Reno places big bet on 'the Tesla effect'

The construction of Tesla Motors Inc.'s Gigafactory for mass-producing electric car batteries just east of Reno has spurred new hope for economic growth in this chastened and gritty gambling town. Curiosity is attracting adventure-seekers, opportunists and engineers. People here call it "the Tesla effect," and the region's biggest boosters are looking for ways to bottle the fresh enthusiasm, round out the city's sharp edges and further diversify the economy.

TOP STORIES

2.NATURAL GAS:

Access Northeast pipeline seeks to serve generators' peak demand

3.OHIO:

Downstream opportunities abound in the Utica -- report

4.UTILITIES:

Ill. regulators probe whether execs withheld info to win merger approval

ELECTRICITY

5.SOLAR:

La. regulators signal halt to net metering as saga continues

6.COAL:

Aging Ga. plant comes under fire

7.SECURITY:

Grid-hardening initiative debuts as federal standards loom

8.OHIO:

Utilities keep on fighting for profit guarantees

9.STORAGE:

Bank sees dropping battery prices, increased possibilities for renewables

OIL AND GAS

10.WORKFORCE:

Fossil fuels firms score low on LGBT inclusion -- index

11.BAKKEN SHALE:

N.D. oil now favoring pipes to trucks

12.SECURITY:

Airstrikes target terror group's main income: oil production

E&ETV'S ONPOINT

13.SECURITY:

'The Burden' filmmaker discusses climate, security debate as international tensions mount

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Ex. 7

Ex. 7

From: Kaul, Meetu
Sent: Thur 11/19/2015 6:42:10 PM
Subject: EPA's 208s to VW
EPA 208 Request to VW 10.31.2015.pdf
EPA 208 Request to VW 09.24.2015.pdf

Hi folks,

It was great to meet all of you in person. Thanks so much again for hosting us.

In case you don't have it, I wanted to get you final versions of our 208 requests to VW.

-MK

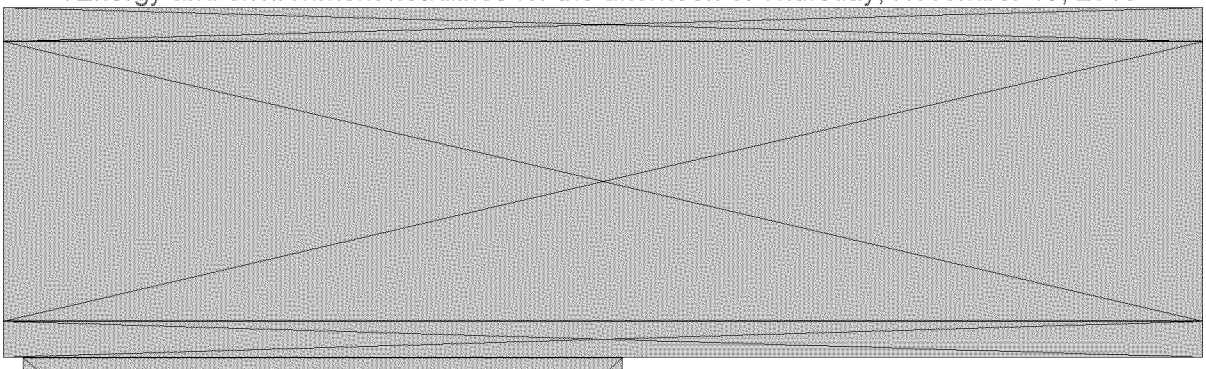
Ms.Meetu Kaul, Attorney-Advisor

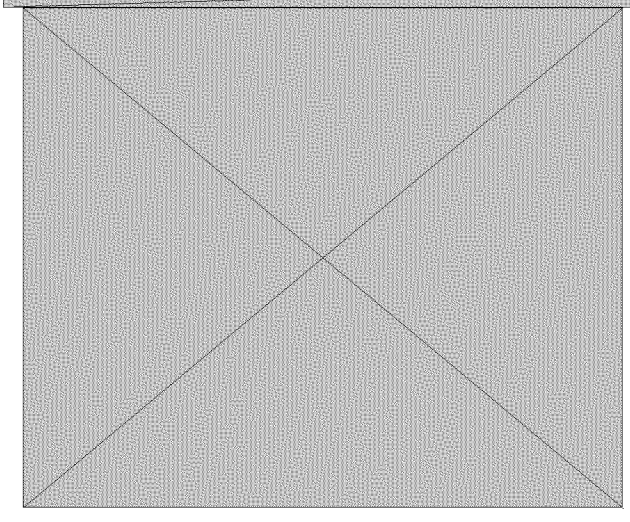
Air Enforcement Division
United States Environmental Protection Agency
Direct: 202-564-5472
Email: kaul.meetu@epa.gov

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Thur 11/19/2015 10:25:11 PM
Subject: Oil, ethanol groups trade blows with RFS imminent

Advertise | Contact

Energy and environment headlines for the afternoon of Thursday, November 19, 2015





Oil, ethanol groups trade blows with RFS imminent

By Kevin Rogers

With three years' worth of Renewable Fuel Standard blending levels set to be finalized as early as next week, the ethanol and oil industries are making their last pitches to the White House — and trading barbs with each other.

EPA plans to finalize late standards for 2014 and 2015 and complete its 2016 volumes by Nov. 30. The rules are currently under final review from the Office of Management and Budget, which is also meeting with industry stakeholders.

The Renewable Fuels Association and Growth Energy, at a Wednesday meeting with OMB, urged the government to break the "monopoly Big Oil has on the liquid fuels transporation market" and move the program forward.

The American Petroleum Institute, slated to meet OMB tomorrow, plans to tell the government not to "prop up" the ethanol market with higher blending mandates. In the runup to the meeting, the oil group unveiled a poll detailing registered voters' concerns with the mandate.

The final arguments presented to the Environmental Protection Agency mirror what the advocates have been saying since the three years' worth of biofuel blending levels were proposed in May.

The ethanol industry contends that EPA shortchanged the RFS by setting blending below the statutory levels set by the 2005 law that created the program. API and its allies, however, argue that the 2016 proposal would still put too much ethanol into the market and break the 10-percent "blend wall," where, refiners say, the market becomes saturated, to the detriment of engines and fueling infrastructure.

The Energy Information Administration projects that gasoline demand will hit a nine-year high in 2016, and, based on that, the ethanol groups pressed OMB for a billion-gallon increase over the amount of "conventional biofuels," most commonly ethanol, EPA proposed for next year's standards.

That would set total biofuel production at the statutory 15 billion gallons for the year, up from the 14 billion EPA proposed for ethanol and other conventional biofuels.

RFA President and CEO Bob Dinneen and Growth Energy CEO Tom Buis disputed the oil industry's protests that the move would break the ethanol "blend wall," which they call a ploy to dodge compliance with the law.

"This meeting was really our closing argument before the administration makes its final decision," they said in a statement. "We impressed upon OMB that the oil industry's 'blend wall' narrative is simply not true. The president needs to uphold the statute."

API, meanwhile, sought to highlight those blend wall concerns, as well as gasoline price fears, as it unveiled the results its telephone survey of registered voters.

The survey of 1,021 voters, prepared by the Harris Poll, found that 75 percent were concerned that exceeding 10 percent ethanol in the market could harm engines without protection from warranties; 78 percent were concerned that those levels could increase gasoline prices; and 77 percent said they were concerned that increased corn ethanol production could strain food prices.

The survey questions referenced the "blend wall" and the potential vehicle, price and food implications. The questions did not use the term "Renewable Fuel Standard" nor present any

potential benefits of the program. The poll had a margin of error of plus or minus 3 percentage points.

Dineen, in a statement, dismissed the poll.

"I would like to say that I am shocked API has stooped to such measures as trying to promote an obvious push poll, containing extremely biased questions, as a credible indication of public sentiment about the RFS and ethanol, but I am not," he said.

On a call with reporters, however, API Downstream Director Bob Greco said the poll indicated that the public, on a bipartisan basis, opposes stronger blending mandates. He said that view was held by majorities of Republicans, Democrats, and independents.

"The public gets it. Regardless of their party affiliation, voters are concerned with mandates that try to force too much ethanol into our fuel supply," he said.

Greco said API would argue in Friday's meeting that the ethanol industry is mature enough that it doesn't need a government boost through the RFS.

"If the ethanol industry believes they need to push it to 15 billion, that just underscores that the fuel is not competitive," he said.

The group will press to keep biofuels levels below 9.7 percent of the overall fuel supply.

With Thanksgiving next week, and with EPA Administrator Gina McCarthy headed to United Nations-sponsored climate talks in Paris on Nov. 30, Greco said the rules would likely be unveiled next week.

"The timing is interesting," he said. "I guess we would not be surprised if the rule came out next week. We will operate under that assumption, but you never know with these administrative actions ... but EPA continues to insist by November 30, despite Thanksgiving and the climate negotiations."

Agency spokeswoman Melissa Harrison would not offer any update beyond the Nov. 30 deadline, and OMB's last scheduled meeting on the standards will be with Biogas Researchers Inc. on Tuesday.

Quick Links

Manslaughter charges filed in deadly 2012 platform blast

Judge: Jurors must keep deliberating in ex-coal CEO trial

Regulators pause review of $2B line to ship Iowa wind energy

VW has only a few costly options to fix polluting diesels

Audi says US sales undiminished by diesel emissions scandal

Chevrolet Volt wins 'Green Car of the Year' at LA Auto Show

Crews continue cleanup after Northwest storm

Puerto Rico adopts land-use plan to regulate development

EU: Hungary not transparent in deal to expand power plant

Full startup of Hanford waste treatment pushed to 2039: DOE

House Dems looking for support to probe corporate climate policy

Kirk vote against CRAs came as a surprise

LCV goes Hollywood to skewer carbon rule opposition

Oil flirts with $40 mark, weighed down by oversupply

Arabs must keep investing in oil production, says Saudi minister

Mass. solar talks continue despite onset of legislature's winter recess

Pa. PUC judges back settlement in IDT polar vortex case

Reno region hopes to get boost from Tesla gigafactory

Climate change could put more polar bears in contact with people

Upcoming Events

Manslaughter charges filed in deadly 2012 platform blast

By Michael Kunzelman and Kevin McGill

NEW ORLEANS (AP) — A federal grand jury indicted two companies on involuntary manslaughter charges and three people face charges in a deadly 2012 explosion on an oil production platform in the Gulf of Mexico, the Justice Department said Thursday.

The explosion and fire started during welding work on a platform owned by Black Elk Energy Offshore Operations LLC, killing three workers and injuring several others. In lawsuits and a federal report, the company and its contractors have been accused of failing to follow proper safety practices and rushing work.

Black Elk Energy and one of its contractors, Grand Isle Shipyards Inc., were charged with three counts of involuntary manslaughter, as well as eight charges involving federal safety practices under the Outer Continental Shelf Lands Act and one violation of the Clean Water Act.

Another contractor, Wood Group PSN Inc., and three workers were charged with violating OCSLA and the Clean Water Act. The workers charged are Don Moss, 46, of Groves, Texas; Curtis Dantin, 50, of Cut Off, Louisiana; and Christopher Srubar, 40, of Destrehan, Louisiana.

More

Judge: Jurors must keep deliberating in ex-coal CEO trial

By Jonathan Matisse

CHARLESTON, W.Va. (AP) — Jurors told a federal judge Thursday that they cannot agree on a verdict in the trial of ex-Massey Energy CEO Don Blankenship, but the judge ordered them to continue deliberating.

The jury sent a note to U.S. District Judge Irene Berger late Thursday morning asking how long they should continue deliberating and saying they could not agree.

Berger assembled jurors in the Charleston, West Virginia, courtroom and told them that given the length of the trial and the number of witnesses, they must continue trying to reach a verdict.

The jury deliberated for an hour Tuesday and all day Wednesday.

Blankenship is charged with conspiring to break safety laws and defrauding mine regulators at West Virginia's Upper Big Branch Mine, and lying to financial regulators and investors about safety. The mine exploded in 2010, killing 29 men.

More

Regulators pause review of $2B line to ship Iowa wind energy

By Ryan J. Foley

IOWA CITY, Iowa (AP) — Regulators are suspending review of a proposed 500-mile, $2 billion transmission line that would take electricity produced by wind turbines in northwest Iowa to Illinois customers.

Rock Island Clean Line LLC said Thursday it asked the Iowa Utilities Board to pause a technical review of the project while it assesses how to move forward. The board has granted the request.

The project faces opposition from rural landowners. It was dealt a setback in February, when the board said it would decide whether to approve the project and whether to grant eminent domain in the same hearing. The developer had asked to separate those issues.

The company says the ruling means it must spend millions of dollars to acquire property while running the risk the project will ultimately be rejected.

VW has only a few costly options to fix polluting diesels

By Tom Krisher

DETROIT (AP) — When Volkswagen submits a plan to fix emissions-cheating diesel engines on Friday, it will have only two options for most of the cars.

It can install a bigger exhaust system to trap harmful nitrogen oxide, or it can retrofit a chemical treatment process that cuts pollution.

The bigger exhaust will likely hurt performance and gas mileage, angering car owners. But the chemical treatment, while saving acceleration and mileage, needs a clumsy storage tank and multiple hardware changes to work. In either case, almost a half-million cars would have to be recalled for the repairs.

Experts say both options will be expensive, perhaps so costly that it will be cheaper to buy back some of the older models.

More

Audi says US sales undiminished by diesel emissions scandal

By The Associated Press

LOS ANGELES (AP) — The emissions-rigging scandal that has engulfed German auto giant Volkswagen will not diminish sales of one of its luxury brands in the United States, the head of Audi of America predicted Wednesday.

In the two months since news broke that hundreds of thousands of diesel cars — mostly VWs, but also some Audi models — had their emissions devices doctored to beat US tailpipe tests, sales of Audis have been at record levels compared to the same months in years past, according to company data.

"We'll have a record November and a record December," Audi of America President Scott Keogh told reporters at the Los Angeles Auto Show. In 2014, Audi sold 36,000 cars in the U.S. in November and December.

Keogh added that while sales were important, fixing cars with emissions test "defeat devices" was a priority.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Chevrolet Volt wins 'Green Car of the Year' at LA Auto Show

By The Associated Press

LOS ANGELES (AP) — An auto industry magazine has named the 2016 Chevrolet Volt its "Green Car of the Year."

The hybrid gas-electric Volt was honored Thursday at the Los Angeles Auto Show.

Green Car Journal says the car won because of its extended range. Government fuel-economy figures show that the Volt can go 53 miles on electric power alone and 420 miles on gas and battery power.

It's the second time Green Car Journal has recognized the Volt, which also won the award with its first-generation model in 2011. That model could only go 38 miles on electricity

alone.

More

Crews continue cleanup after Northwest storm

By Lisa Baumann

SEATTLE (AP) — Well over 100,000 customers remained without power in Washington state Thursday after a powerful storm killed three people and prompted an emergency declaration from the governor.

Gov. Jay Inslee declared a state of emergency Wednesday for all Washington counties, clearing the way for state officials to increase aid to those with storm damage.

Winds on Tuesday exceeded 100 mph in some areas of the Inland Northwest.

A 54-year-old identified as Lea Anne Scott was killed when a tree fell in Spokane. Grant M. Strinden, 23, died when a tree crushed his car as he was driving in Snohomish County, authorities said, and a third victim, Carolyn M. Wilford, 70, was killed when a tree landed on her car on Highway 904 about 15 miles southwest of Spokane.

More

Puerto Rico adopts land-use plan to regulate development

By The Associated Press

SAN JUAN, Puerto Rico (AP) — Puerto Rico's governor has signed a land-use plan that aims to regulate development and protect the U.S. territory's natural resources.

Alejandro García Padilla says the plan identifies land according to its historical, agricultural, rural or urban value. He said Thursday that for decades Puerto Rico has been developed in an inconsistent way because there was no land-use plan.

He said the plan promotes more walkable cities and the use of mass transportation. García said it also protects 600,000 acres (243,000 hectares) of agricultural lands and will help the island prepare for climate change.

EU: Hungary not transparent in deal to expand power plant

Sponsored Links

By The Associated Press

BUDAPEST, Hungary (AP) — The European Union has opened a legal case against Hungary because of questions about contracts for the expansion of its only nuclear power plant.

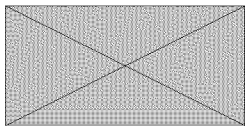
The EU Commission said Thursday that even after consultations with Hungary, it "still has concerns regarding the compatibility of the project with EU public procurement rules."

The expansion of the Soviet-built plant in the city of Paks will be carried out by Russia's state-owned Rosatom and is being financed mostly with a Russian loan of 10 billion euros ($10.7 billion).

Janos Lazar, Prime Minister Viktor Orban's chief of staff, said Hungarian and EU companies would be able to apply for up to 60 percent of the project's contracts.

More

Sponsored Links



Week in Review - Climate Talks Prep Continues

GOP Candidates Debate Energy and Climate Change.

Click here to read the brief

Full startup of Hanford waste treatment pushed to 2039: DOE

In a plan submitted in federal court, the Department of Energy says it will delay by 17 years full startup of a treatment plant to process nuclear waste at Hanford, Washington, the Los Angeles Times reports.

More

House Dems looking for support to probe corporate climate policy

In the wake of allegations that Exxon knew about risks from climate change decades ago but chose to sow doubt about them, Reps. Ted Lieu, D-Calif., and Peter Welch, D-Vt., are asking colleagues to join them in a letter to other corporations asking if they did the same thing, The Hill reports.

More

Kirk vote against CRAs came as a surprise

Both sides of the debate over climate policy are wary of where Sen. Mark Kirk, R-Ill., really stands, even though he voted against Congressional Review Act resolutions to roll back the Environmental Protection Agency's Clean Power Plan, National Journal reports.

More

LCV goes Hollywood to skewer carbon rule opposition

Jeff Goldblum and Ed Begley Jr. star in an internet video released by the League of Conservation Voters, which mocks industry opposition to the Environmental Protection Agency's Clean Power Plan, The Hill reports.

More

Oil flirts with $40 mark, weighed down by oversupply

A growth in stockpiles weighed on oil prices Thursday. Light, sweet crude for December delivery finished 21 cents lower to settle at $40.54 a barrel on the Nymex—although it dropped to $39.89 at one point in the trading day—while in London, Brent gained 4 cents to $44.18, The Wall Street Journal reports.

More

Arabs must keep investing in oil production, says Saudi minister

Despite the current crude glut, Arab countries need to add 5 million barrels of production per day every year in order to satisfy future demand, Saudi oil minister Ali al-Naimi told a conference in Bahrain Thursday, Platts reports.

More

Mass. solar talks continue despite onset of legislature's winter recess

The House and Senate in Massachusetts failed to reach agreement Wednesday night on a deal to raise net metering caps in the state, although conference negotiations continue even though lawmakers have departed for their winter break, State House News Service reports.

More

Pa. PUC judges back settlement in IDT polar vortex case

An order for IDT Energy to refund $2.4 million to customers—on top of the $4.2 million the company voluntarily refunded—for charges racked up during the freezing polar vortex winter has been approved by judges with the Pennsylvania Public Utility Commission, the Pittsburgh Post-Gazette reports.

Trouble seeing this email? Click here.

More

Reno region hopes to get boost from Tesla gigafactory

Reno, Nevada hopes it can benefit from "the Tesla effect"—construction of a battery gigafactory that offers the hope of a sustainable local industry not related to gambling, E&E reports.

More

Climate change could put more polar bears in contact with people

A study led by a biologist at the U.S. Geological Survey finds that, with sea ice melting as the Earth warms, Arctic polar bears are spending more time on land in the summer, which means there will be more chances of encounters with people, The Washington Post reports.

More

Upcoming Events

- Nov. 19, Arlington: Rep. Don Beyer, D-Va., to hold a forum on climate change at George Mason University, featuring panelists from the White House Office of Energy and Climate Change, the Environmental Protection Agency, George Mason University and the Natural Resources Defense Council 7:45 pm , George Mason University 3351 Fairfax Drive
- Nov. 19, Washington: Democrats on the House Energy and Commerce Committee and the Sustainable Energy & Environment Coalition to hold a forum on the global response to climate change. 2:00 pm , Capitol Visitor Center, HVC-210.
- Nov. 19, Washington: The Senate Energy and Natural Resources Committee to hold a business meeting to vote on 13 bills and advance the nominations of Suzette Kiball to lead the United States Geological Survey; Victoria Baecher Wassmer to be Under Secretary of Energy; Cherry Murray to direct the Energy Department's office of science; and John Kotek to be assistant energy secretary for nuclear energy. 9:30 am , 366 Dirksen.
- Nov. 19, Washington: Center for Climate and Energy Solutions Bob Perciasepe, a former EPA acting administrator, to speak on the United Nations Paris conference on climate change at an event hosted by ICF International. 8:00 am , National Press Club.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

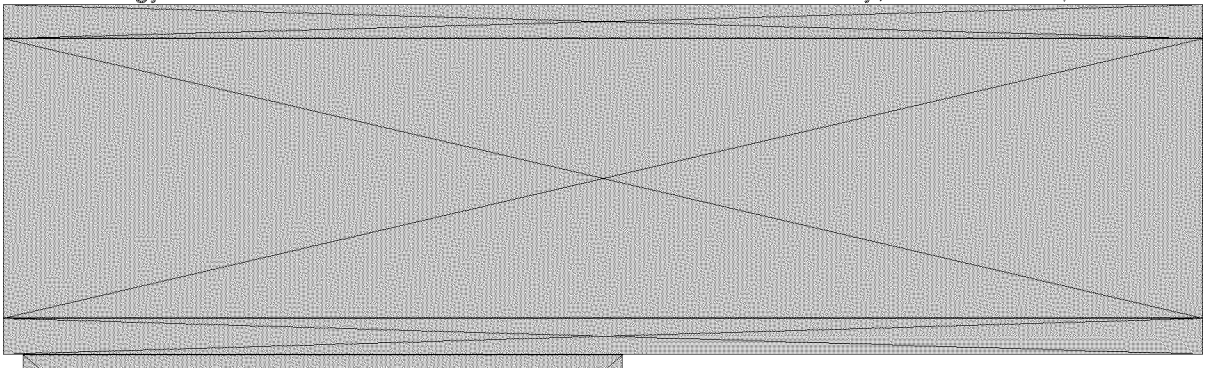
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

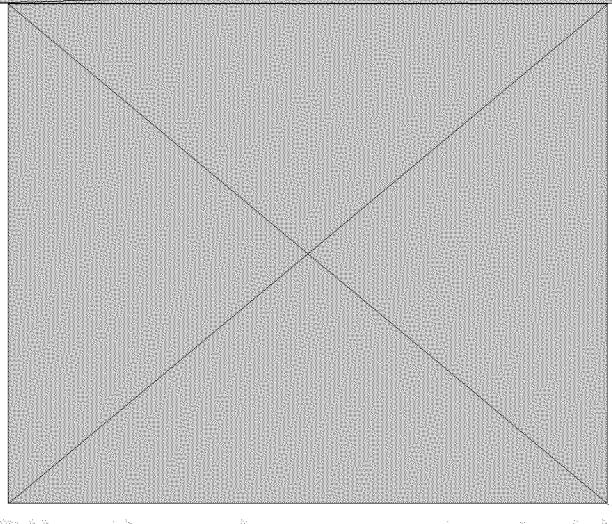
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Thur 11/19/2015 10:25:11 PM
Subject: Oil, ethanol groups trade blows with RFS imminent

Advertise | Contact

Energy and environment headlines for the afternoon of Thursday, November 19, 2015





Oil, ethanol groups trade blows with RFS imminent

By Kevin Rogers

With three years' worth of Renewable Fuel Standard blending levels set to be finalized as early as next week, the ethanol and oil industries are making their last pitches to the White House — and trading barbs with each other.

EPA plans to finalize late standards for 2014 and 2015 and complete its 2016 volumes by Nov. 30. The rules are currently under final review from the Office of Management and Budget, which is also meeting with industry stakeholders.

The Renewable Fuels Association and Growth Energy, at a Wednesday meeting with OMB, urged the government to break the "monopoly Big Oil has on the liquid fuels transporation market" and move the program forward.

The American Petroleum Institute, slated to meet OMB tomorrow, plans to tell the government not to "prop up" the ethanol market with higher blending mandates. In the runup to the meeting, the oil group unveiled a poll detailing registered voters' concerns with the mandate.

The final arguments presented to the Environmental Protection Agency mirror what the advocates have been saying since the three years' worth of biofuel blending levels were proposed in May.

The ethanol industry contends that EPA shortchanged the RFS by setting blending below the statutory levels set by the 2005 law that created the program. API and its allies, however, argue that the 2016 proposal would still put too much ethanol into the market and break the 10-percent "blend wall," where, refiners say, the market becomes saturated, to the detriment of engines and fueling infrastructure.

The Energy Information Administration projects that gasoline demand will hit a nine-year high in 2016, and, based on that, the ethanol groups pressed OMB for a billion-gallon increase over the amount of "conventional biofuels," most commonly ethanol, EPA proposed for next year's standards.

That would set total biofuel production at the statutory 15 billion gallons for the year, up from the 14 billion EPA proposed for ethanol and other conventional biofuels.

RFA President and CEO Bob Dinneen and Growth Energy CEO Tom Buis disputed the oil industry's protests that the move would break the ethanol "blend wall," which they call a ploy to dodge compliance with the law.

"This meeting was really our closing argument before the administration makes its final decision," they said in a statement. "We impressed upon OMB that the oil industry's 'blend wall' narrative is simply not true. The president needs to uphold the statute."

API, meanwhile, sought to highlight those blend wall concerns, as well as gasoline price fears, as it unveiled the results its telephone survey of registered voters.

The survey of 1,021 voters, prepared by the Harris Poll, found that 75 percent were concerned that exceeding 10 percent ethanol in the market could harm engines without protection from warranties; 78 percent were concerned that those levels could increase gasoline prices; and 77 percent said they were concerned that increased corn ethanol production could strain food prices.

The survey questions referenced the "blend wall" and the potential vehicle, price and food implications. The questions did not use the term "Renewable Fuel Standard" nor present any

potential benefits of the program. The poll had a margin of error of plus or minus 3 percentage points.

Dineen, in a statement, dismissed the poll.

"I would like to say that I am shocked API has stooped to such measures as trying to promote an obvious push poll, containing extremely biased questions, as a credible indication of public sentiment about the RFS and ethanol, but I am not," he said.

On a call with reporters, however, API Downstream Director Bob Greco said the poll indicated that the public, on a bipartisan basis, opposes stronger blending mandates. He said that view was held by majorities of Republicans, Democrats, and independents.

"The public gets it. Regardless of their party affiliation, voters are concerned with mandates that try to force too much ethanol into our fuel supply," he said.

Greco said API would argue in Friday's meeting that the ethanol industry is mature enough that it doesn't need a government boost through the RFS.

"If the ethanol industry believes they need to push it to 15 billion, that just underscores that the fuel is not competitive," he said.

The group will press to keep biofuels levels below 9.7 percent of the overall fuel supply.

With Thanksgiving next week, and with EPA Administrator Gina McCarthy headed to United Nations-sponsored climate talks in Paris on Nov. 30, Greco said the rules would likely be unveiled next week.

"The timing is interesting," he said. "I guess we would not be surprised if the rule came out next week. We will operate under that assumption, but you never know with these administrative actions ... but EPA continues to insist by November 30, despite Thanksgiving and the climate negotiations."

Agency spokeswoman Melissa Harrison would not offer any update beyond the Nov. 30 deadline, and OMB's last scheduled meeting on the standards will be with Biogas Researchers Inc. on Tuesday.

Quick Links

Manslaughter charges filed in deadly 2012 platform blast

Judge: Jurors must keep deliberating in ex-coal CEO trial

Regulators pause review of $2B line to ship Iowa wind energy

VW has only a few costly options to fix polluting diesels

Audi says US sales undiminished by diesel emissions scandal

Chevrolet Volt wins 'Green Car of the Year' at LA Auto Show

Crews continue cleanup after Northwest storm

Puerto Rico adopts land-use plan to regulate development

EU: Hungary not transparent in deal to expand power plant

Full startup of Hanford waste treatment pushed to 2039: DOE

House Dems looking for support to probe corporate climate policy

Kirk vote against CRAs came as a surprise

LCV goes Hollywood to skewer carbon rule opposition

Oil flirts with $40 mark, weighed down by oversupply

Arabs must keep investing in oil production, says Saudi minister

Mass. solar talks continue despite onset of legislature's winter recess

Pa. PUC judges back settlement in IDT polar vortex case

Reno region hopes to get boost from Tesla gigafactory

Climate change could put more polar bears in contact with people

Upcoming Events

Manslaughter charges filed in deadly 2012 platform blast

By Michael Kunzelman and Kevin McGill

NEW ORLEANS (AP) — A federal grand jury indicted two companies on involuntary manslaughter charges and three people face charges in a deadly 2012 explosion on an oil production platform in the Gulf of Mexico, the Justice Department said Thursday.

The explosion and fire started during welding work on a platform owned by Black Elk Energy Offshore Operations LLC, killing three workers and injuring several others. In lawsuits and a federal report, the company and its contractors have been accused of failing to follow proper safety practices and rushing work.

Black Elk Energy and one of its contractors, Grand Isle Shipyards Inc., were charged with three counts of involuntary manslaughter, as well as eight charges involving federal safety practices under the Outer Continental Shelf Lands Act and one violation of the Clean Water Act.

Another contractor, Wood Group PSN Inc., and three workers were charged with violating OCSLA and the Clean Water Act. The workers charged are Don Moss, 46, of Groves, Texas; Curtis Dantin, 50, of Cut Off, Louisiana; and Christopher Srubar, 40, of Destrehan, Louisiana.

More

Judge: Jurors must keep deliberating in ex-coal CEO trial

By Jonathan Matisse

CHARLESTON, W.Va. (AP) — Jurors told a federal judge Thursday that they cannot agree on a verdict in the trial of ex-Massey Energy CEO Don Blankenship, but the judge ordered them to continue deliberating.

The jury sent a note to U.S. District Judge Irene Berger late Thursday morning asking how long they should continue deliberating and saying they could not agree.

Berger assembled jurors in the Charleston, West Virginia, courtroom and told them that given the length of the trial and the number of witnesses, they must continue trying to reach a verdict.

The jury deliberated for an hour Tuesday and all day Wednesday.

Blankenship is charged with conspiring to break safety laws and defrauding mine regulators at West Virginia's Upper Big Branch Mine, and lying to financial regulators and investors about safety. The mine exploded in 2010, killing 29 men.

More

Regulators pause review of $2B line to ship Iowa wind energy

By Ryan J. Foley

IOWA CITY, Iowa (AP) — Regulators are suspending review of a proposed 500-mile, $2 billion transmission line that would take electricity produced by wind turbines in northwest Iowa to Illinois customers.

Rock Island Clean Line LLC said Thursday it asked the Iowa Utilities Board to pause a technical review of the project while it assesses how to move forward. The board has granted the request.

The project faces opposition from rural landowners. It was dealt a setback in February, when the board said it would decide whether to approve the project and whether to grant eminent domain in the same hearing. The developer had asked to separate those issues.

The company says the ruling means it must spend millions of dollars to acquire property while running the risk the project will ultimately be rejected.

VW has only a few costly options to fix polluting diesels

By Tom Krisher

DETROIT (AP) — When Volkswagen submits a plan to fix emissions-cheating diesel engines on Friday, it will have only two options for most of the cars.

It can install a bigger exhaust system to trap harmful nitrogen oxide, or it can retrofit a chemical treatment process that cuts pollution.

The bigger exhaust will likely hurt performance and gas mileage, angering car owners. But the chemical treatment, while saving acceleration and mileage, needs a clumsy storage tank and multiple hardware changes to work. In either case, almost a half-million cars would have to be recalled for the repairs.

Experts say both options will be expensive, perhaps so costly that it will be cheaper to buy back some of the older models.

More

Audi says US sales undiminished by diesel emissions scandal

By The Associated Press

LOS ANGELES (AP) — The emissions-rigging scandal that has engulfed German auto giant Volkswagen will not diminish sales of one of its luxury brands in the United States, the head of Audi of America predicted Wednesday.

In the two months since news broke that hundreds of thousands of diesel cars — mostly VWs, but also some Audi models — had their emissions devices doctored to beat US tailpipe tests, sales of Audis have been at record levels compared to the same months in years past, according to company data.

"We'll have a record November and a record December," Audi of America President Scott Keogh told reporters at the Los Angeles Auto Show. In 2014, Audi sold 36,000 cars in the U.S. in November and December.

Keogh added that while sales were important, fixing cars with emissions test "defeat devices" was a priority.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Chevrolet Volt wins 'Green Car of the Year' at LA Auto Show

By The Associated Press

LOS ANGELES (AP) — An auto industry magazine has named the 2016 Chevrolet Volt its "Green Car of the Year."

The hybrid gas-electric Volt was honored Thursday at the Los Angeles Auto Show.

Green Car Journal says the car won because of its extended range. Government fuel-economy figures show that the Volt can go 53 miles on electric power alone and 420 miles on gas and battery power.

It's the second time Green Car Journal has recognized the Volt, which also won the award with its first-generation model in 2011. That model could only go 38 miles on electricity

alone.

More

Crews continue cleanup after Northwest storm

By Lisa Baumann

SEATTLE (AP) — Well over 100,000 customers remained without power in Washington state Thursday after a powerful storm killed three people and prompted an emergency declaration from the governor.

Gov. Jay Inslee declared a state of emergency Wednesday for all Washington counties, clearing the way for state officials to increase aid to those with storm damage.

Winds on Tuesday exceeded 100 mph in some areas of the Inland Northwest.

A 54-year-old identified as Lea Anne Scott was killed when a tree fell in Spokane. Grant M. Strinden, 23, died when a tree crushed his car as he was driving in Snohomish County, authorities said, and a third victim, Carolyn M. Wilford, 70, was killed when a tree landed on her car on Highway 904 about 15 miles southwest of Spokane.

More

Puerto Rico adopts land-use plan to regulate development

By The Associated Press

SAN JUAN, Puerto Rico (AP) — Puerto Rico's governor has signed a land-use plan that aims to regulate development and protect the U.S. territory's natural resources.

Alejandro García Padilla says the plan identifies land according to its historical, agricultural, rural or urban value. He said Thursday that for decades Puerto Rico has been developed in an inconsistent way because there was no land-use plan.

He said the plan promotes more walkable cities and the use of mass transportation. García said it also protects 600,000 acres (243,000 hectares) of agricultural lands and will help the island prepare for climate change.

EU: Hungary not transparent in deal to expand power plant

Sponsored Links

By The Associated Press

BUDAPEST, Hungary (AP) — The European Union has opened a legal case against Hungary because of questions about contracts for the expansion of its only nuclear power plant.

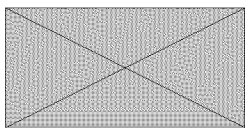
The EU Commission said Thursday that even after consultations with Hungary, it "still has concerns regarding the compatibility of the project with EU public procurement rules."

The expansion of the Soviet-built plant in the city of Paks will be carried out by Russia's state-owned Rosatom and is being financed mostly with a Russian loan of 10 billion euros ($10.7 billion).

Janos Lazar, Prime Minister Viktor Orban's chief of staff, said Hungarian and EU companies would be able to apply for up to 60 percent of the project's contracts.

More

Sponsored Links



Week in Review - Climate Talks Prep Continues

GOP Candidates Debate Energy and Climate Change.

Click here to read the brief

Full startup of Hanford waste treatment pushed to 2039: DOE

In a plan submitted in federal court, the Department of Energy says it will delay by 17 years full startup of a treatment plant to process nuclear waste at Hanford, Washington, the Los Angeles Times reports.

More

House Dems looking for support to probe corporate climate policy

In the wake of allegations that Exxon knew about risks from climate change decades ago but chose to sow doubt about them, Reps. Ted Lieu, D-Calif., and Peter Welch, D-Vt., are asking colleagues to join them in a letter to other corporations asking if they did the same thing, The Hill reports.

More

Kirk vote against CRAs came as a surprise

Both sides of the debate over climate policy are wary of where Sen. Mark Kirk, R-Ill., really stands, even though he voted against Congressional Review Act resolutions to roll back the Environmental Protection Agency's Clean Power Plan, National Journal reports.

More

LCV goes Hollywood to skewer carbon rule opposition

Jeff Goldblum and Ed Begley Jr. star in an internet video released by the League of Conservation Voters, which mocks industry opposition to the Environmental Protection Agency's Clean Power Plan, The Hill reports.

More

Oil flirts with $40 mark, weighed down by oversupply

A growth in stockpiles weighed on oil prices Thursday. Light, sweet crude for December delivery finished 21 cents lower to settle at $40.54 a barrel on the Nymex—although it dropped to $39.89 at one point in the trading day—while in London, Brent gained 4 cents to $44.18, The Wall Street Journal reports.

More

Arabs must keep investing in oil production, says Saudi minister

Despite the current crude glut, Arab countries need to add 5 million barrels of production per day every year in order to satisfy future demand, Saudi oil minister Ali al-Naimi told a conference in Bahrain Thursday, Platts reports.

More

Mass. solar talks continue despite onset of legislature's winter recess

The House and Senate in Massachusetts failed to reach agreement Wednesday night on a deal to raise net metering caps in the state, although conference negotiations continue even though lawmakers have departed for their winter break, State House News Service reports.

More

Pa. PUC judges back settlement in IDT polar vortex case

An order for IDT Energy to refund $2.4 million to customers—on top of the $4.2 million the company voluntarily refunded—for charges racked up during the freezing polar vortex winter has been approved by judges with the Pennsylvania Public Utility Commission, the Pittsburgh Post-Gazette reports.

Trouble seeing this email? Click here.

More

Reno region hopes to get boost from Tesla gigafactory

Reno, Nevada hopes it can benefit from "the Tesla effect"—construction of a battery gigafactory that offers the hope of a sustainable local industry not related to gambling, E&E reports.

More

Climate change could put more polar bears in contact with people

A study led by a biologist at the U.S. Geological Survey finds that, with sea ice melting as the Earth warms, Arctic polar bears are spending more time on land in the summer, which means there will be more chances of encounters with people, The Washington Post reports.

More

Upcoming Events

- Nov. 19, Arlington: Rep. Don Beyer, D-Va., to hold a forum on climate change at George Mason University, featuring panelists from the White House Office of Energy and Climate Change, the Environmental Protection Agency, George Mason University and the Natural Resources Defense Council 7:45 pm , George Mason University 3351 Fairfax Drive
- Nov. 19, Washington: Democrats on the House Energy and Commerce Committee and the Sustainable Energy & Environment Coalition to hold a forum on the global response to climate change. 2:00 pm , Capitol Visitor Center, HVC-210.
- Nov. 19, Washington: The Senate Energy and Natural Resources Committee to hold a business meeting to vote on 13 bills and advance the nominations of Suzette Kiball to lead the United States Geological Survey; Victoria Baecher Wassmer to be Under Secretary of Energy; Cherry Murray to direct the Energy Department's office of science; and John Kotek to be assistant energy secretary for nuclear energy. 9:30 am , 366 Dirksen.
- Nov. 19, Washington: Center for Climate and Energy Solutions Bob Perciasepe, a former EPA acting administrator, to speak on the United Nations Paris conference on climate change at an event hosted by ICF International. 8:00 am , National Press Club.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

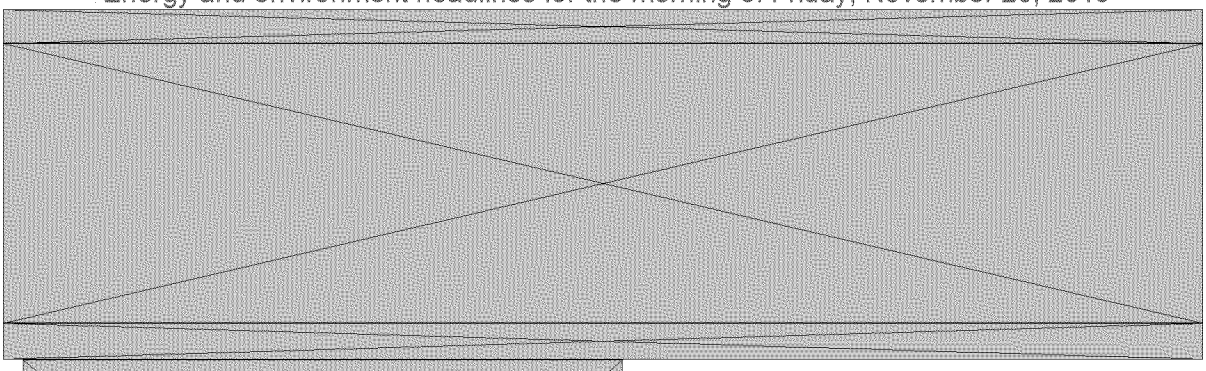
This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

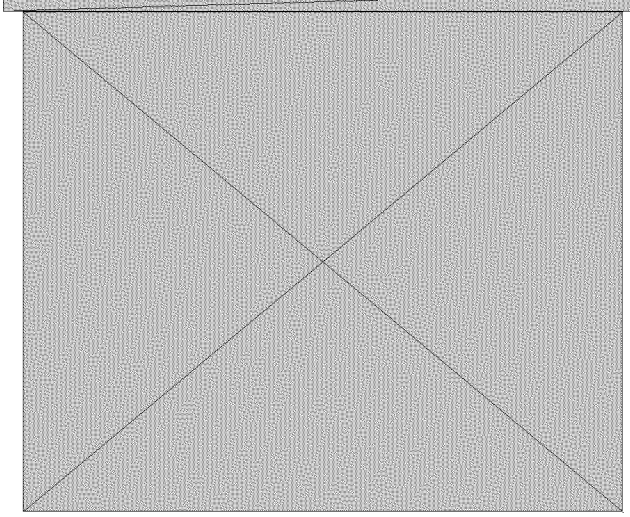
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Fri 11/20/2015 12:22:42 PM
Subject: GOP to Obama: Give us Paris vote, or lose climate funding

Advertise | Contact

Energy and environment headlines for the morning of Friday, November 20, 2015





GOP to Obama: Give us Paris vote, or lose climate funding

By Kevin Rogers

Senate Republicans are giving President Barack Obama an ultimatum on any United Nations-backed climate deal: allow the Senate to vote on any binding agreement, or it won't authorize climate funding for developing nations.

In a letter Thursday to Obama, Senate Environment and Public Works Committee Chairman James Inhofe, R-Okla., Sen. John Barrasso, R-Wyo., and 52 other Republicans warned the

president that he shouldn't go into Paris on Nov. 30 promising a commitment to the U.N. Green Climate Fund.

"We pledge that Congress will not allow U.S. taxpayer dollars to go to the Green Climate Fund until the forthcoming international climate agreement is submitted to the Senate for its constitutional advice and consent," the senators wrote.

They also urged Obama to tell State Department Special Envoy for Climate Change Todd Stern "to be forthcoming with his foreign counterparts representing developing nations in Paris about the views of members of Congress."

Congress must approve a new government funding bill by Dec. 11, the day the negotiations are set to conclude. Neither House nor Senate appropriators have approved funding for the climate fund, despite a $500 million request in Obama's budget.

However, an amendment to a Senate appropriations bill, authored by Sen. Jeff Merkley, D-Ore., would leave a door open for the State Department to put discretionary funds toward the program without additional congressional authorization.

Obama has pledged a total $3 billion to the fund, which offers climate aid to developing nations. The program seeks to mobilize $100 billion in finance annually by 2020.

A White House official who asked not to be identified said that fund remains a "priority for the president." The official also said that the shape of any climate agreement won't be determined until negotiations conclude, and it would be "premature to judge what an agreement's ultimate legal form would be."

Secretary of State John Kerry told the Financial Times last week that Obama was ready to use his own leverage to get the proper financing for the program during budget negotiations, suggesting a veto threat would be on the table to get the funding.

"If the president is prepared to veto the budget because it hasn't included it, you can usually find some money," Kerry said.

The letter wasn't the only tool senators unveiled Thursday to voice displeasure with a climate deal. Inhofe, joined by Sens. Roy Blunt, R-Mo., and Joe Manchin, D-W.Va., also introduced a non-binding resolution calling for Senate approval of any deal that includes policies that would put U.S. industry at a competitive disadvantage or require financial commitments, international oversight or future contributions.

Thursday's efforts cap off a long week of action against Obama's climate policies. Over the past few days, the Senate has approved resolutions to overturn the Environmental Protection Agency's power plant carbon regulations, while the House sent similar resolutions to the floor. Committees in both chambers also held hearings scrutinizing the administration's push for an international climate deal.

Democrats, however, have looked to boost the Paris conference, seeking a strong deal that would help forestall the worst impacts of climate change, while pressing for U.S. leadership on climate finance.

On Thursday, Democrats on the House Energy and Commerce Committee and members of the House Sustainable Energy & Environment Coalition held a forum featuring officials from Rwanda, the Republic of Seychelles, the Netherlands and France.

Ronald Jumeau, Seychelles' ambassador for climate change and small island developing state issues, told lawmakers that developed nations must take ambitious steps to ensure the most vulnerable countries can withstand climate change.

"This is an important moment for United States leadership in addressing our global future on climate change in ways that foster progress, sustainable growth and development and a globally sustainable economy," Jumeau said.

Democrats also used the forum to press Republicans to join them on climate policies and an international deal.

"It's time for Congress to stop bending to the will of special-interest polluters, and instead, to advance solutions that reduce our carbon emissions and invest in renewable energy," said Rep. John Sarbanes, D-Md.

Quick Links

Clean Line slows plan for $2B line to ship Iowa wind energy

No verdict in Blankenship trial, judge tells jurors to keep deliberating

Lawmakers want Corps, not EPA, to remediate landfill

VW weighs finances as it prepares to present US engines fix

What's for dinner? Genetically engineered salmon OK'd by FDA

Great Lakes levels expected to stay mostly above average

Michigan anti-fracking move fails

Lease sale bidders hope to unlock shale oil in Alaska

BLM pressed on environmental impact of fracking in Ohio forests

EPA settles with companies over gas processing in Pennsylvania

After Keystone, greens to push to 'keep it in the ground'

Low prices driving oil, gas companies to bankruptcy

Oil steady as traders pause

Fall in stock prices prompts reshuffle at NRG

Chesapeake bonds sink as investors worry about company debt

Another lawsuit filed over Casselton derailment

Upcoming Events

Clean Line slows plan for $2B line to ship Iowa wind energy

By Ryan J. Foley

IOWA CITY, Iowa (AP) — A company proposing a $2 billion transmission line to ship Iowa wind energy to electric customers in Illinois confirmed Thursday that it has asked regulators to suspend their review while the company figures out how best to move forward with its plan.

Clean Line Energy Partners said it is assessing plans for the Rock Island Clean Line, amid opposition from some landowners and uncertain odds of gaining regulatory approval. The Iowa Utilities Board has granted the company's request to pause a technical review of its petitions to build the high-voltage, overhead line through 16 counties.

The board is the last major regulatory agency needed to sign off on the line, which the company says would produce enough electricity to power 1.4 million homes in the Midwest. The project has hit a snag in Iowa because some rural landowners have refused to sign voluntary easements granting access to build on their land, and critics oppose the use of eminent domain for the line.

The line would start in northwest Iowa and ship power produced by wind turbines 500 miles to a converter station near Chicago. The Federal Energy Regulatory Commission approved the project in 2012, and the Illinois Commerce Commission gave its OK last year.

More

No verdict in Blankenship trial, judge tells jurors to

keep deliberating

By Jonathan Matisse

CHARLESTON, W.Va. (AP) — Jurors told a federal judge Thursday that they could not agree on a verdict in the trial of ex-Massey Energy CEO Don Blankenship, but the judge ordered them to continue deliberating.

The jury sent a note to U.S. District Judge Irene Berger late Thursday morning asking how long they should continue deliberating and saying they could not agree.

Berger assembled jurors in the Charleston, West Virginia, courtroom and told them that given the length of the trial and the number of witnesses, they must continue trying to reach a verdict.

The jury deliberated for an hour Tuesday and all day Wednesday and Thursday without reaching a verdict. They are set to resume Friday morning.

More

Lawmakers want Corps, not EPA, to remediate landfill

By Jim Salter

ST. LOUIS (AP) — Four members of Missouri's congressional delegation on Thursday called for the Army Corps of Engineers to take over remediation of the West Lake Landfill site in St. Louis County, saying the Environmental Protection Agency is moving too slowly in addressing concerns about nuclear contamination.

Sens. Roy Blunt and Claire McCaskill and Reps. Ann Wagner and William Lacy Clay introduced legislation to transfer remediation authority and put the site in the Corps' Formerly Utilized Sites Remedial Action Program. Blunt and Wagner are Republicans; McCaskill and Clay are Democrats.

Residents who live near West Lake have grown frustrated with delays in remediating the site. Transferring cleanup oversight to the Corps "will help move the process forward and finally give these families the peace of mind they deserve," Blunt said in a statement.

McCaskill said the change would be a "concrete, positive step forward in a process that's been stagnant for far too long."

More

VW weighs finances as it prepares to present US engines fix

By Donogh McCabe

WOLFSBURG, Germany (AP) — Volkswagen's board is discussing the automaker's future financial strategy in the wake of its emissions-rigging scandal, and was due to present to U.S. authorities later Friday its plan to fix the affected diesel engines.

The 20-member board began meeting Friday morning behind closed doors to talk about how to best balance savings and investment in light of the massive costs it can expect to incur from the scandal.

Volkswagen in September admitted that almost 500,000 of its four-cylinder diesel cars in the U.S. had cheated on emissions tests thanks to a piece of software. A total of 11 million cars worldwide have the software, though it has not yet been confirmed that it helped cheat on emissions tests outside the U.S.

The carmaker has set aside 6.7 billion euros ($7.4 billion) to cover the costs of recalling the vehicles installed with the software but experts say the total expense, including fines and lost sales, could be several times higher.

More

What's for dinner? Genetically engineered salmon OK'd by FDA

By Mary Clare Jalonick

WASHINGTON (AP) — What's for dinner? Before long, it may well be genetically modified salmon, the first such altered animal cleared for human consumption in the United States.

Critics call it "frankenfish," but the Food and Drug Administration granted its approval on Thursday, saying the faster-growing salmon is safe to eat. It could be available in a couple of years.

"There are no biologically relevant differences in the nutritional profile of AquAdvantage Salmon compared to that of other farm-raised Atlantic salmon," the agency said.

The Obama administration had stalled in approving the salmon for more than five years amid consumer concerns about genetically modified foods. The fish grows twice as fast as normal salmon, so it reaches market size more quickly.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Great Lakes levels expected to stay mostly above average

By John Flesher

TRAVERSE CITY, Mich. (AP) — Water levels in the Great Lakes should remain mostly above average over the next six months as a powerful El Nino gives the region a break after two bitterly cold winters, but it's unclear whether there will be longer-term effects, federal scientists said Thursday.

El Nino, the warming of surface waters in the Pacific Ocean that can significantly influence weather in North America, is expected to bring milder temperatures and less snow across the lakes that hold nearly one-fifth of the world's surface fresh water, National Weather Service hydrologist Jim Noel said.

Those conditions are unlikely to alter the seasonal pattern of Great Lakes levels, which tend to rise in spring, peak in summer and decline in fall, said Keith Kompoltowicz, hydrology chief with the U.S. Army Corps of Engineers' district office in Detroit. But the fluctuations may be less pronounced than usual, partly because of El Nino's effects on evaporation and precipitation.

"We don't see any extreme events in terms of lake levels on the horizon," Kompoltowicz said as scientists released an updated forecast for the Great Lakes, which have rebounded sharply after a prolonged slump that lasted from 1998 through 2012.

More

Michigan anti-fracking move fails

Activists fighting hydraulic fracturing in Michigan failed to get enough signatures on a petition to put the issue on the ballot in 2016, the Detroit Free Press reports.

More

Lease sale bidders hope to unlock shale oil in Alaska

ConocoPhillips expanded its Alaska holdings in a federal lease sale this week, while independents Accumulate Energy Alaska Inc. and Burgundy Xploration LLC paid the state $4.7 million for 121 tracts on the North Slope where they hope to find success in shale drilling, the Alaska Dispatch News reports.

More

BLM pressed on environmental impact of fracking in Ohio forests

Those opposed to allowing fracking in Ohio's Wayne National Forest are calling on the Bureau of Land Management to do a full-scale environmental impact study before deciding on whether to allow oil and gas drilling there, The Associated Press reports.

More

EPA settles with companies over gas processing in Pennsylvania

Oklahoma-based Elkhorn Investments and Elkhorn Gas Processing have reached an agreement with the Environmental Protection Agency to pay a penalty of more than $50,000 and correct defects in five Pennsylvania gas processing plants that could have resulted in environmental harm in the event of any spills or leaks, NPR's StateImpact Pennsylvania reports.

More

After Keystone, greens to push to 'keep it in the ground'

Now that President Obama has rejected the Keystone XL pipeline, environmentalists are focusing on the looming Paris climate negotiations before turning their attention to fighting to keep fossil fuel reserves in the ground, The Hill reports.

More

Low prices driving oil, gas companies to bankruptcy

Law firm Hayes and Boone says 37 oil and gas companies, carrying $13.1 billion in debt, have filed for Chapter 11 bankruptcy protection so far in 2015, and more may be coming before the end of December, The Wall Street Journal reports.

More

Oil steady as traders pause

Market fatigue was responsible for the sluggish movement in oil prices early Friday despite

continuing concerns about the global glut, an analyst told Reuters. West Texas Intermediate crude was unchanged at $40.54 a barrel in electronic trading on the Nymex, remaining on track for a weekly loss, while in London Brent gained 25 cents to $44.43.

More

Fall in stock prices prompts reshuffle at NRG

NRG Energy has appointed a new treasurer as the power company makes adjustments in the face of declining share prices, and continues its cost cutting while moving away from money-losing renewable ventures, FuelFix reports.

More

Chesapeake bonds sink as investors worry about company debt

Most of Chesapeake Energy Corp.'s bonds hit all-time lows Thursday and its shares sunk to levels not seen in 13 years, as investors seek to bail in the face of the company's likely credit rating downgrade, FuelFix reports.

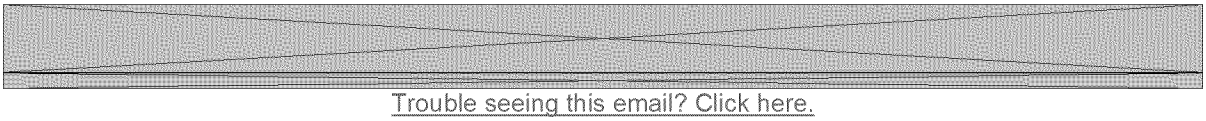
More

Another lawsuit filed over Casselton derailment

A second railroad worker – a train conductor -- has filed suit against BNSF, alleging that negligent safety practices left him injured after an oil train derailed in North Dakota two years ago, The Forum reports.

More

Upcoming Events



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

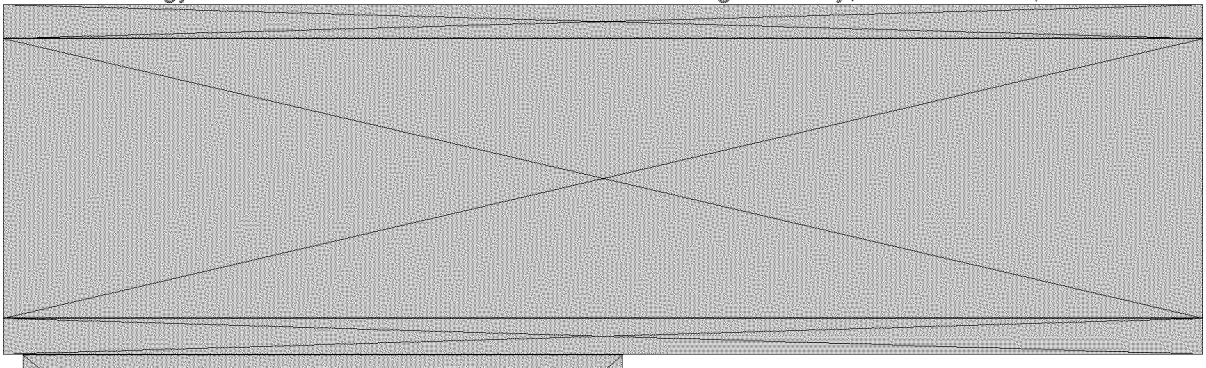
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

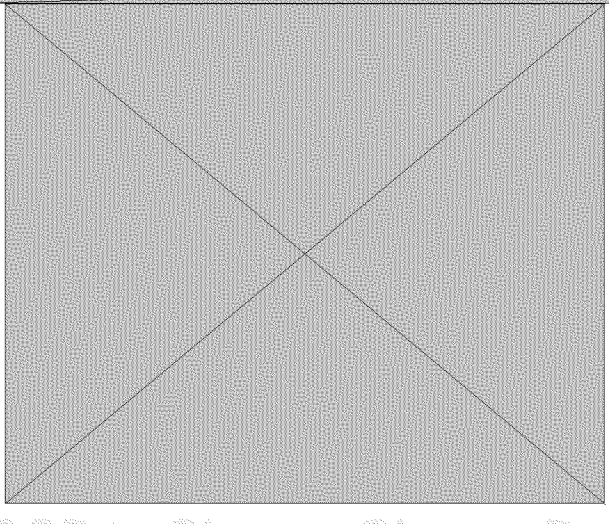
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Fri 11/20/2015 12:22:42 PM
Subject: GOP to Obama: Give us Paris vote, or lose climate funding

Advertise | Contact

Energy and environment headlines for the morning of Friday, November 20, 2015





GOP to Obama: Give us Paris vote, or lose climate funding

By Kevin Rogers

Senate Republicans are giving President Barack Obama an ultimatum on any United Nations-backed climate deal: allow the Senate to vote on any binding agreement, or it won't authorize climate funding for developing nations.

In a letter Thursday to Obama, Senate Environment and Public Works Committee Chairman James Inhofe, R-Okla., Sen. John Barrasso, R-Wyo., and 52 other Republicans warned the

president that he shouldn't go into Paris on Nov. 30 promising a commitment to the U.N. Green Climate Fund.

"We pledge that Congress will not allow U.S. taxpayer dollars to go to the Green Climate Fund until the forthcoming international climate agreement is submitted to the Senate for its constitutional advice and consent," the senators wrote.

They also urged Obama to tell State Department Special Envoy for Climate Change Todd Stern "to be forthcoming with his foreign counterparts representing developing nations in Paris about the views of members of Congress."

Congress must approve a new government funding bill by Dec. 11, the day the negotiations are set to conclude. Neither House nor Senate appropriators have approved funding for the climate fund, despite a $500 million request in Obama's budget.

However, an amendment to a Senate appropriations bill, authored by Sen. Jeff Merkley, D-Ore., would leave a door open for the State Department to put discretionary funds toward the program without additional congressional authorization.

Obama has pledged a total $3 billion to the fund, which offers climate aid to developing nations. The program seeks to mobilize $100 billion in finance annually by 2020.

A White House official who asked not to be identified said that fund remains a "priority for the president." The official also said that the shape of any climate agreement won't be determined until negotiations conclude, and it would be "premature to judge what an agreement's ultimate legal form would be."

Secretary of State John Kerry told the Financial Times last week that Obama was ready to use his own leverage to get the proper financing for the program during budget negotiations, suggesting a veto threat would be on the table to get the funding.

"If the president is prepared to veto the budget because it hasn't included it, you can usually find some money," Kerry said.

The letter wasn't the only tool senators unveiled Thursday to voice displeasure with a climate deal. Inhofe, joined by Sens. Roy Blunt, R-Mo., and Joe Manchin, D-W.Va., also introduced a non-binding resolution calling for Senate approval of any deal that includes policies that would put U.S. industry at a competitive disadvantage or require financial commitments, international oversight or future contributions.

Thursday's efforts cap off a long week of action against Obama's climate policies. Over the past few days, the Senate has approved resolutions to overturn the Environmental Protection Agency's power plant carbon regulations, while the House sent similar resolutions to the floor. Committees in both chambers also held hearings scrutinizing the administration's push for an international climate deal.

Democrats, however, have looked to boost the Paris conference, seeking a strong deal that would help forestall the worst impacts of climate change, while pressing for U.S. leadership on climate finance.

On Thursday, Democrats on the House Energy and Commerce Committee and members of the House Sustainable Energy & Environment Coalition held a forum featuring officials from Rwanda, the Republic of Seychelles, the Netherlands and France.

Ronald Jumeau, Seychelles' ambassador for climate change and small island developing state issues, told lawmakers that developed nations must take ambitious steps to ensure the most vulnerable countries can withstand climate change.

"This is an important moment for United States leadership in addressing our global future on climate change in ways that foster progress, sustainable growth and development and a globally sustainable economy," Jumeau said.

Democrats also used the forum to press Republicans to join them on climate policies and an international deal.

"It's time for Congress to stop bending to the will of special-interest polluters, and instead, to advance solutions that reduce our carbon emissions and invest in renewable energy," said Rep. John Sarbanes, D-Md.

Quick Links

Clean Line slows plan for $2B line to ship Iowa wind energy

No verdict in Blankenship trial, judge tells jurors to keep deliberating

Lawmakers want Corps, not EPA, to remediate landfill

VW weighs finances as it prepares to present US engines fix

What's for dinner? Genetically engineered salmon OK'd by FDA

Great Lakes levels expected to stay mostly above average

Michigan anti-fracking move fails

Lease sale bidders hope to unlock shale oil in Alaska

BLM pressed on environmental impact of fracking in Ohio forests

EPA settles with companies over gas processing in Pennsylvania

After Keystone, greens to push to 'keep it in the ground'

Low prices driving oil, gas companies to bankruptcy

Oil steady as traders pause

Fall in stock prices prompts reshuffle at NRG

Chesapeake bonds sink as investors worry about company debt

Another lawsuit filed over Casselton derailment

Upcoming Events

Clean Line slows plan for $2B line to ship Iowa wind energy

By Ryan J. Foley

IOWA CITY, Iowa (AP) — A company proposing a $2 billion transmission line to ship Iowa wind energy to electric customers in Illinois confirmed Thursday that it has asked regulators to suspend their review while the company figures out how best to move forward with its plan.

Clean Line Energy Partners said it is assessing plans for the Rock Island Clean Line, amid opposition from some landowners and uncertain odds of gaining regulatory approval. The Iowa Utilities Board has granted the company's request to pause a technical review of its petitions to build the high-voltage, overhead line through 16 counties.

The board is the last major regulatory agency needed to sign off on the line, which the company says would produce enough electricity to power 1.4 million homes in the Midwest. The project has hit a snag in Iowa because some rural landowners have refused to sign voluntary easements granting access to build on their land, and critics oppose the use of eminent domain for the line.

The line would start in northwest Iowa and ship power produced by wind turbines 500 miles to a converter station near Chicago. The Federal Energy Regulatory Commission approved the project in 2012, and the Illinois Commerce Commission gave its OK last year.

More

No verdict in Blankenship trial, judge tells jurors to

keep deliberating

By Jonathan Matisse

CHARLESTON, W.Va. (AP) — Jurors told a federal judge Thursday that they could not agree on a verdict in the trial of ex-Massey Energy CEO Don Blankenship, but the judge ordered them to continue deliberating.

The jury sent a note to U.S. District Judge Irene Berger late Thursday morning asking how long they should continue deliberating and saying they could not agree.

Berger assembled jurors in the Charleston, West Virginia, courtroom and told them that given the length of the trial and the number of witnesses, they must continue trying to reach a verdict.

The jury deliberated for an hour Tuesday and all day Wednesday and Thursday without reaching a verdict. They are set to resume Friday morning.

More

Lawmakers want Corps, not EPA, to remediate landfill

By Jim Salter

ST. LOUIS (AP) — Four members of Missouri's congressional delegation on Thursday called for the Army Corps of Engineers to take over remediation of the West Lake Landfill site in St. Louis County, saying the Environmental Protection Agency is moving too slowly in addressing concerns about nuclear contamination.

Sens. Roy Blunt and Claire McCaskill and Reps. Ann Wagner and William Lacy Clay introduced legislation to transfer remediation authority and put the site in the Corps' Formerly Utilized Sites Remedial Action Program. Blunt and Wagner are Republicans; McCaskill and Clay are Democrats.

Residents who live near West Lake have grown frustrated with delays in remediating the site. Transferring cleanup oversight to the Corps "will help move the process forward and finally give these families the peace of mind they deserve," Blunt said in a statement.

McCaskill said the change would be a "concrete, positive step forward in a process that's been stagnant for far too long."

More

VW weighs finances as it prepares to present US engines fix

By Donogh McCabe

WOLFSBURG, Germany (AP) — Volkswagen's board is discussing the automaker's future financial strategy in the wake of its emissions-rigging scandal, and was due to present to U.S. authorities later Friday its plan to fix the affected diesel engines.

The 20-member board began meeting Friday morning behind closed doors to talk about how to best balance savings and investment in light of the massive costs it can expect to incur from the scandal.

Volkswagen in September admitted that almost 500,000 of its four-cylinder diesel cars in the U.S. had cheated on emissions tests thanks to a piece of software. A total of 11 million cars worldwide have the software, though it has not yet been confirmed that it helped cheat on emissions tests outside the U.S.

The carmaker has set aside 6.7 billion euros ($7.4 billion) to cover the costs of recalling the vehicles installed with the software but experts say the total expense, including fines and lost sales, could be several times higher.

More

What's for dinner? Genetically engineered salmon OK'd by FDA

By Mary Clare Jalonick

WASHINGTON (AP) — What's for dinner? Before long, it may well be genetically modified salmon, the first such altered animal cleared for human consumption in the United States.

Critics call it "frankenfish," but the Food and Drug Administration granted its approval on Thursday, saying the faster-growing salmon is safe to eat. It could be available in a couple of years.

"There are no biologically relevant differences in the nutritional profile of AquAdvantage Salmon compared to that of other farm-raised Atlantic salmon," the agency said.

The Obama administration had stalled in approving the salmon for more than five years amid consumer concerns about genetically modified foods. The fish grows twice as fast as normal salmon, so it reaches market size more quickly.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Great Lakes levels expected to stay mostly above average

By John Flesher

TRAVERSE CITY, Mich. (AP) — Water levels in the Great Lakes should remain mostly above average over the next six months as a powerful El Nino gives the region a break after two bitterly cold winters, but it's unclear whether there will be longer-term effects, federal scientists said Thursday.

El Nino, the warming of surface waters in the Pacific Ocean that can significantly influence weather in North America, is expected to bring milder temperatures and less snow across the lakes that hold nearly one-fifth of the world's surface fresh water, National Weather Service hydrologist Jim Noel said.

Those conditions are unlikely to alter the seasonal pattern of Great Lakes levels, which tend to rise in spring, peak in summer and decline in fall, said Keith Kompoltowicz, hydrology chief with the U.S. Army Corps of Engineers' district office in Detroit. But the fluctuations may be less pronounced than usual, partly because of El Nino's effects on evaporation and precipitation.

"We don't see any extreme events in terms of lake levels on the horizon," Kompoltowicz said as scientists released an updated forecast for the Great Lakes, which have rebounded sharply after a prolonged slump that lasted from 1998 through 2012.

More

Michigan anti-fracking move fails

Activists fighting hydraulic fracturing in Michigan failed to get enough signatures on a petition to put the issue on the ballot in 2016, the Detroit Free Press reports.

More

Lease sale bidders hope to unlock shale oil in Alaska

ConocoPhillips expanded its Alaska holdings in a federal lease sale this week, while independents Accumulate Energy Alaska Inc. and Burgundy Xploration LLC paid the state $4.7 million for 121 tracts on the North Slope where they hope to find success in shale drilling, the Alaska Dispatch News reports.

More

BLM pressed on environmental impact of fracking in Ohio forests

Those opposed to allowing fracking in Ohio's Wayne National Forest are calling on the Bureau of Land Management to do a full-scale environmental impact study before deciding on whether to allow oil and gas drilling there, The Associated Press reports.

More

EPA settles with companies over gas processing in Pennsylvania

Oklahoma-based Elkhorn Investments and Elkhorn Gas Processing have reached an agreement with the Environmental Protection Agency to pay a penalty of more than $50,000 and correct defects in five Pennsylvania gas processing plants that could have resulted in environmental harm in the event of any spills or leaks, NPR's StateImpact Pennsylvania reports.

More

After Keystone, greens to push to 'keep it in the ground'

Now that President Obama has rejected the Keystone XL pipeline, environmentalists are focusing on the looming Paris climate negotiations before turning their attention to fighting to keep fossil fuel reserves in the ground, The Hill reports.

More

Low prices driving oil, gas companies to bankruptcy

Law firm Hayes and Boone says 37 oil and gas companies, carrying $13.1 billion in debt, have filed for Chapter 11 bankruptcy protection so far in 2015, and more may be coming before the end of December, The Wall Street Journal reports.

More

Oil steady as traders pause

Market fatigue was responsible for the sluggish movement in oil prices early Friday despite

continuing concerns about the global glut, an analyst told Reuters. West Texas Intermediate crude was unchanged at $40.54 a barrel in electronic trading on the Nymex, remaining on track for a weekly loss, while in London Brent gained 25 cents to $44.43.

More

Fall in stock prices prompts reshuffle at NRG

NRG Energy has appointed a new treasurer as the power company makes adjustments in the face of declining share prices, and continues its cost cutting while moving away from money-losing renewable ventures, FuelFix reports.

More

Chesapeake bonds sink as investors worry about company debt

Most of Chesapeake Energy Corp.'s bonds hit all-time lows Thursday and its shares sunk to levels not seen in 13 years, as investors seek to bail in the face of the company's likely credit rating downgrade, FuelFix reports.

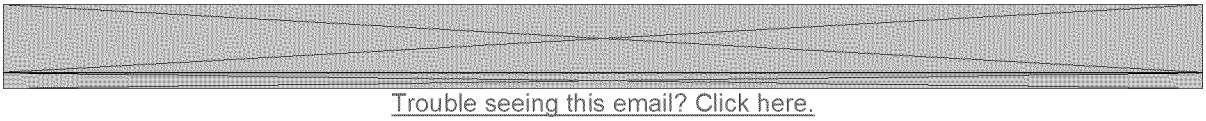
More

Another lawsuit filed over Casselton derailment

A second railroad worker – a train conductor -- has filed suit against BNSF, alleging that negligent safety practices left him injured after an oil train derailed in North Dakota two years ago, The Forum reports.

More

Upcoming Events



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ex. 7
Ex. 7
From: Ex. 7
Sent: Fri 11/20/2015 4:14:43 PM
Subject: VW Group - Request for Approval for Extension of MY 2015 Common Section Submittal

Hello Jim,

We also submitted today a RFA for the Final MY 2015 common section submission.

Please advise.

Regards,

Ex. 7

From: Ex. 7
Sent: Friday, November 20, 2015 10:34 AM
To: Snyder, Jim <snyder.jim@epa.gov>
Cc: Ex. 7
Ex. 7
Subject: VW Group - Request for Approval for MY2017 ADP

Hello Jim,

Today we submitted the Request for Approval of carryover VW Group Alternate Durability Procedures to Verify.

Please advise us of your feedback at your earliest convenience.

Regards,

Ex. 7

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone

Fax:

mailto:

Ex. 7

To: Wehrly, Linc[wehrly.linc@epa.gov]; Lieske, Christopher[lieske.christopher@epa.gov]
Cc: Ex. 7 Ex. 7
Ex. 7
From: Ex. 7
Sent: Fri 11/20/2015 6:49:59 PM
Subject: Ex. 7
C_MY 2012-2013 Off-Cycle Application_Confidential.pdf

Hello Linc, Chris,

Please find attached our updated application for Light Duty GHG off-cycle credits for MY2012-2013. This update is in response to some clarification questions that Chris had asked us to look into. I copied them below.

Please let me know if there's any additional info we can provide.

Thanks for your help,

Ex. 7

From: Lieske, Christopher

Sent: Thursday, September 10, 2015 4:44 PM

To: Wehrly, Linc

Cc: Olechiw, Michael; Moran, Robin

Subject: RE: **Ex. 7**

Linc -

I found the following which may or may not be issues.

- I couldn't figure out the calculations for lighting for the 2012 Tiguan, 2012-2013 Tourag, 2013 Beetle, and 2012-2013 EOS in Section 3. These may not be correct.

- The high beam credits are missing from the 2012 Audi lighting so the credits don't add up in Section 3.

- No Cd delta is provided that I could find for ride height so the calculation can't be reproduced

- Two Cd delta's are provided for the spoiler, 0.008 and 0.020. With 0.008, the 0.2 g/mile credit they are claiming can be calculated. They seem to be also claiming a 0.2 g/mile credit for the spoiler with the 0.020 Cd delta even though it seems like the credit would be greater in this case

Ex. 7

Engineering and Environmental Office

Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326
Phone
Cell: (
FAX:
E-Mai

Ex. 7

To: Bunker, Byron[bunker.byron@epa.gov]
Cc: Cook, Leila[cook.leila@epa.gov]
From: Ex. 7
Sent: Fri 11/20/2015 9:20:07 PM
Subject: Brad Stertz

Can you send me the details of the press statement? The Reuters report you quoted?

Thanks,

Ex. 7

To: Ex. 7
Cc: Cook, Leila[cook.leila@epa.gov]
From: Bunker, Byron
Sent: Fri 11/20/2015 9:21:37 PM
Subject: RE: Brad Stertz

Reuters (via Yahoo!)

https://in.finance.yahoo.com/news/vw-emissions-issue-larger-vehicles-182153677.html?utm_source=twitterfeed&utm_medium=twitter

VW emissions issue extends to additional 75,000 vehicles

By David Shepardson

WASHINGTON (Reuters) - Volkswagen AG (VOWG_p.DE) has told U.S. regulators that emissions issues in larger luxury cars and SUVs extend to an additional 75,000 vehicles dating back to 2009, the U.S. Environmental Protection Agency said on Friday.

The disclosure widened the VW scandal, which had previously focussed mainly on smaller-engined, mass-market cars, and raised the possibility that engineers at both the Audi and VW brands could have been involved in separate emissions schemes.

The EPA and California Air Resources Board on Nov. 2 accused VW of evading emissions in at least 10,000 Audi, Porsche and VW sport utility vehicles and cars with 3.0-liter V-6 diesel engines. VW initially denied the findings.

During a meeting on Thursday, VW and Audi officials told the EPA that the issues extend to all 3.0-liter diesel engines from model years 2009 through 2016. The new disclosure covers a total of 85,000 vehicles, the EPA said.

California Air Resources Board spokesman Dave Clegern said Audi admitted that the vehicles had auxiliary emissions control equipment that was not disclosed to the U.S. government.

"That should have been reported," Clegern said, adding that the agencies are now investigating whether that constituted intentional cheating on VW's part.

Audi spokesman Brad Stertz said that the auxiliary emissions control software is legal in Europe, but that Audi did not "properly notify regulators" of the device.

"We are willing to take another crack at reprogramming to a degree that the regulators deem acceptable," Stertz said. The cost of reflashing the software is relatively minor, in the "double digits millions of euros," he added.

In September, VW admitted it had installed software that allowed 482,000 diesel cars with 2.0L sold in the United States since 2009 to emit up to 40 times allowable emissions by only activating emissions controls during laboratory testing.

VW faces investigations around the world, including from the U.S. Justice Department - and could face up to $18 billion in U.S. fines. The new disclosure could add another $3.2 billion in fines.

(Editing by Soyoung Kim and Matthew Lewis)

-

****

Byron Bunker

Director Compliance Division

Office of Transportation and Air Quality

Environmental Protection Agency

2000 Traverwood Drive

Ann Arbor, MI 48105

Bunker.Byron@epa.gov

Phone: (734) 214-4155

Mobile: (734) 353-9623

****

From: Ex. 7
Sent: Friday, November 20, 2015 4:20 PM
To: Bunker, Byron
Cc: Cook, Leila
Subject: Brad Stertz

Can you send me the details of the press statement? The Reuters report you quoted?

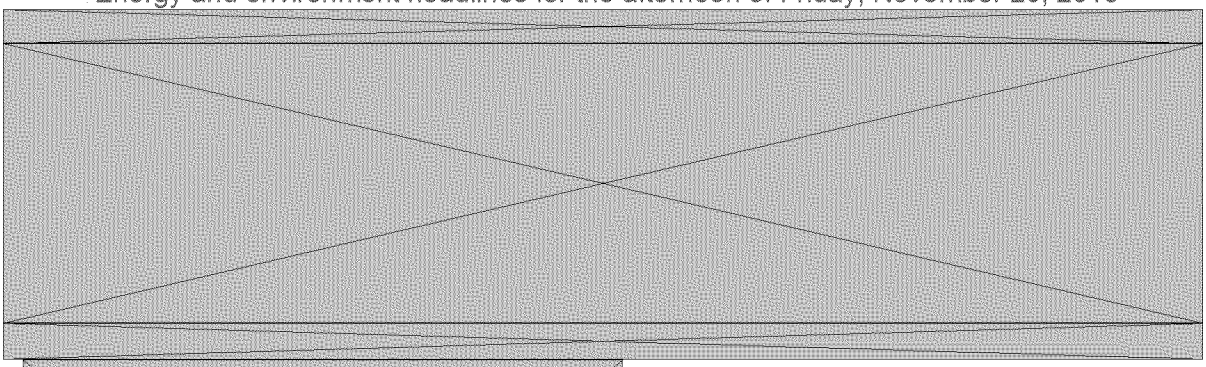
Thanks,

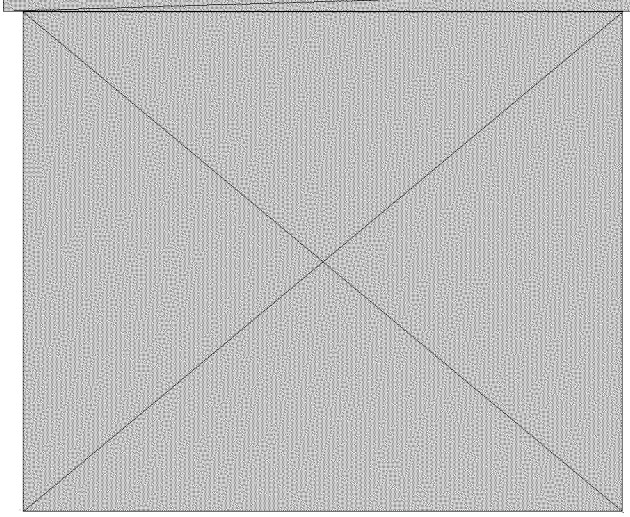
Ex. 7

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Fri 11/20/2015 10:38:54 PM
Subject: EPA's VW probe expands to 75,000 more vehicles

Advertise | Contact

Energy and environment headlines for the afternoon of Friday, November 20, 2015





EPA's VW probe expands to 75,000 more vehicles

By Kevin Rogers

The Environmental Protection Agency and the California Air Resources Board on Friday said that their investigation into Volkswagen's emissions cheating scandal would expand to an additional 75,000 vehicles on the road.

In a Thursday meeting, officials from VW and Audi told the regulators that software the government alleges to be a "defeat device" to evade nitrogen oxide emissions testing — which VW denies — had been installed in all vehicles with six-cylinder, three-liter diesel engines from model years 2009 to 2016, not just the 10,000 originally cited by officials.

"EPA and CARB will continue to investigate and will take all appropriate action," EPA said.

Friday's announcement builds upon the allegations in a Nov. 2 Notice of Violation of the Clean Air Act that said 10,000 six-cylinder cars with model years between 2014 and 2016 included the "defeat devices."

The agencies say the software keeps the vehicles' emissions at legal levels during testing but allows the vehicles to emit up to nine times that limit while on the road.

VW Group, which includes Audi, Porsche and other luxury brands, denied wrongdoing in connection with the six-cylinder cars, describing the issue as a failure to adequately describe a software function in the company's application for certificates of conformity with Clean Air Act standards.

Audi Chief Communications Officer Jeri Ward said that the company was "continuing to cooperate" with the agencies on the investigation.

"It's not a new issue. This is part of a process. We're having an ongoing dialogue with CARB and EPA," Ward said. "We're cooperating with the regulators and having productive conversations with them."

Ward said that Audi had implemented a voluntary stop on sales of model years 2009 to 2016 as the investigation continues. She said that it affected approximately 32,000 vehicles from the 2014 to 2016 range and about 13,000 pre-owned vehicles from the 2009 to 2013 models.

The six-cylinder allegation is separate from the larger emissions cheating scandal, estimated to affect nearly 500,000 four-cylinder vehicles in the U.S. Volkswagen has admitted to installing defeat device software in 11 million vehicles worldwide, leading to the resignation of CEO Martin Winterkorn in September.

The software in those vehicles allows them to emit 40 times the legal limit of nitrogen oxide while driving. The company has set aside $7.38 billion to repair those vehicles.

EPA has not issued a recall for vehicles in either set and says they're still safe and legal to drive.

Also Friday, Volkswagen's new CEO, Matthias Müller, told a board of directors meeting in Wolfsburg, Germany that the company would cut capital investments by $1.07 billion next year in response to the emissions scandal.

"We are operating in uncertain and volatile times and are responding to this," he said in a statement following the meeting. "We will strictly prioritize all planned investments and expenditures. As announced, anything that is not absolutely necessary will be canceled or postponed."

He added that the company would boost its investment in development of alternate drive technologies by $107 million next year.

"We are not going to make the mistake of economizing on our future," he said.

Leaders of the House Energy and Commerce Committee, including Chairman Rep. Fred Upton, R-Mich., and ranking member Rep. Frank Pallone, D-N.J., said the new revelations would be included in their ongoing probe of the scandal.

"Today's announcement adds to the growing list of troubling questions for Volkswagen and we need answers," they said. "Our investigation continues."

Quick Links

Colorado area open to Superfund cleanup after mine spill

Judge denies Washington kids' petition on climate change

As jury deliberates, judge says no mistrial for ex-coal CEO

Shrinking Amazon forests may lose thousands of trees species

Airstrikes hurt, but don't halt, IS oil smuggling operations

Tesla recalling all Model S sedans for seat belt issue

Carson, Rubio, O'Malley among Sunday TV news show guests

Greenpeace: Indian court stays order canceling work permit

Carbon trading model coming in August, says Obama administration

House Democrats push Obama administration on biofuels

Natural gas storage breaks 4 trillion mark

Oil mixed Friday but up for the week

Drop in oil rig count to 5-year low of 564

Simulated grid attack that 'breaks the system' would be 'rare' in real life: NERC chief

Iowa voter's question sees Trump change direction on wind

Is Lamar Smith's climate science probe a 'witch hunt'?

No sign of promised state Energy Department review in Oregon

Fight over solar power rumbles on in Florida

Upcoming Events

Colorado area open to Superfund cleanup after mine spill

By Dan Elliott

DENVER (AP) — Southwestern Colorado officials said Friday that they are ready to talk to the Environmental Protection Agency about a federally financed Superfund cleanup of inactive mines, including one that spewed millions of gallons of wastewater and polluted rivers in three states this summer.

It would be an important step toward cleaning up hundreds of idle mines that have been pouring acidic wastewater into the Animas River north of Silverton for years. No laws required mine operators to mitigate environmental damage, and in many cases, the owners simply walked away when mining ceased.

"It's a direction we're heading in," San Juan County Administrator Willie Tookey said of a Superfund designation.

Some residents of the tourism-dependent community are wary of a Superfund listing, fearing it could discourage visitors, depress property values and take years to resolve. But the Aug. 5 spill at the Gold King Mine increased pressure to act.

More

Judge denies Washington kids' petition on climate change

By Phuong Le

SEATTLE (AP) — A judge has denied an appeal by eight young activists who petitioned Washington state to adopt stricter science-based regulations to protect them against climate change.

King County Superior Court Judge Hollis Hill affirmed some of the children's arguments, saying the state has a duty to protect natural resources for future generations. But she said the Washington Department of Ecology is already working on meeting that obligation by writing new rules for greenhouse gas emissions ordered by the governor.

Climate activists, ages 10 to 15, in Seattle brought the lawsuit asking the court to force state officials to adopt new rules to limit carbon emissions based on the best available science. The case is part of a nationwide effort led by the Oregon-based nonprofit Our Children's Trust to force states and the federal government to take action on climate change.

The judge noted in her ruling Thursday that the Ecology Department is taking science into account, along with economic, social and political considerations. She also said the court can't dictate how officials develop the rules.

More

As jury deliberates, judge says no mistrial for ex-coal CEO

By Jonathan Matisse

CHARLESTON, W.Va. (AP) — As a jury deliberated for a third full day in the criminal trial of in ex-Massey Energy CEO Don Blankenship, the judge turned down a motion for a mistrial.

Jurors have been trying since Tuesday evening to reach a decision. Blankenship is charged with conspiring to break safety laws at the Upper Big Branch coal mine and defraud mine regulators in the years before an explosion killed 29 men at the mine in southern West Virginia in 2010. He's also accused of lying to financial regulators and investors about company safety.

On Friday, Defense attorney William Taylor told U.S. District Judge Irene Berger that because many jurors face a round trip to court of two hours or longer and they want to be sure they are home for Thanksgiving, they would be coerced into reaching a verdict.

Berger denied the motion and said jurors may have Wednesday, Thursday and Friday off next week.

More

Shrinking Amazon forests may lose thousands of trees species

By Seth Borenstein

WASHINGTON (AP) — A first-of-its-kind examination of the Amazon's trees found that as many as half the species may be threatened with extinction or heading that way because of massive deforestation. Among the more than 5,000 tree species in deep trouble: the ones that produce Brazil nuts and mahogany.

An international team of 158 scientists found that depending on the degree to which deforestation comes under control in the next 35 years, between 36 and 57 percent of the 16,000 tree species in the tropical rainforest area would be considered threatened. Their study is published in Friday's edition of Science Advances.

The range rests on whether cutting down the region's forest continues at the rate of the late 20th and early 21st centuries or slows down to lesser levels proposed in 2006, study authors said. If deforestation continues at the same pace, nearly 8,700 tree types are in trouble, but the number of species at risk could be as low as 5,500 if nations are able to cut back as planned, said study co-author Nigel Pitman from the Field Museum in Chicago.

"We've never had a good idea of how many species are threatened in the Amazon," Pitman said Friday. "Now with this study, we have an estimate."

More

Airstrikes hurt, but don't halt, IS oil smuggling operations

By Zeina Karam and Susannah George

BEIRUT (AP) — The United States and Russia are going after the Islamic State group's oil industry, destroying refineries and hundreds of tanker trucks transporting oil from eastern Syria in a heavy bombardment in recent days aiming to break the extremists' biggest source of income.

The campaign already appears to be having some effect, with oil prices rising in areas of Syria that rely on crude smuggled out of IS areas. But experts say it will be difficult to cut off the militants' trade completely since they are likely to switch to smaller, more elusive vehicles.

Putting a total end to the industry would mean destroying the oil fields in Syria, but that would also bring hardship to millions in the population under IS rule and others who depend on the group's oil, causing fuel shortages as winter sets in. Otherwise, taking the fields would require ground forces.

Still, the campaign could hit hard on an industry that U.S. officials say generates more than half the revenue the Islamic State group uses to maintain its rule over its swath of territory across Syria and Iraq and pay its fighters.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Tesla recalling all Model S sedans for seat belt issue

By Dee-Ann Durbin

DETROIT (AP) — Tesla Motors is recalling its entire fleet of Model S sedans to check their front seat belts after one passenger's seat belt became disconnected.

The recall — the company's largest ever — involves 90,000 cars worldwide. Tesla sent an email Friday to affected customers.

Tesla's other vehicles, the Model X SUV and the Roadster, aren't affected. Seat belts in the back seat of the Model S also aren't affected.

About two weeks ago, Tesla said, a customer in Europe reported that her seat belt disconnected when she turned to talk to rear passengers. The woman was not injured and her car has been repaired.

More

Carson, Rubio, O'Malley among Sunday TV news show guests

By The Associated Press

WASHINGTON (AP) — Guest lineups for the Sunday TV news shows:

- ABC's "This Week" — Republican presidential candidate Ben Carson; Democratic presidential candidate Martin O'Malley.
- NBC's "Meet the Press" — Republican presidential candidate John Kasich; former Defense Secretary Leon Panetta.
- CBS' "Face the Nation" — Republican presidential candidate Rand Paul; Sen. Dianne

Feinstein, D-Calif.; Rep. Michael McCaul, R-Texas; Brett McGurk, presidential envoy for the global coalition to counter the Islamic State group.

- CNN's "State of the Union" — Reps. Devin Nunes, R-Calif., and Marsha Blackburn, R-Tenn.
- "Fox News Sunday" — Republican presidential candidate Marco Rubio.

Greenpeace: Indian court stays order canceling work permit

By Muneeza Naqvi

NEW DELHI (AP) — Greenpeace India said Friday that a court has put on hold a government order canceling its registration to operate in India.

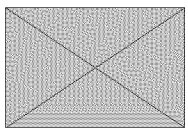
The court ruled that the environmental group could continue to operate in the country until a final verdict is reached on charges of financial irregularities that the government has leveled against it, said Hozefa Merchant, a campaigner with the group.

In April the government suspended Greenpeace India's registration for six months, saying it was underreporting foreign contributions and using them without government clearance. Greenpeace challenged the order in court.

However, earlier this month Tamil Nadu state, where the group was registered, canceled the permit. The organization said the cancellation came on orders of India's home ministry. The home ministry did not comment on the group's claim.

More

Sponsored Links



Week in Review - Senators say no climate deal without their approval

Pass 'disapproval' resolutions on power plant rules.

Click here to read the brief

Carbon trading model coming in August, says Obama administration

The new version of the unified regulatory agenda, which sets the schedule for the Obama administration's new rules, promises an August date to issue a model for carbon trading schemes that states could use to comply with the Environmental Protection Agency's Clean

Power Plan, E&E reports.

More

House Democrats push Obama administration on biofuels

"Keep in mind the need to reduce carbon pollution," four Democrats, including House Minority Leader Nancy Pelosi, wrote to senior White House adviser Brian Deese, urging him to keep the Renewable Fuel Standard "robust," Reuters reports.

More

Natural gas storage breaks 4 trillion mark

The U.S. has more than 4 trillion cubic feet of natural gas in underground storage in the lower 48 states for the first time ever, The Wall Street Journal reports.

More

Oil mixed Friday but up for the week

A drop in oil rigs, the strength of the dollar and the expiration of the December contract led to a volatile day for oil, but even so prices were up about 2 percent for the week. The December contract for West Texas Intermediate expired with a Friday loss of 15 cents, settling at $40.39, Reuters reports, while in London, January Brent rose 48 cents to $44.66 a barrel.

More

Drop in oil rig count to 5-year low of 564

The number of rigs drilling for oil in the U.S. fell by 10 this week to 564—according to data from oil field services firm Baker Hughes—less than half of the peak, hit in 2014, FuelFix reports.

More

Simulated grid attack that 'breaks the system' would be 'rare' in real life: NERC chief

Gerry Cauley, head of the North American Reliability Corp., says an exercise his group ran this past week simulating a strike on the nation's power system—which would have resulted in millions facing long-term power outages—was on a scale that would be very difficult for actual attackers to replicate, E&E reports.

More

Iowa voter's question sees Trump change direction on wind

Donald Trump said in response to a question from an Iowa voter about wind energy Thursday night that he was "okay with subsidies, to an extent," a reversal of his long-standing opposition to wind farms, The Washington Post reports.

More

Is Lamar Smith's climate science probe a 'witch hunt'?

The ranking member of the House Science, Space and Technology Committee—Rep. Eddie Bernice Johnson, D-Texas—says chairman Lamar Smith, R-Texas, is conducting a "witch hunt" in his campaign against a National Oceanic and Atmospheric Administration temperature study, while Smith on Friday accused NOAA of altering the data, The Hill reports.

More

No sign of promised state Energy Department review in Oregon

New Oregon Gov. Kate Brown has pledged a tough and thorough review of the state's scandal-plagued Department of Energy, but there's been no apparent move yet to follow through, The Oregonian reports.

More

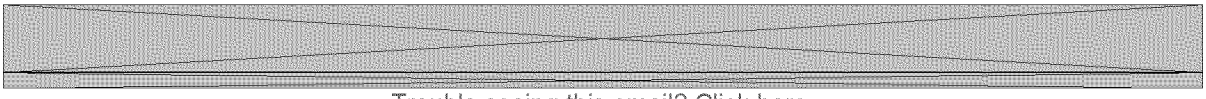
Fight over solar power rumbles on in Florida

Solar advocates and utilities are trying to get competing referendums on changing Florida's solar regulations onto the state ballot, the Miami Herald reports.

More

Upcoming Events

- Nov. 20, Austin: House Science, Space and Technology Chairman Rep. Lamar Smith, R-Texas, to give a keynote address on the Environmental Protection Agency's "shredding of science and the Constitution" at the Texas Public Policy Foundation's Energy & Climate Policy Summit. Senate Majority Whip Sen. John Cornyn, R-Texas, also set to speak on legal challenges to federal action. 8:30 am , 901 Congress Avenue Austin, TX 78701



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

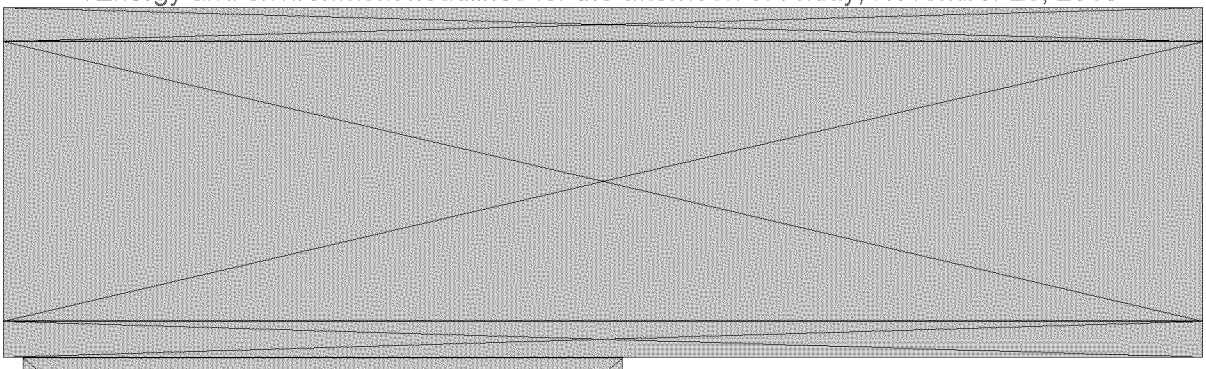
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

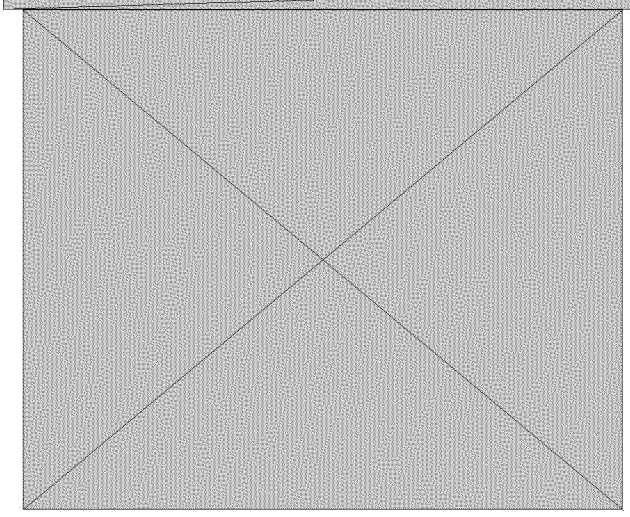
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Fri 11/20/2015 10:38:54 PM
Subject: EPA's VW probe expands to 75,000 more vehicles

Advertise | Contact

Energy and environment headlines for the afternoon of Friday, November 20, 2015





EPA's VW probe expands to 75,000 more vehicles

By Kevin Rogers

The Environmental Protection Agency and the California Air Resources Board on Friday said that their investigation into Volkswagen's emissions cheating scandal would expand to an additional 75,000 vehicles on the road.

In a Thursday meeting, officials from VW and Audi told the regulators that software the government alleges to be a "defeat device" to evade nitrogen oxide emissions testing — which VW denies — had been installed in all vehicles with six-cylinder, three-liter diesel engines from model years 2009 to 2016, not just the 10,000 originally cited by officials.

"EPA and CARB will continue to investigate and will take all appropriate action," EPA said.

Friday's announcement builds upon the allegations in a Nov. 2 Notice of Violation of the Clean Air Act that said 10,000 six-cylinder cars with model years between 2014 and 2016 included the "defeat devices."

The agencies say the software keeps the vehicles' emissions at legal levels during testing but allows the vehicles to emit up to nine times that limit while on the road.

VW Group, which includes Audi, Porsche and other luxury brands, denied wrongdoing in connection with the six-cylinder cars, describing the issue as a failure to adequately describe a software function in the company's application for certificates of conformity with Clean Air Act standards.

Audi Chief Communications Officer Jeri Ward said that the company was "continuing to cooperate" with the agencies on the investigation.

"It's not a new issue. This is part of a process. We're having an ongoing dialogue with CARB and EPA," Ward said. "We're cooperating with the regulators and having productive conversations with them."

Ward said that Audi had implemented a voluntary stop on sales of model years 2009 to 2016 as the investigation continues. She said that it affected approximately 32,000 vehicles from the 2014 to 2016 range and about 13,000 pre-owned vehicles from the 2009 to 2013 models.

The six-cylinder allegation is separate from the larger emissions cheating scandal, estimated to affect nearly 500,000 four-cylinder vehicles in the U.S. Volkswagen has admitted to installing defeat device software in 11 million vehicles worldwide, leading to the resignation of CEO Martin Winterkorn in September.

The software in those vehicles allows them to emit 40 times the legal limit of nitrogen oxide while driving. The company has set aside $7.38 billion to repair those vehicles.

EPA has not issued a recall for vehicles in either set and says they're still safe and legal to drive.

Also Friday, Volkswagen's new CEO, Matthias Müller, told a board of directors meeting in Wolfsburg, Germany that the company would cut capital investments by $1.07 billion next year in response to the emissions scandal.

"We are operating in uncertain and volatile times and are responding to this," he said in a statement following the meeting. "We will strictly prioritize all planned investments and expenditures. As announced, anything that is not absolutely necessary will be canceled or postponed."

He added that the company would boost its investment in development of alternate drive technologies by $107 million next year.

"We are not going to make the mistake of economizing on our future," he said.

Leaders of the House Energy and Commerce Committee, including Chairman Rep. Fred Upton, R-Mich., and ranking member Rep. Frank Pallone, D-N.J., said the new revelations would be included in their ongoing probe of the scandal.

"Today's announcement adds to the growing list of troubling questions for Volkswagen and we need answers," they said. "Our investigation continues."

Quick Links

Colorado area open to Superfund cleanup after mine spill

Judge denies Washington kids' petition on climate change

As jury deliberates, judge says no mistrial for ex-coal CEO

Shrinking Amazon forests may lose thousands of trees species

Airstrikes hurt, but don't halt, IS oil smuggling operations

Tesla recalling all Model S sedans for seat belt issue

Carson, Rubio, O'Malley among Sunday TV news show guests

Greenpeace: Indian court stays order canceling work permit

Carbon trading model coming in August, says Obama administration

House Democrats push Obama administration on biofuels

Natural gas storage breaks 4 trillion mark

Oil mixed Friday but up for the week

Drop in oil rig count to 5-year low of 564

Simulated grid attack that 'breaks the system' would be 'rare' in real life: NERC chief

Iowa voter's question sees Trump change direction on wind

Is Lamar Smith's climate science probe a 'witch hunt'?

No sign of promised state Energy Department review in Oregon

Fight over solar power rumbles on in Florida

Upcoming Events

Colorado area open to Superfund cleanup after mine spill

By Dan Elliott

DENVER (AP) — Southwestern Colorado officials said Friday that they are ready to talk to the Environmental Protection Agency about a federally financed Superfund cleanup of inactive mines, including one that spewed millions of gallons of wastewater and polluted rivers in three states this summer.

It would be an important step toward cleaning up hundreds of idle mines that have been pouring acidic wastewater into the Animas River north of Silverton for years. No laws required mine operators to mitigate environmental damage, and in many cases, the owners simply walked away when mining ceased.

"It's a direction we're heading in," San Juan County Administrator Willie Tookey said of a Superfund designation.

Some residents of the tourism-dependent community are wary of a Superfund listing, fearing it could discourage visitors, depress property values and take years to resolve. But the Aug. 5 spill at the Gold King Mine increased pressure to act.

More

Judge denies Washington kids' petition on climate change

By Phuong Le

SEATTLE (AP) — A judge has denied an appeal by eight young activists who petitioned Washington state to adopt stricter science-based regulations to protect them against climate change.

King County Superior Court Judge Hollis Hill affirmed some of the children's arguments, saying the state has a duty to protect natural resources for future generations. But she said the Washington Department of Ecology is already working on meeting that obligation by writing new rules for greenhouse gas emissions ordered by the governor.

Climate activists, ages 10 to 15, in Seattle brought the lawsuit asking the court to force state officials to adopt new rules to limit carbon emissions based on the best available science. The case is part of a nationwide effort led by the Oregon-based nonprofit Our Children's Trust to force states and the federal government to take action on climate change.

The judge noted in her ruling Thursday that the Ecology Department is taking science into account, along with economic, social and political considerations. She also said the court can't dictate how officials develop the rules.

More

As jury deliberates, judge says no mistrial for ex-coal CEO

By Jonathan Matisse

CHARLESTON, W.Va. (AP) — As a jury deliberated for a third full day in the criminal trial of in ex-Massey Energy CEO Don Blankenship, the judge turned down a motion for a mistrial.

Jurors have been trying since Tuesday evening to reach a decision. Blankenship is charged with conspiring to break safety laws at the Upper Big Branch coal mine and defraud mine regulators in the years before an explosion killed 29 men at the mine in southern West Virginia in 2010. He's also accused of lying to financial regulators and investors about company safety.

On Friday, Defense attorney William Taylor told U.S. District Judge Irene Berger that because many jurors face a round trip to court of two hours or longer and they want to be sure they are home for Thanksgiving, they would be coerced into reaching a verdict.

Berger denied the motion and said jurors may have Wednesday, Thursday and Friday off next week.

More

Shrinking Amazon forests may lose thousands of trees species

By Seth Borenstein

WASHINGTON (AP) — A first-of-its-kind examination of the Amazon's trees found that as many as half the species may be threatened with extinction or heading that way because of massive deforestation. Among the more than 5,000 tree species in deep trouble: the ones that produce Brazil nuts and mahogany.

An international team of 158 scientists found that depending on the degree to which deforestation comes under control in the next 35 years, between 36 and 57 percent of the 16,000 tree species in the tropical rainforest area would be considered threatened. Their study is published in Friday's edition of Science Advances.

The range rests on whether cutting down the region's forest continues at the rate of the late 20th and early 21st centuries or slows down to lesser levels proposed in 2006, study authors said. If deforestation continues at the same pace, nearly 8,700 tree types are in trouble, but the number of species at risk could be as low as 5,500 if nations are able to cut back as planned, said study co-author Nigel Pitman from the Field Museum in Chicago.

"We've never had a good idea of how many species are threatened in the Amazon," Pitman said Friday. "Now with this study, we have an estimate."

More

Airstrikes hurt, but don't halt, IS oil smuggling operations

By Zeina Karam and Susannah George

BEIRUT (AP) — The United States and Russia are going after the Islamic State group's oil industry, destroying refineries and hundreds of tanker trucks transporting oil from eastern Syria in a heavy bombardment in recent days aiming to break the extremists' biggest source of income.

The campaign already appears to be having some effect, with oil prices rising in areas of Syria that rely on crude smuggled out of IS areas. But experts say it will be difficult to cut off the militants' trade completely since they are likely to switch to smaller, more elusive vehicles.

Putting a total end to the industry would mean destroying the oil fields in Syria, but that would also bring hardship to millions in the population under IS rule and others who depend on the group's oil, causing fuel shortages as winter sets in. Otherwise, taking the fields would require ground forces.

Still, the campaign could hit hard on an industry that U.S. officials say generates more than half the revenue the Islamic State group uses to maintain its rule over its swath of territory across Syria and Iraq and pay its fighters.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Tesla recalling all Model S sedans for seat belt issue

By Dee-Ann Durbin

DETROIT (AP) — Tesla Motors is recalling its entire fleet of Model S sedans to check their front seat belts after one passenger's seat belt became disconnected.

The recall — the company's largest ever — involves 90,000 cars worldwide. Tesla sent an email Friday to affected customers.

Tesla's other vehicles, the Model X SUV and the Roadster, aren't affected. Seat belts in the back seat of the Model S also aren't affected.

About two weeks ago, Tesla said, a customer in Europe reported that her seat belt disconnected when she turned to talk to rear passengers. The woman was not injured and her car has been repaired.

More

Carson, Rubio, O'Malley among Sunday TV news show guests

By The Associated Press

WASHINGTON (AP) — Guest lineups for the Sunday TV news shows:

- ABC's "This Week" — Republican presidential candidate Ben Carson; Democratic presidential candidate Martin O'Malley.
- NBC's "Meet the Press" — Republican presidential candidate John Kasich; former Defense Secretary Leon Panetta.
- CBS' "Face the Nation" — Republican presidential candidate Rand Paul; Sen. Dianne

Feinstein, D-Calif.; Rep. Michael McCaul, R-Texas; Brett McGurk, presidential envoy for the global coalition to counter the Islamic State group.

- CNN's "State of the Union" — Reps. Devin Nunes, R-Calif., and Marsha Blackburn, R-Tenn.
- "Fox News Sunday" — Republican presidential candidate Marco Rubio.

Greenpeace: Indian court stays order canceling work permit

By Muneeza Naqvi

NEW DELHI (AP) — Greenpeace India said Friday that a court has put on hold a government order canceling its registration to operate in India.

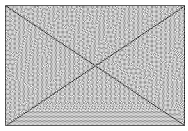
The court ruled that the environmental group could continue to operate in the country until a final verdict is reached on charges of financial irregularities that the government has leveled against it, said Hozefa Merchant, a campaigner with the group.

In April the government suspended Greenpeace India's registration for six months, saying it was underreporting foreign contributions and using them without government clearance. Greenpeace challenged the order in court.

However, earlier this month Tamil Nadu state, where the group was registered, canceled the permit. The organization said the cancellation came on orders of India's home ministry. The home ministry did not comment on the group's claim.

More

Sponsored Links



Week in Review - Senators say no climate deal without their approval

Pass 'disapproval' resolutions on power plant rules.

Click here to read the brief

Carbon trading model coming in August, says Obama administration

The new version of the unified regulatory agenda, which sets the schedule for the Obama administration's new rules, promises an August date to issue a model for carbon trading schemes that states could use to comply with the Environmental Protection Agency's Clean

Power Plan, E&E reports.

More

House Democrats push Obama administration on biofuels

"Keep in mind the need to reduce carbon pollution," four Democrats, including House Minority Leader Nancy Pelosi, wrote to senior White House adviser Brian Deese, urging him to keep the Renewable Fuel Standard "robust," Reuters reports.

More

Natural gas storage breaks 4 trillion mark

The U.S. has more than 4 trillion cubic feet of natural gas in underground storage in the lower 48 states for the first time ever, The Wall Street Journal reports.

More

Oil mixed Friday but up for the week

A drop in oil rigs, the strength of the dollar and the expiration of the December contract led to a volatile day for oil, but even so prices were up about 2 percent for the week. The December contract for West Texas Intermediate expired with a Friday loss of 15 cents, settling at $40.39, Reuters reports, while in London, January Brent rose 48 cents to $44.66 a barrel.

More

Drop in oil rig count to 5-year low of 564

The number of rigs drilling for oil in the U.S. fell by 10 this week to 564—according to data from oil field services firm Baker Hughes—less than half of the peak, hit in 2014, FuelFix reports.

More

Simulated grid attack that 'breaks the system' would be 'rare' in real life: NERC chief

Gerry Cauley, head of the North American Reliability Corp., says an exercise his group ran this past week simulating a strike on the nation's power system—which would have resulted in millions facing long-term power outages—was on a scale that would be very difficult for actual attackers to replicate, E&E reports.

More

Iowa voter's question sees Trump change direction on wind

Donald Trump said in response to a question from an Iowa voter about wind energy Thursday night that he was "okay with subsidies, to an extent," a reversal of his long-standing opposition to wind farms, The Washington Post reports.

More

Is Lamar Smith's climate science probe a 'witch hunt'?

The ranking member of the House Science, Space and Technology Committee—Rep. Eddie Bernice Johnson, D-Texas—says chairman Lamar Smith, R-Texas, is conducting a "witch hunt" in his campaign against a National Oceanic and Atmospheric Administration temperature study, while Smith on Friday accused NOAA of altering the data, The Hill reports.

More

No sign of promised state Energy Department review in Oregon

New Oregon Gov. Kate Brown has pledged a tough and thorough review of the state's scandal-plagued Department of Energy, but there's been no apparent move yet to follow through, The Oregonian reports.

More

Fight over solar power rumbles on in Florida

Solar advocates and utilities are trying to get competing referendums on changing Florida's solar regulations onto the state ballot, the Miami Herald reports.

More

Upcoming Events

- Nov. 20, Austin: House Science, Space and Technology Chairman Rep. Lamar Smith, R-Texas, to give a keynote address on the Environmental Protection Agency's "shredding of science and the Constitution" at the Texas Public Policy Foundation's Energy & Climate Policy Summit. Senate Majority Whip Sen. John Cornyn, R-Texas, also set to speak on legal challenges to federal action. 8:30 am , 901 Congress Avenue Austin, TX 78701

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

BOOOOYAAS.XML

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA STREET
HOUSTON, TEXAS 77002-5096
(713) 651-9366
FAX (713) 654-6666
WWW.SUSMANGODFREY.COM

SUITE 5100
901 MAIN STREET
DALLAS, TEXAS 75202-3775
(214) 754-1900

SUITE 950
1901 AVENUE OF THE STARS
LOS ANGELES, CALIFORNIA 90067-6029
(310) 789-3100

SUITE 3800
1201 THIRD AVENUE
SEATTLE, WASHINGTON 98101-3000
(206) 516-3880

15TH FLOOR
560 LEXINGTON AVENUE
NEW YORK, NEW YORK 10022-6828
(212) 336-8330

ROBERT S. SAFI
DIRECT DIAL (713) 653-7850

E-MAIL RSAFI@SUSMANGODFREY.COM

November 6, 2015

VIA CERTIFIED MAIL

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
William Jefferson Clinton Federal Building
Washington, DC 20460

Volkswagen AG
Audi AG
Porsche AG
Volkswagen Group of America, Inc.
Porsche Cars North America, Inc.
Thru:

Ex. 7

Joseph Folz
Vice President, General Counsel and
Secretary
Porsche Cars North America, Inc.
One Porsche Drive
Atlanta, GA 30354

Ex. 7

Walter J. Lewis
Manager, Regulatory Affairs
Porsche Cars North America, Inc.
980 Hammond Drive, Suite 1000
Atlanta, GA 30328

[State addressees listed at the end]

3963705v2/014996

Re: Notice of Clean Air Act Violations Pursuant to 42 U.S.C. § 7604(b)(1)(A)

Ladies and Gentlemen,

We represent Rich Hill, Elvis Foster, Robert Nesbitt, Joe Howbert, Callum Dorey, Don Cunningham, Angelyen Wood, Marcia Andru Moshe, Edmund Steppan, Mireya Perez, Kristen Van de Biezenbos, Ann Marie Stief, William Stief, Thomas C. Jorgensen, Kartik Pillutla, Kathryn Sue Vordenberg, Michael Brown, Carol Spindel, Jason Welch, Thomas Bassett, Joshua R. Geller, Michelle Geller, Fred M. Flores, Gary Butterwei, Terri Butterwei, Thomas Michael Carran, Michael Fuerstein, Grant Garcia, Howard Katz, Timothy P. Yerkes, Beth Glassman, Stephanie Waddoups, Mary Jones, Diego Alberto Diaz, Michael Santos, Mark Pomerantz, and Tiffany Ford, individually and on behalf of all others similarly situated (collectively, "Plaintiffs"), and write to provide notice of violations of the Clean Air Act ("CAA") by Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") to the Administrator of the EPA, to the States in which the violation occurs (in this case, all fifty States and the District of Columbia), and to the alleged violators of the CAA. This is notice is pursuant to 42 U.S.C. § 7604(b)(1)(A), and is made 60 days before Plaintiffs commence a civil action against VW to enforce the applicable emission standards or limitations and to recover civil penalties, costs of litigation (including reasonable attorney and expert witness fees), and all other relief that is proper in citizen suits under the CAA.

The allegations in this notice are based on the Notices of Violation issued by the United States Environmental Protection Agency ("EPA") on September 18, 2015 and November 2, 2015. As stated therein, the EPA has investigated and continues to investigate Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") for compliance with the CAA, 42 U.S.C. §§ 7401-7671q, and its implementing regulations. The EPA has determined that VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0 liter engines, and certain model year 2014 through 2016 diesel light-duty vehicles equipped with 3.0 liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles' emission control system that exist to comply with CAA emission standards. Therefore, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B). Additionally, the EPA has determined that, due to the existence of the defeat devices in these vehicles, these vehicles do not conform in all material respects to the vehicle specifications described in the applications for the certificates of conformity that

VW FOIA, EPA 06/20/2017 2017-FFP_036218

purportedly cover them. Therefore, VW also violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing these vehicles, or for causing any of the foregoing acts.

Law Governing Alleged Violations

This notice arises under Part A of Title II of the CAA, 42 U.S.C. §§ 7521-7554, and the regulations promulgated thereunder. In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting dangers to the public health and welfare." CAA § 101(a)(2), 42 U.S.C. § 7401(a)(2). Congress' purpose in creating the CAA, in part, was "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." CAA § 101(b)(l)-(2), 42 U.S.C. § 740 l (b)(l)-(2). The CAA and the regulations promulgated thereunder aim to protect human health and the environment by reducing emissions of nitrogen oxides (NOx) and other pollutants from mobile sources of air pollution. Nitrogen oxides are a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds (VOCs) that produce ozone (smog) on hot summer days. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma. Children are at greatest risk of experiencing negative health impacts from exposure to ozone.

The allegations here concern light-duty motor vehicles for which 40 C.F.R. Part 86 sets emission standards and test procedures and section 203 of the CAA, 42 U.S.C. § 7522, sets compliance provisions. Light-duty vehicles must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce.

To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-0l(d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of

VW FOIA, EPA 06/20/2017 2017-FFP_036219

activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) such conditions are substantially included in the Federal emission test procedure; (2) the need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) the AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control systems performance are AECDs. EPA, *Advisory Circular Number 24-2: Prohibition of Emission Control Defeat Devices - Optional Objective Criteria* (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-10(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications), 86.1848-01(b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should

VW FOIA, EPA 06/20/2017 2017-FFP_036220

know that such part or component is being offered for sale or installed for such use or put to such use."' CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86. 1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(l), 42 U.S.C. § 7522(a)(l); 40 C.F.R. § 86.1854-1 2(a)(l). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854-12(a).

2.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of these vehicles that sensed when the vehicle was being tested for compliance with EPA emission standards. The EPA calls this the "switch." The "switch" senses whether the vehicle is being tested or not based on various inputs including the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs precisely track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA emission testing, the vehicles' ECM ran software which produced compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). At all other times during normal vehicle operation, the "switch", was activated and the vehicle ECM software ran a separate "road calibration" which reduced the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean Ox trap). As a result, emissions of Ox increased by a factor of 10 to 40 times above the EPA compliant levels, depending on the type of drive cycle (e.g., city, highway).

The California Air Resources Board (CARB) and the EPA were alerted to emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. VW issued a voluntary recall in December 2014 to address the issue. CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the

VW FOIA, EPA 06/20/2017 2017-FFP_036221

testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' on board diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing. It became clear that CARB and the EPA would not approve certificates of conformity for VW's 2016 model year diesel vehicles until VW could adequately explain the anomalous emissions and ensure the agencies that the 20 16 model year vehicles would not have similar issues. Only then did VW admit it had designed and installed a defeat device in these vehicles in the form of a sophisticated software algorithm that detected when a vehicle was undergoing emissions testing.

VW knew or should have known that its "road calibration" and "switch" together bypass, defeat, or render inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track the parameters of the federal test procedure and cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure.

VW's "road calibration" and "switch" are AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), each time it sold, offered for sale, introduced into commerce, de livered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the hundreds of thousands of new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch" and " road calibration."

The vehicles are identified by the table below. All vehicles are equipped with 2.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen,

VW FOIA, EPA 06/20/2017 2017-FFP_036222

		Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGA V02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

3.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of each vehicle that causes the vehicle to perform differently when the vehicle is being tested for compliance with EPA emission standards than in normal operation and use.

When this software determines the vehicle has begun the FTP 75 Federal emission test procedure, it directs the vehicle to employ a low NOx temperature conditioning mode. A status bit in the software indicates that a "temperature conditioning" mode is active. In this low NOx temperature conditioning mode, the vehicle operates under a number of emission control parameters, including injection timing, exhaust gas recirculation rate, and common rail fuel pressure in such a way that the parameters yield low engine-out NOx emissions and high exhaust temperatures. The high exhaust temperatures heat the selective catalytic reduction system ("catalyst") and improve the catalyst's ability to reduce tailpipe NOx emissions. In this low NOx temperature conditioning mode, the combination of low engine-out NOx and improved catalyst performance results in tailpipe NOx emissions that are below the applicable emissions standard.

VW FOIA, EPA 06/20/2017 2017-FFP_036223

However, the software employs a "timer" that coincides with the low NOx temperature conditioning mode. At exactly one second after the completion of the initial phases of the FTP 75 Federal emissions test procedure (1,370 seconds, which is when the vehicle would normally be turned off), this software directs the vehicle to cease low NOx temperature conditioning mode. The "temperature conditioning" status bit switches to zero, and a second status bit indicates the activation of "transition to normal mode." In this "normal mode," the emission control system is immediately less effective. Compared to the low NOx temperature conditioning mode, the vehicle employs a different injection timing, exhaust gas recirculation rate, and common rail fuel pressure. This yields higher levels of NOx from the engine and reduced exhaust temperatures.

In addition, when the vehicle starts under conditions that the software determines *are not* the beginning of the FTP 75 Federal emission test procedure, the vehicle does not use the low NOx temperature conditioning mode at all. Instead, the emission control parameters are set consistent with the "normal mode." In sum, as soon as the vehicle senses that it is not being tested, it uses "normal mode." In "normal mode," tailpipe emissions of NOx are up to 9 times the applicable NOx standard levels, depending on model type and type of drive cycle (e.g., city, highway).

This notice is based on vehicle emission testing performed by the EPA's National Vehicle and Fuel Emissions Laboratory, California Air Resources Board's Hagen-Smit Laboratory, and Environment Canada's River Road Laboratory. This testing was performed since EPA's announcement on September 25, 2015, that it would perform additional testing "using driving cycles and conditions that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device." EPA, *EPA Conducted Confirmatory Testing* (Sept. 25, 2015).

VW knew or should have known that the software described above bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track federal test procedures and cause emission control systems to underperform when the software determined that the vehicle was not being tested.

VW's software described above includes one or more AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), each

VW FOIA, EPA 06/20/2017 2017-FFP_036224

time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the software described above. The vehicles are identified by the table below. All vehicles are equipped with 3.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2014	EADXT03.02UG	VW Touareg
2015	FPRXT03.0CDD	Porsche Cayenne
2016	GVGAJ03.0NU4	Audi A6 Quattro, A 7 Quattro, A8, A8L, and Q5

Citizen Enforcement

The investigation into this matter is continuing. The above tables represent specific violations that the EPA and Plaintiffs believe, at this point, are sufficiently supported by evidence to warrant the allegations in this notice. The EPA and Plaintiffs may find additional violations as the investigation continues, including violations related to carbon dioxide emissions from diesel and gasoline-power VW vehicles, as indicated by VW's public announcement on November 3, 2015.

Not less than 60 days following this notice, Plaintiffs may commence a civil action pursuant to 42 U.S.C. §7604, which provides that the district courts of the United States have jurisdiction to enforce emission standards or limitations, to apply any appropriate civil penalties, and to award costs of litigation (including reasonable attorney and expert witness fees) to any party.

Sincerely,

Robert S. Safi

State Addressees:

Alabama Department of Environmental Management
Air Division

Alaska Department of Environmental Conservation
Division of Air Quality

3963705v2/014996

P.O. Box 301463
Montgomery, AL 36130-1463
ATTN: Ron Gore

410 Willoughby Ave., Suite 303,
P.O. Box 111800
Juneau, AK 99811-1800
ATTN: Denise Koch

American Samoa Environmental
Protection Agency
Air and Land Division
P.O. BOX PPA
Pago Pago, AS 96799
ATTN: William Sili

Arizona Department of
Environmental Quality
Air Quality Division
1110 West Washington Street
Phoenix, Arizona 85007
ATTN: Enforcement

Arkansas Department of Environmental
Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

California Air Resources Board
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ATTN: Enforcement

Colorado Department of Public Health and
Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80246
ATTN: Janet Lovell

Connecticut Department of
Environmental Protection
Air Division
79 Elm Street
Hartford, CT 06106-5127
ATTN: Enforcement

Delaware Dept. of Natural Resources and
Environmental Control
Division of Air Quality
655 South Bay Road Suite 5 N
Dover, DE 19901
ATTN: Frank Frisby

DC Department of the Environment
Air Quality Division
1200 First Street NE
Washington, DC 20002
ATTN: Enforcement

Florida Department of Environmental
Protection
Division of Air Resource Management
2600 Blair Stone Road, M.S. 5500
Tallahassee, Florida 32399-2400
ATTN: Justin Green

Georgia Department Environmental
Protection Division
Air Protection Branch
2 Martin Luther King Jr. Drive,
Suite 1456, East Tower
Atlanta, GA 30334
ATTN: Karen Hays

Guam Environment Protection Agency

Hawaii Department of Health

VW FOIA, EPA 06/20/2017 2017-FFP_036226

Air Pollution Division
P.O. Box 22439
GMF Barrigada, Guam 96921
ATTN: Conchita Taitano

Environmental Health Analytical Branch
2725 Waimano Home Road
Pearl City, Hawaii 96782
ATTN: Wanda Chang

Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706
ATTN: Tiffany Floyd

Illinois Pollution Control Board
Air Division
1021 North Grand Avenue East, P.O. Box 19274
Springfield, Illinois 62794-9274
ATTN: Tom Johnson

Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue, Room N1003
Indianapolis, Indiana 46204
ATTN: Enforcement

Iowa Department of Natural Resources
Air Quality Division
502 East 9th Street, 4th Floor
Des Moines, IA 50319-0034
ATTN: Enforcement

Kansas Department of Health and Environment
Air Division
1000 SW Jackson, Suite 31
Topeka, KS 66612-1366
ATTN: Rick Brunetti

Kentucky Environmental Quality Commission
Division for Air Quality
200 Fair Oaks Ln., 1st Floor
Frankfort, KY 40601
ATTN: Candy Montgomery

Louisiana Department of Environmental Quality
Air Permits, Engineering and Planning Division
602 N. Fifth Street
Baton Rouge, LA 70802
ATTN: Enforcement

Maine Department of Environmental Protection
Air Quality Division
17 State House Station, 28 Tyson Drive
Augusta, Maine 04333-0017
ATTN: Marc Cone

Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard, Suite 715
Baltimore, Maryland 21230-1720
ATTN: Enforcement

Massachusetts Department of Environmental Protection
Air Quality Division
1 Winter Street
Boston, Massachusetts 02108
ATTN: Paul Davis

VW FOIA, EPA 06/20/2017 2017-FFP_036227

Michigan Department of Environmental Quality
Air Division
P.O. Box 30260
Lansing, MI 48909-7760
ATTN: Lynn Fiedler

Minnesota Pollution Control Agency
Air Division
525 Lake Avenue South, Suite 400
Duluth, MN 55802
ATTN: Enforcement

Mississippi Department of Environmental Quality
Office of Pollution Control
P. O. Box 2261
Jackson, MS 39225
ATTN: Enforcement

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
ATTN: Kyra Moore

Montana Department of Environmental Quality
Air Program
1520 E 6th Ave
Helena, MT 59601
ATTN: Eric Merchant

Nebraska Department of Environmental Quality
Air Quality Division
1200 N Street, Suite 400, P.O. Box 98922
Lincoln, NE 68509-8922
ATTN: Shelley Schneider

Nevada Division of Environmental Protection
Bureau of Air Quality Planning
901 So. Stewart St., Suite 4001
Carson City, NV 89701
ATTN: Enforcement

New Hampshire Department of Environmental Services
Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
ATTN: Enforcement

New Jersey Department of Environmental Protection
Division of Air Quality
P.O. Box 402
Trenton, NJ 08625-0402
ATTN: Enforcement

New Mexico Environment Department
Air Division
P.O. Box 5469
Santa Fe, New Mexico 87502-5469
ATTN: Enforcement

New York State Department of Environmental Conservation
Chemical and Pollution Control Division
625 Broadway
Albany, New York 12233-0001
ATTN: Enforcement

NC Division of Pollution Prevention and Environmental Assistance
Environmental Assistance and Customer Service
1639 Mail Service Center
Raleigh, NC 27699-1639
ATTN: Theodore Bush

3963705v2/014996

ND Department of Health - Environmental Health Section
Division of Air Quality
918 E. Divide Ave, 2nd Floor
Bismarck, ND 58501
ATTN: Terry L. O'Clair

Division of Environmental Quality
Air Division
P.O. Box 501304
Saipan, MP 96950
ATTN: Enforcement

Ohio Air Quality Development Authority
Air Division
50 W. Broad Street, Suite 1718
Columbus, Ohio 43215
ATTN: Enforcement

Oklahoma Department of Environmental Quality
Air Quality Division
P.O. Box 1677, 707 North Robinson
Oklahoma City, Oklahoma 73101-1677
ATTN: Gary Collins

Oregon Department of Environmental Quality
Air Quality Division
811 SW 6th Avenue
Portland 97204-1390
ATTN: Enforcement

Pennsylvania Department of Environmental Protection
Air Programs
400 Market Street
Harrisburg, PA 17101
ATTN: Enforcement

Departamento de Recursos Naturales y Ambientales
Air Division
P.O. Box 366147
San Juan, Puerto Rico 00936
ATTN: Enforcement

Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence, RI 02908-5767
ATTN: Doug McVay

South Carolina Department of Health and Environmental Control
Air Quality Enforcement
2600 Bull Street
Columbia, SC 29201
ATTN: Randy Stewart

South Dakota Department of Environment and Natural Resources
Air Quality Division
523 E Capitol
Pierre, SD 57501
ATTN: Enforcement

Tennessee Department of Environment and Conservation
Division of Air Pollution Control
312 Rosa L. Parks Ave
Nashville, TN 37243
ATTN: Barry Stephens

Texas Commission on Environmental Quality (TCEQ)
Office of Air
P.O. Box 13087
Austin, TX 78711-3087
ATTN: Steve Hagle, P.E.

VW FOIA, EPA 06/20/2017 2017-FFP_036229

Utah Department of Environmental Quality
Division of Air Quality
195 North 1950 West
Salt Lake City, Utah 84116
ATTN: Bryce Bird

Vermont Department of Environmental Conservation
Air Quality & Climate Division
One National Life Drive, 2nd Floor
Montpelier, VT 05620-3802
ATTN: Heidi Hales

US Virgin Islands Division of Environmental Protection
Air Pollution Control Program
Cyril E. King Airport, Terminal Building, 2nd Fl.
St. Thomas, VI 00802
ATTN: Enforcement

Virginia Department of Environmental Quality
Air Division
P.O. Box 1105
Richmond, VA 23218
ATTN: Michael Dowd

Washington Department of Transportation's Environmental Services
Air Quality Division
P.O. Box 47300
Olympia, WA 98504-7300
ATTN: Enforcement

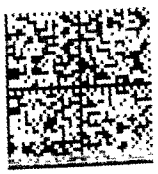
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
ATTN: Enforcement

Wisconsin Department of Natural Resources
Air Quality Division
101 S Webster Street, P.O. Box 7921
Madison WI
ATTN: Enforcement

Department of Environmental Quality
Air Quality Division
122 West 25th St, Herschler Building
Cheyenne 82002
ATTN: Cole Anderson

3963705v2/014996

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA
HOUSTON, TEXAS 77002-5096



US POSTAGE PITNEY BOWES

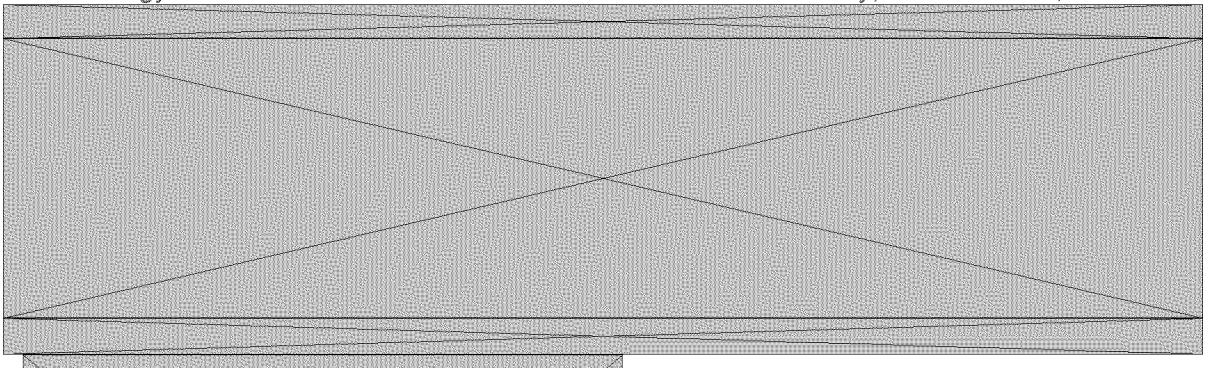
ZIP 77002 $ 000.90⁰
02 1W

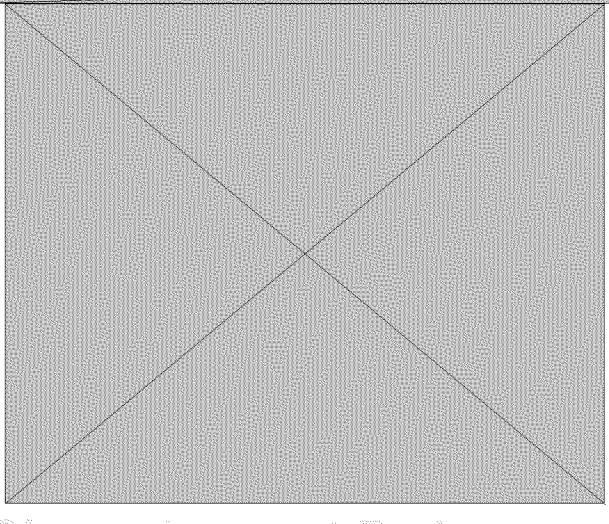
Arkansas Department of Environmental Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Tue 11/24/2015 10:41:52 PM
Subject: Obama lays out Paris agenda, calls climate talks a 'rebuke' to terror

Advertise | Contact

Energy and environment headlines for the afternoon of Tuesday, November 24, 2015





Obama lays out Paris agenda, calls climate talks a 'rebuke' to terror

By Kevin Rogers

When President Barack Obama heads to Paris for United Nations-sponsored climate talks next week, he'll prioritize meetings with India, China and island nations — and seek to send a "powerful rebuke" to terrorist groups that the attack in the French capital won't stop world leaders from meeting there or reaching a strong deal to cut global emissions.

Obama's remarks, at a White House press conference with French President Francois

Hollande, came shortly before his administration unveiled his schedule for the negotiations and his priorities for the visit.

"Next week, I will be joining President Hollande and world leaders in Paris for the global climate conference," Obama said. "What a powerful rebuke to the terrorists it will be when the world stands as one and we won't be deterred from building a better future for our children."

Hollande said he couldn't imagine a "better symbol" against terrorism than to hold the conference in Paris. The Nov. 13 attacks, for which the Islamic State group claimed responsibility, killed 130 people.

The talks, which kick off Monday and are scheduled to run through Dec. 11, will seek to reach a deal that cuts emissions enough to prevent global temperatures from rising 2 degrees Celsius above pre-industrial levels — the point where scientists warn that the worst impacts of climate change could become irreversible.

Commitments submitted in advance by 170 nations are thought to be enough to keep temperatures rising 2.7 degrees by the end of the century — leaving negotiators with more than .7 to make up.

Obama will be in Paris next Monday and Tuesday, administration officials told reporters. He'll hold bilateral meetings with President Xi Jinping of China and Prime Minister Narendra Modi of India.

On Tuesday, he'll hold a meeting with leaders from a coalition of island states to discuss climate finance and the role of the Green Climate Fund in helping vulnerable countries reduce greenhouse gas emissions, transition to clean energy sources, and respond to the effects of climate change.

Ben Rhodes, deputy national security adviser for strategic communications, said the meetings were aimed at building enough support to produce a deal over the two weeks of negotiations, even if Obama only attends for two days.

"By attending the summit, but also by meeting with two of the most important parties, India and China, and by convening the island nations to elevate the stakes, the president intends to generate momentum toward a successful outcome while leaving behind a significant number of his senior officials to participate in the ongoing negotiations," Rhodes said.

Obama is also slated to speak at a meeting of world leaders and have dinner with Hollande on Monday, and plans to hold a news conference before leaving Paris on Tuesday.

Secretary of State John Kerry, Interior Secretary Sally Jewell, Energy Secretary Ernest Moniz, Agriculture Secretary Tom Vilsack, Environmental Protection Agency Administrator Gina McCarthy, and Kathryn Sullivan, administrator of the National Oceanic and Atmospheric Administration, are set to attend over the course of the negotiations.

Paul Bodnar, National Security Council senior director for energy and climate change, told reporters Tuesday that the administration would push for an extended framework for climate action, not a "stop-gap."

"Our task in Paris is to secure a long-term framework in which countries set successive rounds of targets in the future beyond 2030 and ratchet down their emissions over the course of the coming decade," Bodnar said.

The announcements came as Republicans and other opponents of the administration's goals in Paris laid out new attacks on U.S. commitments, including the $3 billion pledge to the Green Climate Fund.

Congressional Republicans hope to use their control over the funding as leverage to force Obama to submit any Paris deal to lawmakers for their approval, believing that the funds are the only thing bringing developing nations to the table. In a Monday letter, 110 House Republicans, led by Rep. Morgan Griffith, R-Va., urged House Appropriations Chairman Rep. Hal Rogers, R-Ky., to block any financing unless the Senate is allowed to vote on the final deal.

"As stewards of taxpayer dollars, and in light of our substantial budget priorities, we cannot support this request for the Green Climate Fund, especially if the terms and conditions to pay such funds are not brought before Congress for approval as required by the U.S. Constitution," they wrote.

Senate Republicans have made similar threats.

Bodnar wouldn't say if Obama would veto an omnibus funding bill, due by Dec. 11, that doesn't include the $500 million he requested for the fund this year.

"There are many administration priorities we're monitoring as Congress continues to work on this bill, and we don't want to get too far ahead of the negotiations as they move forward," he said. "But it is clearly a priority for the president."

Separately, West Virginia Attorney General Patrick Morrisey and Texas Attorney General Ken Paxton, who are leading a legal challenge to EPA's Clean Power Plan, urged Kerry to tell world leaders that the administration's climate policies are opposed by 27 states and won't withstand legal scrutiny. Their lawsuit says the rule for existing power plants infringes on their authority, since it requires states to hit carbon-reduction targets through a blend of using natural gas and renewable energy, rather than simply setting a hard limit on power plant emissions.

"These serious legal questions are of great importance to the states, which under our constitutional system 'possess sovereignty concurrent with that of the federal government, subject only to limitations imposed by the supremacy clause,'" they said in a letter to Kerry. "We expect our federal representatives to respect that system of dual sovereignty both here at

home and in negotiations abroad."

The State Department did not comment on the letter.

The lawsuit against the power plant carbon rules is under review by the U.S. District Court of Appeals for the District of Columbia Circuit, though judges said they won't move on a requested stay of the regulations before Dec. 23.

Quick Links

Utility plans to mask awful odor from uncontrolled gas leak

Colorado town to pursue Superfund help after mine spill

Thanksgiving travel 2015: Cheap gas but fears of terrorism

Thanksgiving holiday publishing schedule for EnergyGuardian

Long-awaited New England transmission request boosts regional energy

Better batteries to beat global warming: A race against time

German investigation of VW expands to include tax evasion

Toxic Kenya dump embodies pope's environmental concern

8 injured in fire at Mexican oil refinery

Auto emissions targeted as Northeastern states, DC join forces to seek cuts

Energy Future crosses last creditor hurdle to bankruptcy plan

Bill for stranded assets could hit $2.2 trillion: Think tank

Oil soars after Turkey shoots down Russian jet

FERC has full application for Northeast gas project

Google to buy solar power from Duke

'Massive liability' issues from Teck Metals pollution case, industry warns

Wind supporters excited by possibilities in S.C.

Car dealers a drag on electric sales?

Solar panel fraud gets Texas firm $8.5M fine

Upcoming Events

Utility plans to mask awful odor from uncontrolled gas leak

By Brian Melley

LOS ANGELES (AP) — A utility company trying to stop a massive month-long natural gas leak says it intends to use a solution to mask the stench that is making residents ill in an area of Los Angeles.

Southern California Gas Co. officials told county supervisors Tuesday the substance is safe and would neutralize the rotten-egg smell that has led to more than 660 complaints to the air board.

Porter Ranch residents say they have concerns about the use of Odex, a biodegradable solution made from food-grade products.

Matt Pakucko says the community doesn't want to be guinea pigs in an experiment about whether the substance is safe.

More

Colorado town to pursue Superfund help after mine spill

By The Associated Press

DURANGO, Colo. (AP) — Southwestern Colorado officials will negotiate with state and federal agencies to set up a federally financed Superfund cleanup of inactive mines, including one that spewed millions of gallons of wastewater into rivers in three states in August.

Silverton and San Juan County leaders voted unanimously Monday to direct city staff members to pursue a Superfund designation with the Environmental Protection Agency and the Colorado Department of Public Health and Environment.

The tourism-dependent community has been wary of seeking a Superfund designation for nearly two decades, fearing stigma and red tape. Officials say a tour of four Superfund sites this month changed their minds, showing them that the process could be difficult but successful.

Silverton Mayor Chris Tookey told The Durango Herald it appears that route would provide the most comprehensive cleanup in the shortest amount of time.

More

Thanksgiving travel 2015: Cheap gas but fears of terrorism

By Justin Pritchard

LOS ANGELES (AP) — That other Thanksgiving tradition — congested highways and jammed airports — is getting underway with gas prices low and terrorism fears high.

An estimated 46.9 million Americans are expected to take a car, plane, bus or train at least 50 miles from home over the long holiday weekend, according to the motoring organization AAA. That would be an increase of more than 300,000 people over last year, and the most travelers since 2007.

Among the reasons given for the increase: an improving economy and the cheapest gasoline for this time of year since 2008.

On Tuesday, some travelers were gearing up for an early exit.

More

Thanksgiving holiday publishing schedule for EnergyGuardian

By EnergyGuardian

As is tradition during the Thanksgiving holiday week, EnergyGuardian will publish a single midday edition on Wednesday and will not publish its normal newsletters on Thursday or Friday this week. Of course, we'll cover any breaking news with alerts, and then resume normal publishing on Monday morning. We wish you and your family the happiest of Thanksgivings and thank you for your support all year long.

Long-awaited New England transmission request boosts regional energy

By Wilson Ring

MONTPELIER, Vt. (AP) — Companies designing projects to bring clean electricity to southern New England say they're grateful Massachusetts, Connecticut and Rhode Island have finally made a request for proposals to carry that power to the region.

But meeting the region's longer-term goal of expanding the use of renewable electricity from wind, solar and hydro-electricity will require more transmission capacity than the states requested, said Edward Krapels, the CEO of Anbaric Transmission, which is proposing one project in Maine and another Vermont.

"Having several states work together is just very constructive and allows larger scale renewable projects to get built, and we like that," Krapels said Tuesday.

The southern New England states are looking for clean renewable energy as part of a broader effort to reduce electricity costs and provide reliable sources of power as other aging power plants go offline. The region's governors committed to working together in 2013.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Better batteries to beat global warming: A race against time

By Seth Borenstein

WASHINGTON (AP) — One of the key technologies that could help wean the globe off fossil fuel is probably at your fingertips or in your pocket right now: the battery.

If batteries can get better, cheaper and store more power safely, then electric cars and solar- or wind- powered homes become more viable — even on cloudy days or when the wind isn't blowing. These types of technological solutions will be one of the more hopeful aspects of United Nations climate talks that begin next week in Paris.

"If you are serious about eliminating combustion of fossil fuels to power anything — a house, a city, a state — you can't do it without (energy) storage," which usually means batteries, said Carnegie Mellon University battery expert and inventor Jay Whitacre.

Former Vice President Al Gore, former U.S. Geological Survey chief (and current editor-in-chief of the journal Science) Marcia McNutt and others point to better batteries as one of the bright spots in the fight against climate change.

More

German investigation of VW expands to include tax evasion

By David Rising

BERLIN (AP) — German prosecutors said Tuesday they have widened their investigation of Volkswagen to include suspicion of tax evasion after revelations that some of its cars were emitting more carbon dioxide than officially reported.

Braunschweig prosecutor Birgit Seel told The Associated Press that the investigation was focused on five Volkswagen employees but would not release their names.

The focus of the investigation is on tax breaks Volkswagen received for producing low-polluting cars that it might not have qualified for if the emissions had been correctly reported, Seel said.

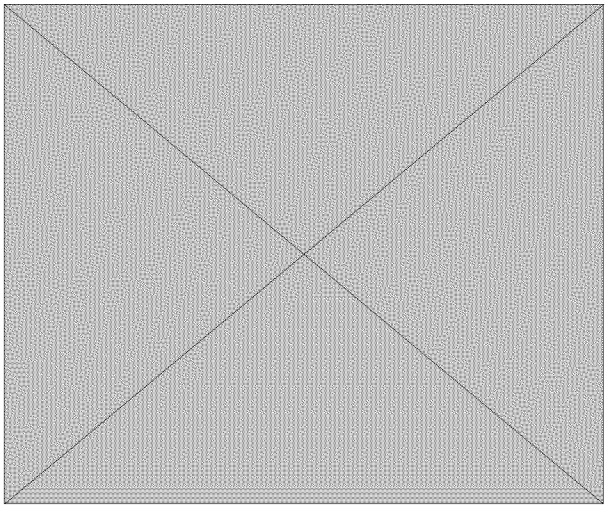
Volkswagen has acknowledged it produced 11 million vehicles worldwide with small diesel engines that contained software allowing them to cheat nitrogen oxide tests. Earlier this month, it also said it found "unexplained inconsistencies" in emissions from more of its vehicles of carbon dioxide.

More

Toxic Kenya dump embodies pope's environmental concern

By Tom Odula

NAIROBI, Kenya (AP) — Using hooks or their bare hands, men, women and children traipse through the murky sludge that pools around the mountains of garbage, hunting for bottles, plastic bags and anything else that can be recycled to earn themselves enough for their daily bread.



The scavengers at Nairobi's notorious Dandora dump are some of the poorest of Kenya's poor — and they are likely to be on Pope Francis' mind when he makes his first trip to Africa Thursday to bring his message of environmental stewardship and care for society's most marginalized. His message will take on an even more poignant ring on a continent long wracked by poverty, war and disease.

One of Francis' most anticipated speeches will be to the Nairobi-based U.N. Environment Program, which has warned that those working and living near Dandora suffer from a wide range of diseases including lung cancer, skin diseases and lead poisoning that cause stunted growth and mental disabilities in children.

Francis has denounced how the poor suffer disproportionately from environmental degradation, especially the health effects of pollution, and at UNEP he is likely to call for governments to clean up their act ahead of crucial climate negotiations opening in Paris next week. He warned in his landmark encyclical "Praise Be" that the dumping of toxic, radioactive and industrial waste risks turning Earth into "an immense pile of filth."

More

8 injured in fire at Mexican oil refinery

By The Associated Press

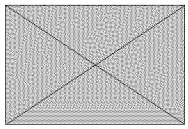
MEXICO CITY (AP) — Mexico's state-run oil company says a fire at one of its refineries has injured eight people.

Petroleos Mexicanos said in a statement that its firefighters had controlled Tuesday's blaze at the Antonio Dovali Jaime refinery in the southern state of Oaxaca. It said none of the injuries to two Pemex workers and six contractors was serious.

The company said it was investigating the cause, but that the supply of petroleum products

was guaranteed.

Sponsored Links



Week in Review - Senators say no climate deal without their approval

Pass 'disapproval' resolutions on power plant rules.

Click here to read the brief

Auto emissions targeted as Northeastern states, DC join forces to seek cuts

A market-based approach for cutting vehicles' greenhouse gas emissions—which could include mileage-based driver fees or emissions trading—is the goal as Connecticut, Delaware, New York, Rhode Island, Vermont, and the District of Columbia announced an agreement to work together on the issue, Reuters reports.

More

Energy Future crosses last creditor hurdle to bankruptcy plan

The last group of creditors has signed onto the Chapter 11 bankruptcy plan from Energy Future Holdings, and the company plans to lay out the settlement plan before a federal judge Wednesday, Reuters reports.

More

Bill for stranded assets could hit $2.2 trillion: Think tank

The Carbon Tracker Initiative warned Tuesday that fossil fuel companies could face $2.2 trillion in stranded assets over the next decade if policy changes fueled by climate change fears make their planned oil and natural gas projects uneconomic, Platts reports.

More

Oil soars after Turkey shoots down Russian jet

Oil prices jumped more than 2.5 percent Tuesday on fears that escalating Middle East tensions—after Turkey shot down a Russian warplane—would disrupt supplies. U.S. benchmark crude for January delivery gained $1.12, or 2.7 percent, to settle at $42.87 on the Nymex, while in London, Brent was $1.29 higher to $46.12, The Wall Street Journal reports.

More

FERC has full application for Northeast gas project

The paperwork for the Northeast Energy Direct project—Kinder Morgan's $5 billion pipeline to move natural gas from the Marcellus Shale to the Northeast—has advanced from pre-filing to full application status at the Federal Energy Regulatory Commission, E&E reports.

More

Google to buy solar power from Duke

Google has agreed to buy solar power, at a premium, from Duke Energy, to support its big North Carolina server farm, The Associated Press reports.

More

'Massive liability' issues from Teck Metals pollution case, industry warns

The U.S. Chamber of Commerce and other industry groups warn that if the 9th Circuit Court of Appeals doesn't overturn the ruling last December that Teck Metals may be responsible for the cost of cleaning up contamination drifting from its smelter in British Columbia, it could cause "massive liability," E&E reports.

More

Wind supporters excited by possibilities in S.C.

The Interior Department's decision to include North Myrtle Beach in studies to determine whether wind leases should be sold off the South Carolina coast has the head of the local Chamber of Commerce excited, The State reports.

More

Car dealers a drag on electric sales?

The failure of plug-in electric vehicles to really catch on with consumers may be due to dealer reluctance to sell them, The New York Times reports.

More

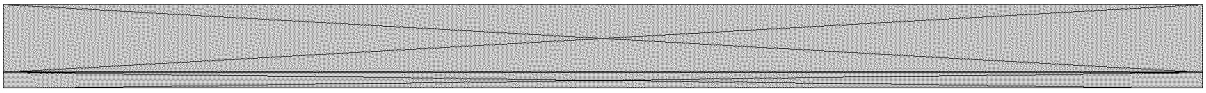
Solar panel fraud gets Texas firm $8.5M fine

1SolTech Inc. has been slapped with an $8.5 million fine for labeling solar panels imported from China as being made in the U.S., The Associated Press reports.

More

Upcoming Events

- Nov. 24, Washington: The Union of Concerned Scientists to hold a webinar on United Nations-sponsored climate talks in Paris and the expected policy implications for the U.S. 1:00 pm
- Nov. 24, Washington: Cheniere Vice President of Finance Tarek Souki to speak at the American Gas Association's Natural Gas Roundtable on the outlook for liquefied natural gas expeorts. 12:00 pm , 1135 16th Street, NW.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

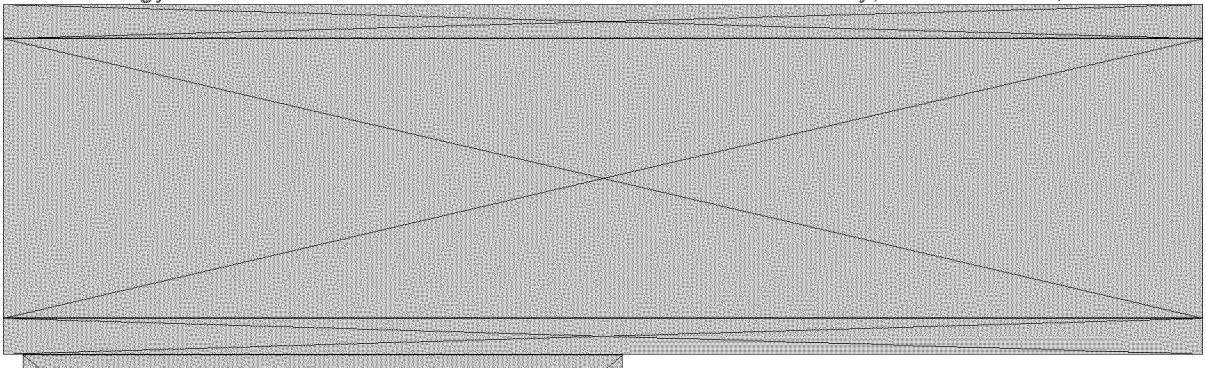
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

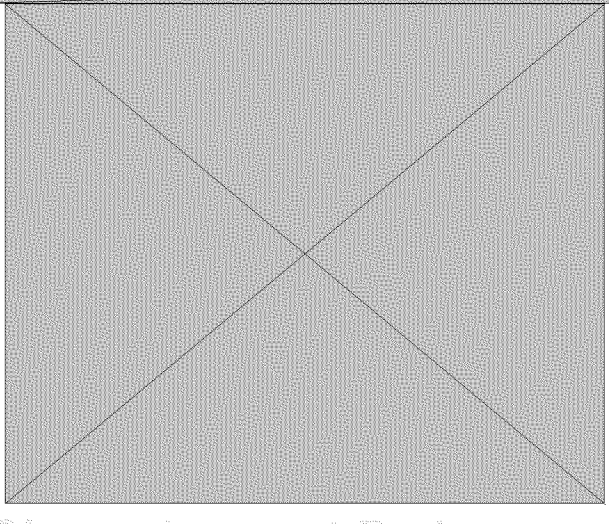
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Tue 11/24/2015 10:41:52 PM
Subject: Obama lays out Paris agenda, calls climate talks a 'rebuke' to terror

Advertise | Contact

Energy and environment headlines for the afternoon of Tuesday, November 24, 2015





Obama lays out Paris agenda, calls climate talks a 'rebuke' to terror

By Kevin Rogers

When President Barack Obama heads to Paris for United Nations-sponsored climate talks next week, he'll prioritize meetings with India, China and island nations — and seek to send a "powerful rebuke" to terrorist groups that the attack in the French capital won't stop world leaders from meeting there or reaching a strong deal to cut global emissions.

Obama's remarks, at a White House press conference with French President Francois

Hollande, came shortly before his administration unveiled his schedule for the negotiations and his priorities for the visit.

"Next week, I will be joining President Hollande and world leaders in Paris for the global climate conference," Obama said. "What a powerful rebuke to the terrorists it will be when the world stands as one and we won't be deterred from building a better future for our children."

Hollande said he couldn't imagine a "better symbol" against terrorism than to hold the conference in Paris. The Nov. 13 attacks, for which the Islamic State group claimed responsibility, killed 130 people.

The talks, which kick off Monday and are scheduled to run through Dec. 11, will seek to reach a deal that cuts emissions enough to prevent global temperatures from rising 2 degrees Celsius above pre-industrial levels — the point where scientists warn that the worst impacts of climate change could become irreversible.

Commitments submitted in advance by 170 nations are thought to be enough to keep temperatures rising 2.7 degrees by the end of the century — leaving negotiators with more than .7 to make up.

Obama will be in Paris next Monday and Tuesday, administration officials told reporters. He'll hold bilateral meetings with President Xi Jinping of China and Prime Minister Narendra Modi of India.

On Tuesday, he'll hold a meeting with leaders from a coalition of island states to discuss climate finance and the role of the Green Climate Fund in helping vulnerable countries reduce greenhouse gas emissions, transition to clean energy sources, and respond to the effects of climate change.

Ben Rhodes, deputy national security adviser for strategic communications, said the meetings were aimed at building enough support to produce a deal over the two weeks of negotiations, even if Obama only attends for two days.

"By attending the summit, but also by meeting with two of the most important parties, India and China, and by convening the island nations to elevate the stakes, the president intends to generate momentum toward a successful outcome while leaving behind a significant number of his senior officials to participate in the ongoing negotiations," Rhodes said.

Obama is also slated to speak at a meeting of world leaders and have dinner with Hollande on Monday, and plans to hold a news conference before leaving Paris on Tuesday.

Secretary of State John Kerry, Interior Secretary Sally Jewell, Energy Secretary Ernest Moniz, Agriculture Secretary Tom Vilsack, Environmental Protection Agency Administrator Gina McCarthy, and Kathryn Sullivan, administrator of the National Oceanic and Atmospheric Administration, are set to attend over the course of the negotiations.

Paul Bodnar, National Security Council senior director for energy and climate change, told reporters Tuesday that the administration would push for an extended framework for climate action, not a "stop-gap."

"Our task in Paris is to secure a long-term framework in which countries set successive rounds of targets in the future beyond 2030 and ratchet down their emissions over the course of the coming decade," Bodnar said.

The announcements came as Republicans and other opponents of the administration's goals in Paris laid out new attacks on U.S. commitments, including the $3 billion pledge to the Green Climate Fund.

Congressional Republicans hope to use their control over the funding as leverage to force Obama to submit any Paris deal to lawmakers for their approval, believing that the funds are the only thing bringing developing nations to the table. In a Monday letter, 110 House Republicans, led by Rep. Morgan Griffith, R-Va., urged House Appropriations Chairman Rep. Hal Rogers, R-Ky., to block any financing unless the Senate is allowed to vote on the final deal.

"As stewards of taxpayer dollars, and in light of our substantial budget priorities, we cannot support this request for the Green Climate Fund, especially if the terms and conditions to pay such funds are not brought before Congress for approval as required by the U.S. Constitution," they wrote.

Senate Republicans have made similar threats.

Bodnar wouldn't say if Obama would veto an omnibus funding bill, due by Dec. 11, that doesn't include the $500 million he requested for the fund this year.

"There are many administration priorities we're monitoring as Congress continues to work on this bill, and we don't want to get too far ahead of the negotiations as they move forward," he said. "But it is clearly a priority for the president."

Separately, West Virginia Attorney General Patrick Morrisey and Texas Attorney General Ken Paxton, who are leading a legal challenge to EPA's Clean Power Plan, urged Kerry to tell world leaders that the administration's climate policies are opposed by 27 states and won't withstand legal scrutiny. Their lawsuit says the rule for existing power plants infringes on their authority, since it requires states to hit carbon-reduction targets through a blend of using natural gas and renewable energy, rather than simply setting a hard limit on power plant emissions.

"These serious legal questions are of great importance to the states, which under our constitutional system 'possess sovereignty concurrent with that of the federal government, subject only to limitations imposed by the supremacy clause,'" they said in a letter to Kerry. "We expect our federal representatives to respect that system of dual sovereignty both here at

home and in negotiations abroad."

The State Department did not comment on the letter.

The lawsuit against the power plant carbon rules is under review by the U.S. District Court of Appeals for the District of Columbia Circuit, though judges said they won't move on a requested stay of the regulations before Dec. 23.

Quick Links

Utility plans to mask awful odor from uncontrolled gas leak

Colorado town to pursue Superfund help after mine spill

Thanksgiving travel 2015: Cheap gas but fears of terrorism

Thanksgiving holiday publishing schedule for EnergyGuardian

Long-awaited New England transmission request boosts regional energy

Better batteries to beat global warming: A race against time

German investigation of VW expands to include tax evasion

Toxic Kenya dump embodies pope's environmental concern

8 injured in fire at Mexican oil refinery

Auto emissions targeted as Northeastern states, DC join forces to seek cuts

Energy Future crosses last creditor hurdle to bankruptcy plan

Bill for stranded assets could hit $2.2 trillion: Think tank

Oil soars after Turkey shoots down Russian jet

FERC has full application for Northeast gas project

Google to buy solar power from Duke

'Massive liability' issues from Teck Metals pollution case, industry warns

Wind supporters excited by possibilities in S.C.

Car dealers a drag on electric sales?

Solar panel fraud gets Texas firm $8.5M fine

Upcoming Events

Utility plans to mask awful odor from uncontrolled gas leak

By Brian Melley

LOS ANGELES (AP) — A utility company trying to stop a massive month-long natural gas leak says it intends to use a solution to mask the stench that is making residents ill in an area of Los Angeles.

Southern California Gas Co. officials told county supervisors Tuesday the substance is safe and would neutralize the rotten-egg smell that has led to more than 660 complaints to the air board.

Porter Ranch residents say they have concerns about the use of Odex, a biodegradable solution made from food-grade products.

Matt Pakucko says the community doesn't want to be guinea pigs in an experiment about whether the substance is safe.

More

Colorado town to pursue Superfund help after mine spill

By The Associated Press

DURANGO, Colo. (AP) — Southwestern Colorado officials will negotiate with state and federal agencies to set up a federally financed Superfund cleanup of inactive mines, including one that spewed millions of gallons of wastewater into rivers in three states in August.

Silverton and San Juan County leaders voted unanimously Monday to direct city staff members to pursue a Superfund designation with the Environmental Protection Agency and the Colorado Department of Public Health and Environment.

The tourism-dependent community has been wary of seeking a Superfund designation for nearly two decades, fearing stigma and red tape. Officials say a tour of four Superfund sites this month changed their minds, showing them that the process could be difficult but successful.

Silverton Mayor Chris Tookey told The Durango Herald it appears that route would provide the most comprehensive cleanup in the shortest amount of time.

More

Thanksgiving travel 2015: Cheap gas but fears of terrorism

By Justin Pritchard

LOS ANGELES (AP) — That other Thanksgiving tradition — congested highways and jammed airports — is getting underway with gas prices low and terrorism fears high.

An estimated 46.9 million Americans are expected to take a car, plane, bus or train at least 50 miles from home over the long holiday weekend, according to the motoring organization AAA. That would be an increase of more than 300,000 people over last year, and the most travelers since 2007.

Among the reasons given for the increase: an improving economy and the cheapest gasoline for this time of year since 2008.

On Tuesday, some travelers were gearing up for an early exit.

More

Thanksgiving holiday publishing schedule for EnergyGuardian

By EnergyGuardian

As is tradition during the Thanksgiving holiday week, EnergyGuardian will publish a single midday edition on Wednesday and will not publish its normal newsletters on Thursday or Friday this week. Of course, we'll cover any breaking news with alerts, and then resume normal publishing on Monday morning. We wish you and your family the happiest of Thanksgivings and thank you for your support all year long.

Long-awaited New England transmission request boosts regional energy

By Wilson Ring

MONTPELIER, Vt. (AP) — Companies designing projects to bring clean electricity to southern New England say they're grateful Massachusetts, Connecticut and Rhode Island have finally made a request for proposals to carry that power to the region.

But meeting the region's longer-term goal of expanding the use of renewable electricity from wind, solar and hydro-electricity will require more transmission capacity than the states requested, said Edward Krapels, the CEO of Anbaric Transmission, which is proposing one project in Maine and another Vermont.

"Having several states work together is just very constructive and allows larger scale renewable projects to get built, and we like that," Krapels said Tuesday.

The southern New England states are looking for clean renewable energy as part of a broader effort to reduce electricity costs and provide reliable sources of power as other aging power plants go offline. The region's governors committed to working together in 2013.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

Better batteries to beat global warming: A race against time

By Seth Borenstein

WASHINGTON (AP) — One of the key technologies that could help wean the globe off fossil fuel is probably at your fingertips or in your pocket right now: the battery.

If batteries can get better, cheaper and store more power safely, then electric cars and solar- or wind- powered homes become more viable — even on cloudy days or when the wind isn't blowing. These types of technological solutions will be one of the more hopeful aspects of United Nations climate talks that begin next week in Paris.

"If you are serious about eliminating combustion of fossil fuels to power anything — a house, a city, a state — you can't do it without (energy) storage," which usually means batteries, said Carnegie Mellon University battery expert and inventor Jay Whitacre.

Former Vice President Al Gore, former U.S. Geological Survey chief (and current editor-in-chief of the journal Science) Marcia McNutt and others point to better batteries as one of the bright spots in the fight against climate change.

More

German investigation of VW expands to include tax evasion

By David Rising

BERLIN (AP) — German prosecutors said Tuesday they have widened their investigation of Volkswagen to include suspicion of tax evasion after revelations that some of its cars were emitting more carbon dioxide than officially reported.

Braunschweig prosecutor Birgit Seel told The Associated Press that the investigation was focused on five Volkswagen employees but would not release their names.

The focus of the investigation is on tax breaks Volkswagen received for producing low-polluting cars that it might not have qualified for if the emissions had been correctly reported, Seel said.

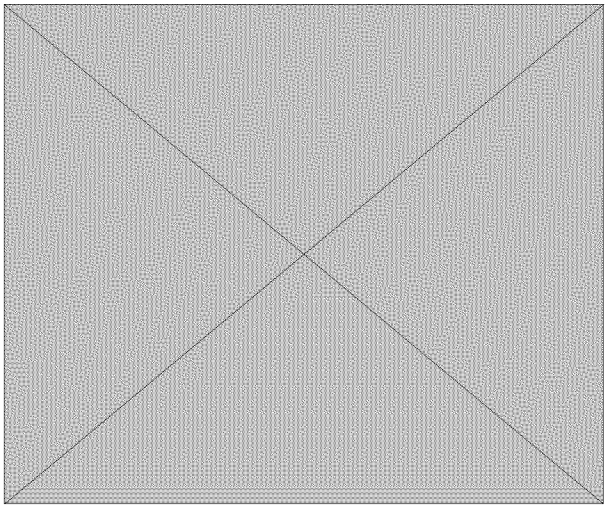
Volkswagen has acknowledged it produced 11 million vehicles worldwide with small diesel engines that contained software allowing them to cheat nitrogen oxide tests. Earlier this month, it also said it found "unexplained inconsistencies" in emissions from more of its vehicles of carbon dioxide.

More

Toxic Kenya dump embodies pope's environmental concern

By Tom Odula

NAIROBI, Kenya (AP) — Using hooks or their bare hands, men, women and children traipse through the murky sludge that pools around the mountains of garbage, hunting for bottles, plastic bags and anything else that can be recycled to earn themselves enough for their daily bread.



The scavengers at Nairobi's notorious Dandora dump are some of the poorest of Kenya's poor — and they are likely to be on Pope Francis' mind when he makes his first trip to Africa Thursday to bring his message of environmental stewardship and care for society's most marginalized. His message will take on an even more poignant ring on a continent long wracked by poverty, war and disease.

One of Francis' most anticipated speeches will be to the Nairobi-based U.N. Environment Program, which has warned that those working and living near Dandora suffer from a wide range of diseases including lung cancer, skin diseases and lead poisoning that cause stunted growth and mental disabilities in children.

Francis has denounced how the poor suffer disproportionately from environmental degradation, especially the health effects of pollution, and at UNEP he is likely to call for governments to clean up their act ahead of crucial climate negotiations opening in Paris next week. He warned in his landmark encyclical "Praise Be" that the dumping of toxic, radioactive and industrial waste risks turning Earth into "an immense pile of filth."

More

8 injured in fire at Mexican oil refinery

By The Associated Press

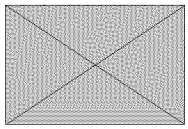
MEXICO CITY (AP) — Mexico's state-run oil company says a fire at one of its refineries has injured eight people.

Petroleos Mexicanos said in a statement that its firefighters had controlled Tuesday's blaze at the Antonio Dovali Jaime refinery in the southern state of Oaxaca. It said none of the injuries to two Pemex workers and six contractors was serious.

The company said it was investigating the cause, but that the supply of petroleum products

was guaranteed.

Sponsored Links



Week in Review - Senators say no climate deal without their approval

Pass 'disapproval' resolutions on power plant rules.

Click here to read the brief

Auto emissions targeted as Northeastern states, DC join forces to seek cuts

A market-based approach for cutting vehicles' greenhouse gas emissions—which could include mileage-based driver fees or emissions trading—is the goal as Connecticut, Delaware, New York, Rhode Island, Vermont, and the District of Columbia announced an agreement to work together on the issue, Reuters reports.

More

Energy Future crosses last creditor hurdle to bankruptcy plan

The last group of creditors has signed onto the Chapter 11 bankruptcy plan from Energy Future Holdings, and the company plans to lay out the settlement plan before a federal judge Wednesday, Reuters reports.

More

Bill for stranded assets could hit $2.2 trillion: Think tank

The Carbon Tracker Initiative warned Tuesday that fossil fuel companies could face $2.2 trillion in stranded assets over the next decade if policy changes fueled by climate change fears make their planned oil and natural gas projects uneconomic, Platts reports.

More

Oil soars after Turkey shoots down Russian jet

Oil prices jumped more than 2.5 percent Tuesday on fears that escalating Middle East tensions—after Turkey shot down a Russian warplane—would disrupt supplies. U.S. benchmark crude for January delivery gained $1.12, or 2.7 percent, to settle at $42.87 on the Nymex, while in London, Brent was $1.29 higher to $46.12, The Wall Street Journal reports.

More

FERC has full application for Northeast gas project

The paperwork for the Northeast Energy Direct project—Kinder Morgan's $5 billion pipeline to move natural gas from the Marcellus Shale to the Northeast—has advanced from pre-filing to full application status at the Federal Energy Regulatory Commission, E&E reports.

More

Google to buy solar power from Duke

Google has agreed to buy solar power, at a premium, from Duke Energy, to support its big North Carolina server farm, The Associated Press reports.

More

'Massive liability' issues from Teck Metals pollution case, industry warns

The U.S. Chamber of Commerce and other industry groups warn that if the 9th Circuit Court of Appeals doesn't overturn the ruling last December that Teck Metals may be responsible for the cost of cleaning up contamination drifting from its smelter in British Columbia, it could cause "massive liability," E&E reports.

More

Wind supporters excited by possibilities in S.C.

The Interior Department's decision to include North Myrtle Beach in studies to determine whether wind leases should be sold off the South Carolina coast has the head of the local Chamber of Commerce excited, The State reports.

More

Car dealers a drag on electric sales?

The failure of plug-in electric vehicles to really catch on with consumers may be due to dealer reluctance to sell them, The New York Times reports.

More

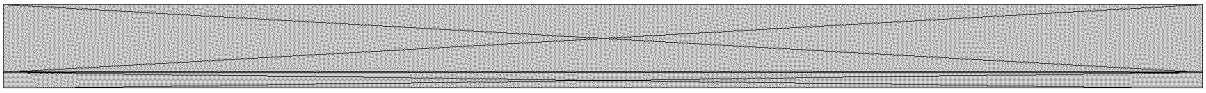
Solar panel fraud gets Texas firm $8.5M fine

1SolTech Inc. has been slapped with an $8.5 million fine for labeling solar panels imported from China as being made in the U.S., The Associated Press reports.

More

Upcoming Events

- Nov. 24, Washington: The Union of Concerned Scientists to hold a webinar on United Nations-sponsored climate talks in Paris and the expected policy implications for the U.S. 1:00 pm
- Nov. 24, Washington: Cheniere Vice President of Finance Tarek Souki to speak at the American Gas Association's Natural Gas Roundtable on the outlook for liquefied natural gas expeorts. 12:00 pm , 1135 16th Street, NW.



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

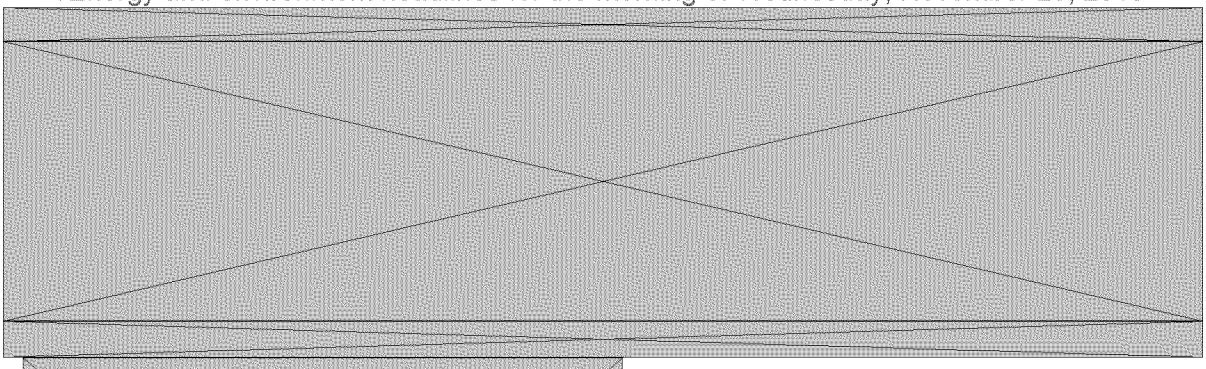
This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

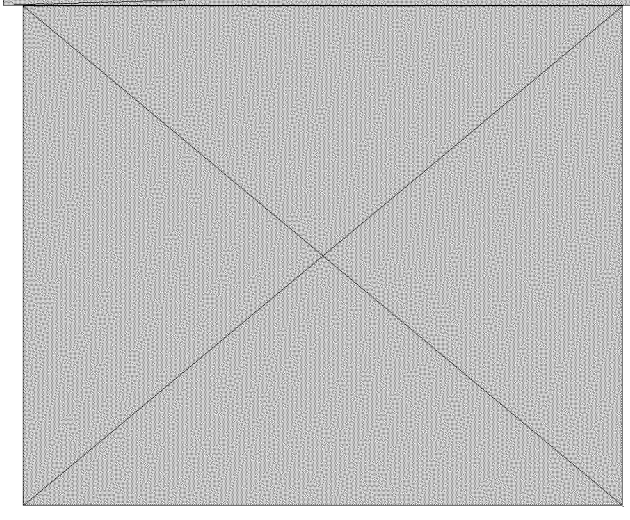
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Wed 11/25/2015 4:37:33 PM
Subject: Ethanol backers, foes battle over climate impacts as RFS, Paris approach

Advertise | Contact

Energy and environment headlines for the morning of Wednesday, November 25, 2015





Ethanol backers, foes battle over climate impacts as RFS, Paris approach

By Kevin Rogers

Friends and foes of ethanol are locked in a debate over the fuel's impact on climate – with backers saying it's been a key driver of emissions reductions and foes saying it's no better for the environment than traditional fossil fuels.

The back-and-forth comes as the Environmental Protection Agency prepares to finalize three years' worth of the Renewable Fuel Standard by Monday. For the first time, the agency has

proposed setting ethanol blending levels below the statutory numbers laid out in the 2005 law that created the standard, a move the ethanol industry has decried.

It also comes as the ethanol industry makes a final effort to be brought into President Barack Obama's presentation at United Nations-sponsored climate talks in Paris, also beginning Monday. The RFS wasn't included as part of the U.S. Intended Nationally Determined Contribution to cut carbon emissions, which the Obama administration submitted in March.

On a call with reporters Tuesday, Renewable Fuels Association Vice President Geoff Cooper voiced hope that Obama could work the RFS into his plan to slash emissions when he speaks to world leaders next week, noting that many other nations have discussed their biofuel policies as part of their INDC's.

"We're certainly hoping that the RFS will be mentioned or biofuels will be mentioned in Obama's speech in Paris, and certainly have been encouraging the administration to put the RFS back on the list of successful programs and policies they should be advertising on a world stage," he said. "We haven't just met expectations with the RFS, we've exceeded them in terms of GHG reduction."

RFA, and researchers from Life Cycle Associates, argue that ethanol and other biofuels have helped reduce carbon emissions through improvements in technology, carbon storage from cropland and displacement of increasingly carbon-intensive petroleum fuel. Life Cycle Associates recently penned a study for RFA estimating the program has cut 358 million metric tons of carbon since it began.

But opponents called on the administration to stay the course, and keep the program far away from its discussions in Paris.

John DeCicco, research professor at the University of Michigan Energy Institute, on another call, said that touting ethanol would undermine the administration's climate effort.

"I was relieved that the United States didn't include the RFS or other biofuel policies among the measures that the country identified for meeting its intended greenhouse gas reduction contribution," DeCicco said.

"The administration, in my view, is prudently following the dictum of 'above all, do no harm.' Contrary to popular belief, biofuels for now, and in the future, do more harm than good when it comes to climate," he continued.

DeCicco, who authored a study analyzing the carbon impact of biofuels, contends that the "assumption" that biofuels are carbon neutral because crops used to produce them store carbon doesn't hold up.

He argued that since biofuels are ultimately burned, that carbon is released back into the air, and that land used for biofuel stocks would be better left for food production, reforestation or renewable energy production.

"The same amount of carbon being pulled out of the air on the cornfield, same amount of CO2 going back into the air out of the tailpipes," he said. "There's been no change. The ethanol has not neutralized the emissions in the gasoline."

RFA and backers dismissed that line of thinking, since fossil fuel burning releases carbon that would otherwise not be in the atmosphere.

"You have a relatively rapid cycle taking place where atmospheric carbon is sucked out of the air by the plant and it's re-released when that biomass in the form of a liquid fuel is burned," Cooper said. "When you compare that to the carbon cycle of fossil fuels, you see a much different picture. You're taking fossilized carbon that's been sequestered deep underground for tens or hundreds of millions of years, and you're taking that carbon and venting it into the atmosphere and that is clearly an additive emission."

Still, some environmentalists say that the RFS hasn't lived up to its potential for helping curb greenhouse gas emissions, and so shouldn't be ranked in the Obama administration's climate policy.

"The RFS was supposed to push a lot of cellulosic biofuels into the U.S. market, but that isn't happening. And it won't happen between now and 2025, the period covered by the U.S. INDC," said Jonathan Lewis, senior counsel for climate policy at the Clean Air Task Force.

The U.S. INDC pledges to cut greenhouse gas emissions by between 26 and 28 percent from 2005 levels, and hit that mark by 2025. The administration plans to hit the goal through power plant carbon regulations, improved fuel efficiency for vehicles, methane reductions at oil and gas sites, a phase-down of hydrofluorocarbon use, and federal efficiency programs.

Quick Links

Spanish renewable energy firm in bankruptcy protection steps

Cheap gas fueling expanded Thanksgiving travel day

Oil down on oversupply worries

Lights out leaves cold, boredom for thousands in Washington

Jury heads into holiday without verdict in ex-coal CEO trial

UN weather agency: It's record hot out there this year

Revised nuclear deal between South Korea, US takes effect

Xi to give speech at opening of Paris climate conference

Ukraine stops buying Russian gas, closes airspace

VW to offer quick fix for diesel engines in Europe

Mist to mask bad odor from uncontrolled gas leak: SoCalGas

Climate changes take heavy toll on Ugandan coffee farmers

Thanksgiving holiday publishing schedule for EnergyGuardian

Alaska now equal partner in LNG project, completing TransCanada buyout

EIA reports increase in crude, gasoline stocks

Greens jump into Murray case against EPA ozone limits

Stern optimistic ahead of Paris conference

Court OKs Walter Energy selloff

Xcel working with Minnesota regulators to change electricity sector

Lower earnings, higher debt moved Moody's to downgrade Pemex

Koch brothers, White House parting company on criminal law rewrite

Death toll for extreme weather is 600,000 over 20 years, UN says

Upcoming Events

Spanish renewable energy firm in bankruptcy protection steps

By The Associated Press

MADRID (AP) — Spanish renewable energy and engineering giant Abengoa says it has begun bankruptcy protection proceedings in a bid to avoid what could be one of the country's largest insolvencies.

Abengoa told Spain's market regulator in a statement Wednesday that it will be seeking preliminary protection from creditors with the aim of reaching a deal on its debts within four

months.

The statement came after a Spanish technology firm announced it was pulling out of an agreement to help invest in the Seville-based firm.

Abengoa, which has some 24,000 employees worldwide, has debts worth some 9 billion euros ($9.5 billion).

More

Cheap gas fueling expanded Thanksgiving travel day

By Justin Pritchard

LOS ANGELES (AP) — An expanded version of America's annual Thanksgiving travel saga has begun with gasoline prices low and terrorism fears high.

An estimated 46.9 million Americans are expected to take a car, plane, bus or train at least 50 miles from home over the long holiday weekend, according to the motoring organization AAA. That would be an increase of more than 300,000 people over last year, and the most travelers since 2007.

Among the reasons given for the increase: an improving economy and the cheapest gasoline for this time of year since 2008.

On Tuesday, some travelers were gearing up for an early exit.

More

Oil down on oversupply worries

By The Associated Press

Continuing concerns about oversupply sent oil prices lower Wednesday but they started recovering after release of the Energy Information Administration's weekly data about supplies.

The price of U.S. benchmark crude fell 47 cents, or 1.1 percent, to $42.40 a barrel in New York. Brent crude fell 42 cents, or 0.9 percent, to $45.70 a barrel in London. Energy stocks ended slightly lower.

The U.S. government said crude oil stockpiles rose by 1 million barrels last week. Analysts had expected a small decline. Inventories stood at 488.2 million barrels on Friday, their

highest level at this time of year in at least 80 years.

Lights out leaves cold, boredom for thousands in Washington

By Nicholas K. Geranios

SPOKANE, Wash. (AP) — Thousands of households in Washington's second-largest city were surviving without electricity nearly a week after a wind storm ripped apart power lines, trees and the electrical grid.

Gov. Jay Inslee visited Spokane Tuesday to inspect damage from the worst windstorm in the region's history, promising to explore whether Spokane County qualifies for federal disaster assistance. The storm Nov. 17 packed gusts up to 70 mph that cracked trees and sent them crashing onto cars, killing three people in the state.

More than 180,000 customers lost power at the storm's peak, and the approximately 20,000 still in the dark face a freezing forecast as Thanksgiving approaches.

"This has been a very long and very, very tough week for Spokane County," Inslee said after being briefed by local leaders, adding that he has been impressed by efforts to care for vulnerable members of the community.

More

Jury heads into holiday without verdict in ex-coal CEO trial

By The Associated Press

CHARLESTON, W.Va. (AP) — Jurors headed into a holiday break without a verdict in the trial of ex-Massey Energy CEO Don Blankenship.

The jury deliberated for a fifth full day Tuesday in U.S. District Court in Charleston, West Virginia. They won't return until Monday because of Thanksgiving.

Blankenship is charged with conspiring to break safety laws and defrauding mine regulators at West Virginia's Upper Big Branch Mine, and lying to financial regulators and investors about safety. The coal mine exploded in 2010, killing 29 men.

Prosecutors contended that Blankenship was a micromanager who meddled in the smallest details at the mine, and cared more about money than safety.

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

UN weather agency: It's record hot out there this year

By Seth Borenstein

WASHINGTON (AP) — Because of man-made global warming and a strong El Nino, Earth's wild weather this year is bursting the annual heat record, the World Meteorological Organization announced on Wednesday.

The United Nations weather agency's early bird report on 2015 says it is the hottest year on record, surpassing last year's record heat. It made the proclamation without waiting for the end of the year because it has been so extraordinarily hot, forecast to stay that way and unlikely to cool down enough to not set a record.

The report comes the week before world leaders assemble in Paris to try to negotiate an agreement to fight climate change.

"This is all bad news for the planet," the agency's secretary-general, Michel Jarraud, said in a statement.

More

Revised nuclear deal between South Korea, US takes effect

By The Associated Press

SEOUL, South Korea (AP) — A new nuclear treaty with the United States governing South Korea's commercial nuclear activities during the next 20 years went into effect Wednesday, the South Korean government said.

The treaty, which replaces a previous accord reached in 1972, opens the possibility of South Korea gaining the ability to enrich uranium to produce non-weapons-grade nuclear fuel

depending on future negotiations with the United States.

The new treaty took effect after South Korea's foreign minister and the U.S. ambassador exchanged documents in Seoul, the Foreign Ministry said in a statement.

The countries agreed to the revised treaty in April after spending several years arguing over whether South Korea should have the right to enrich and reprocess U.S.-origin nuclear fuel for commercial purposes.

The revised deal does not give South Korea that right, but provides for establishment of a high-level committee to further discuss the issue, which Seoul officials described as a step toward potential consent.

More

Xi to give speech at opening of Paris climate conference

By The Associated Press

BEIJING (AP) — President Xi Jinping will speak at a key climate change conference in Paris later this month, before making state visits to South Africa and Zimbabwe, officials announced Wednesday.

Xi will also meet on the sidelines of the conference with the presidents of France and the United States, Vice Foreign Minister Liu Zhenmin said. Xi will discuss climate change and bilateral relations with Francois Hollande and Barack Obama on Nov. 30, he said.

The Paris conference is aimed at crafting a new international agreement to reduce greenhouse gases. China, the world's biggest emitter, has emerged as a leader in curbing such emissions six years after it was accused of obstructing the last high-level climate talks in Copenhagen. Observers hope China will persuade other developing nations to sign up to a deal.

From Dec. 1-2, Xi will visit Zimbabwe for the first time and meet with President Robert Mugabe. The visit will include cooperation agreements on infrastructure, investment, wildlife protection, financing and culture, said Zhang Ming, another vice foreign minister.

More

Ukraine stops buying Russian gas, closes airspace

By Nataliya Vasilyeva

MOSCOW (AP) — Tensions between Russia and Ukraine escalated further on Wednesday

Sponsored Links

as Ukraine decided to stop buying Russian natural gas — hoping to rely on supplies from other countries — and closed its airspace to its eastern neighbor.

Russia's annexation of Crimea from Ukraine in March 2014 and its support for separatist rebels in the east brought relations between the two countries to a post-Soviet low. The fighting between Russia-backed rebels and government forces in eastern Ukraine killed more than 8,000 people and left parts of Ukraine's industrial heartland in ruins. Ukraine still has no access to the territories under rebel control as well as hundreds of kilometers of the Ukrainian border with Russia.

Ukraine has since been trying to cut its dependence on Russia gas, buying from European nations that had bought it from Russia at a lower price.

Russia's state-controlled gas company, Gazprom, said Wednesday that it stopped sending gas to Ukraine on Wednesday morning and will supply no more because Ukraine has not paid in advance for more deliveries.

More

VW to offer quick fix for diesel engines in Europe

BERLIN (AP) — Volkswagen says it will take less than an hour to bring 1.6 and 2.0 liter turbodiesel engines in Europe into line with emissions rules.

The German automaker has pledged to fix 11 million vehicles worldwide that were discovered to contain software that enables them to cheat on emissions tests for nitrogen oxide.

Volkswagen said in a statement Wednesday that in Europe the 2.0 liter EA 189 engine will require only a software update taking half an hour to install.

It said the 1.6 liter engine will be fitted with a grid to improve the motor's efficiency, taking less than an hour.

More

Mist to mask bad odor from uncontrolled gas leak: SoCalGas

By Brian Melley

LOS ANGELES (AP) — A utility trying to stop a monthlong leak at a massive natural gas storage facility near a Los Angeles neighborhood said it planned to use a mist to mask the sickening stench as work continues — possibly for three more months — to plug the well.

Sponsored Links

Southern California Gas Company officials told county supervisors Tuesday that the substance is safe and would neutralize the rotten-egg smell that has led to more than 660 complaints by residents to the air board about nausea, headaches and dizziness.

Porter Ranch residents attended the supervisors meeting to criticize the company's delay in owning up to the leak that began Oct. 23 and said they are wary of claims the deodorizing mist is harmless and fear it could cause unknown chemical reactions.

"We're not your guinea pigs," said Matt Pakucko, president of a group called Save Porter Ranch.

More

Climate changes take heavy toll on Ugandan coffee farmers

By Rodney Muhumuza

KASESE, Uganda (AP) — Luka Kinyere felt the wet, dark volcanic soil in his calloused palm, thankful for the rain that was falling again after a dry spell.

Although the coffee plants in his plantation were turning green, dry conditions had doomed his chances of turning a profit from this year's second harvest.

Here in the foothills of Uganda's Rwenzori Mountains near the border with Congo, coffee is the lifeblood of many families, and men like the polygamous Kinyere need great coffee yields to run their households. But their success is threatened by climate change, which has warmed the region over the years, encouraging pests and diseases and bringing erratic but intense rains that erode fertile earth. Consequently, harvests have become unpredictable.

"We are in trouble now," Kinyere said one recent morning as he weeded his coffee plantation, which is interspersed with banana trees.

More

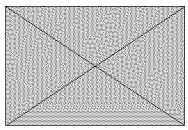
Thanksgiving holiday publishing schedule for EnergyGuardian

By EnergyGuardian

As is tradition during the Thanksgiving holiday week, EnergyGuardian will publish a single midday edition on Wednesday and will not publish its normal newsletters on Thursday or Friday this week. Of course, we'll cover any breaking news with alerts, and then resume

normal publishing on Monday morning. We wish you and your family the happiest of Thanksgivings and thank you for your support all year long.

Sponsored Links



Week in Review - Senators say no climate deal without their approval

Pass 'disapproval' resolutions on power plant rules.

Click here to read the brief

Alaska now equal partner in LNG project, completing TransCanada buyout

Alaska Gov. Bill Walker says the debt-ridden state's $65 million purchase of TransCanada's share in a major LNG project is the best "get-well card," the Alaska Dispatch News reports.

More

EIA reports increase in crude, gasoline stocks

The stocks of U.S. petroleum products increased last week, the Energy Information Administration reported, although the million barrel rise in crude stocks was less than analysts' expected, while the jump in gasoline stocks exceeded predictions, according to Reuters.

More

Greens jump into Murray case against EPA ozone limits

Earthjustice filed court papers Tuesday on behalf of several environmental and health groups seeking to intervene to defend the Environmental Protection Agency's lower ozone limits from a lawsuit brought by coal company Murray Energy, The Hill reports.

More

Stern optimistic ahead of Paris conference

State Department climate envoy Todd Stern told a news conference that he's thinking about the upside, not the downside, heading into a critical global conference on climate change policy that starts Monday, National Journal reports.

More

Court OKs Walter Energy selloff

The plan for coal producer Walter Energy to emerge from bankruptcy is being fought by unions and the firm's retired workers in Alabama, but a court Tuesday approved the company's move to auction off assets, Reuters reports.

More

Xcel working with Minnesota regulators to change electricity sector

Under a program called e21, Minnesota utility Xcel Energy is proposing modifications to the way it operates, including grid modernization and changing distribution patterns, E&E reports.

More

Lower earnings, higher debt moved Moody's to downgrade Pemex

Acting to lower its credit rating for Pemex, Moody's Investors Service pointed to the firm's increasing debt and declining earnings, although Mexico's national oil company responded by saying the move brings the agency in line with other ratings firms, The Wall Street Journal reports.

More

Koch brothers, White House parting company on criminal law rewrite

The White House and the billionaire conservative Koch brothers have been allies recently in moves to liberalize the nation's criminal justice laws, but they are disagreeing over one measure that would require proof of suspects knowingly engaging in unlawful conduct, The New York Times reports, noting that such a move is alarming environmentalists.

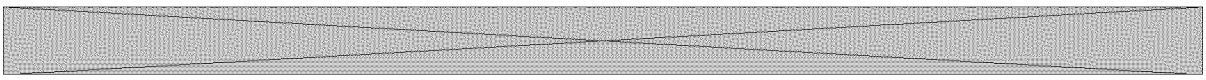
More

Death toll for extreme weather is 600,000 over 20 years, UN says

According to a report released this week by the U.N. Office for Disaster Risk Reduction, weather-related disasters have caused more than 600,000 deaths and trillions of dollars in damages over the past 20 years, The New York Times reports.

More

Upcoming Events



Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Belser, Evan[Belser.Evan@epa.gov]; Seaton, Tom[Seaton.Tom@epa.gov]; Zaremski, Sara[zaremski.sara@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Glaser, Danica (ENRD)[Danica.Glaser@usdoj.gov]; Gregory, John[Gregory.John@epa.gov]; Parkinson, Nancy[Parkinson.Nancy@epa.gov]; Kaul, Meetu[Kaul.Meetu@epa.gov]; Alexander, David[Alexander.David@epa.gov]; Bunnell, Julia[Bunnell.Julia@epa.gov]; Meekins, Tanya[Meekins.Tanya@epa.gov]; Bennett, David[Bennett.David@epa.gov]; Robinson, Milton[Robinson.Milton@epa.gov]; Bermes, Peter[Bermes.Peter@epa.gov]; Cooney, Nigel (ENRD)[Nigel.Cooney@usdoj.gov]; Meekins, Tanya[Meekins.Tanya@epa.gov]; Smith, Roxanne[Smith.Roxanne@epa.gov]; Hull, George[Hull.George@epa.gov]; Shinkman, Susan[Shinkman.Susan@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Minoli, Kevin[Minoli.Kevin@epa.gov]
From: Dolph, Becky
Sent: Wed 11/25/2015 8:05:47 PM
Subject: Updated table of VW FOIAs
VW Requests. 11252015.docx

All – attached is an updated list of FOIA requests received to date related to VW. As many of you are aware, several of the requesters have withdrawn their requests in light of the releasable info that will be made available on the publicly-facing website, and several others are considering it. Tanya, Sara and I have a path forward on the others in terms of narrowing requests, and once we hear back from OCE, we will have a process in place for approval by all interested entities (incl DOJ EES, DOJ Crim, CARB and other state/locals, OCE, OCEFT, OPA and OTAQ) for posting documents to that website.

Have a wonderful Thanksgiving.

Becky

Becky Dolph | Director, FOIA Expert Assistance Team

U.S Environmental Protection Agency

Office of General Counsel | 7309B WJCN | 202-564-5771

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ex. 7
Ex. 7
From: Ex. 7
Sent: Wed 11/25/2015 9:49:47 PM
Subject: VW Group - 2017 Model Year Certificate Request

Hello Jim,

For your review and subsequent issuance of a Certificate of Conformity, we have submitted to EPA the Initial Application and Certificate Request for the 2017 Light-duty Truck test group HVGAT03.0AUT, representing the new Audi Q7 3.0L TFSI. The pending evaporative confirmatory tests to be conducted by EPA on December 3rd, make it necessary for us to request a conditional Certificate of Conformity to accommodate our product launch plans for the first week of January 2016.

We would like to highlight that, beginning with the submission of this test group application, we have added AECD/EI-AECD information and descriptions relating to appropriate software strategies. Comprehensive strategy reviews are still underway so further AECD description detail might be added to this application if necessary in the future.

Corresponding with this first 2017 model year application, the following require information has been submitted to Verify or is forthcoming.

- 2017 *Initial Common Sections Application* representing model introductions expected in the 1st quarter of 2016 calendar year.

- 2017 *Pre model year 2017 GHG report* is forthcoming in the next week of November 30th. Note in the meantime a place holder file was necessary to upload in Verify to allow for the test group application submission.

- The required *2017 VW Group certification preview letter* is forthcoming in the next week of November 30th .

Regards,

Ex. 7

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p Ex. 7

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Rodgers, William (EEO)[William.Rodgers@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]
From: Allen, Gregory (EEO)
Sent: Mon 11/30/2015 3:37:32 PM
Subject: MY2017 Decision Request Submitted - Audi HVGAV02.0AAC Group

Hello Jim,

This morning I uploaded two decision request to verify for the vehicle(s) listed below, and for the HVGAV02.0AAC test group:

Vehicle ID: HAAC-BAF, Configuration: 0

Vehicle ID: HAAC-BAQ, Configuration: 0

Both configurations represent the new A4 that will be introduced with the Gen III 2.0L TFSI in MY2017. This engine was first introduced in the MY2016 Audi A6. The data submitted is for the FWD and Quattro versions, however, please note that the Quattro version was tested as a FWD configuration due to dyno limitations at the factory.

Please advise us of your decision as soon as possible.

Thanks Jim.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

235 W.Va. 370
Supreme Court of Appeals of
West Virginia.

HIGHLAND MINING COMPANY,
Plaintiff Below, Petitioner
v.
WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE, Defendant Below, Respondent.

No. 14–0370. | Submitted March 4, 2015. | Decided May 21, 2015.

Synopsis

Background: Records requestor brought action against public university school of medicine under Freedom of Information Act (FOIA), seeking disclosure of documents related to several articles co-authored by university professor suggesting that environmental impacts of surface coal mining played a role in the health problems of the area's residents. The Circuit Court, Monongalia County, Phillip D. Gaujot, J., entered summary judgment in favor of university and dismissed the action. Requestor appealed.

Holdings: The Supreme Court of Appeals, Workman, C.J., held that:

[1] university could properly invoke internal memoranda exception to FOIA;

[2] FOIA exempts from disclosure internal memoranda or letters received or prepared by any public body;

[3] professor's drafts, data compilations and analyses, proposed edits, e-mails, and other communications were exempt from disclosure under internal memoranda exemption;

[4] FOIA does not provide an academic freedom exemption for public universities; and

[5] remand was required for requestor to have the opportunity to taper its requests.

Affirmed in part, reversed in part, and remanded.

Ketchum, J., concurred in part, dissented in part, and filed opinion.

41** ***Syllabus by the Court

1. "A circuit court's entry of summary judgment is reviewed *de novo.*" Syl. Pt. 1, *Painter v. Peavy,* 192 W.Va. 189, 451 S.E.2d 755 (1994).

2. " ' "The disclosure provision of this State's Freedom of Information Act, *W.Va.Code,* 29B–1–1 *et seq.*, as amended, [is] to be liberally construed, and the exemptions to such Act are to be strictly construed. *W.Va.Code,* 29B–1–1 ." Syl. Pt. 4, *Hechler v. Casey,* 175 W.Va. 434, 333 S.E.2d 799 (1985)' Syl. pt. 5, *Queen v. West Virginia University Hospitals,* 179 W.Va. 95, 365 S.E.2d 375 (1987)." Syl. Pt. 1, *Daily Gazette Co. v. W.Va. Dev. Office,* 198 W.Va. 563, 482 S.E.2d 180 (1996).

3. " *W.Va.Code,* [§ 29B–1–4(a)(8)], which exempts from disclosure 'internal memoranda or letters received or prepared by any public body' specifically exempts from disclosure only those written internal government communications consisting of advice, opinions and recommendations which reflect a public body's deliberative, decision-making process; written advice, opinions and recommendations from one public body to another; and written advice, opinions and recommendations to a public body from outside consultants or experts obtained during the public body's deliberative, decision-making process. *W.Va.Code,* [§ 29B–1–4(a)(8)] does not exempt from disclosure written communications between a public body and private persons or entities where such communications do not consist of advice, opinions or recommendations to the public body from outside consultants or experts obtained during the public body's deliberative, decision-making process." Syl. Pt. 4, *Daily Gazette Co. v. W.Va. Dev. Office,* 198 W.Va. 563, 482 S.E.2d 180 (1996).

4. West Virginia's Freedom of Information Act, West Virginia Code § 29B–1–4(a)(8) (2012), exempts from disclosure "internal memoranda or letters received or prepared by any public body" as defined by West Virginia Code § 29B–1–2(3) (2012).

***42** 5. To invoke the "internal memoranda" exemption set forth in West Virginia Code § 29B–1–4(a)(8) (2012) successfully, the public body must show that in the

context in which the materials are prepared or considered, the documents are both predecisional and deliberative to its decision-making process. Predecisional documents are prepared in order to assist a public body decisionmaker in arriving at his or her decision. Deliberative material reflects the give-and-take of the consultative process, by revealing the manner in which the public body evaluates possible alternatives relevant to the decisional process.

6. "The primary purpose of the invasion of privacy exemption to the Freedom of Information Act, *W.Va.Code,* [§ 29B–1–4(a)(2)], is to protect individuals from the injury and embarrassment that can result from the unnecessary disclosure of personal information." Syl. Pt. 6, *Hechler v. Casey,* 175 W.Va. 434, 333 S.E.2d 799 (1985).

7. The West Virginia Freedom of Information Act does not provide an "academic freedom" exemption to its general disclosure provision, West Virginia Code § 29B–1–3 (2012).

8. "A statute, or an administrative rule, may not, under the guise of 'interpretation,' be modified, revised, amended or rewritten." Syl. Pt. 1, *Consumer Advocate Div. v. Pub. Serv. Comm'n,* 182 W.Va. 152, 386 S.E.2d 650 (1989).

9. "In response to a proper Freedom of Information Act request, a public body has a duty to redact or segregate exempt from non-exempt information contained within the public record(s) responsive to the FOIA request and to disclose the nonexempt information unless such segregation or redaction would impose upon the public body an unreasonably high burden or expense. If the public body refuses to provide redacted or segregated copies because the process of redacting or segregating would impose an unreasonably high burden or expense, the public body must provide the requesting party a written response that is sufficiently detailed to justify refusal to honor the FOIA request on these grounds. Such written response, however, need not be so detailed that the justification would compromise the secret nature of the exempt information." Syl. Pt. 5, *Farley v. Worley,* 215 W.Va. 412, 599 S.E.2d 835 (2004).

10. "Pursuant to West Virginia Code § 29B–1–3(5) (2012), a public body is vested with the authority and discretion to impose a search or retrieval fee in connection with a Freedom of Information Act request to provide public records provided that such fee is reasonable." Syl. Pt. 2, *King v. Nease,* 233 W.Va. 252, 757 S.E.2d 782 (2014).

11. "For a person to have brought a suit for the disclosure of public records under the West Virginia Freedom of Information Act (FOIA), as permitted by W.Va.Code § 29B–1–5 (1977) (Repl.Vol.1998), so as to entitle him/her to an award of attorney's fees for "successfully" bringing such suit pursuant to W.Va.Code § 29B–1–7 (1992) (Repl.Vol.1998), he/she need not have prevailed on every argument he/she advanced during the FOIA proceedings or have received the full and complete disclosure of every public record he/she wished to inspect or examine. An award of attorney's fees is proper even when some of the requested records are ordered to be disclosed while others are found to be exempt from disclosure or are released in redacted form. In the final analysis, a successful FOIA action, such as would warrant an award of attorney's fees as authorized by W.Va.Code § 29B–1–7 , is one which has contributed to the defendant's disclosure, whether voluntary or by order of court, of the public records originally denied the plaintiff." Syl. Pt. 7, *Daily Gazette Co. v. W.Va. Dev. Office,* 206 W.Va. 51, 521 S.E.2d 543 (1999).

Attorneys and Law Firms

Christopher B. Power , Esq., Robert M. Stonestreet , Esq., Babst, Calland, Clements and Zomnir, PC, Charleston, WV, for Petitioner.

Carte P. Goodwin , Esq., Johnny M. Knisely II , Esq., Benjamin B. Ware, Esq., Elise N. McQuain, Esq., Goodwin & Goodwin, LLP, Charleston, WV, for Respondent.

Opinion

WORKMAN, Chief Justice:

Petitioner Highland Mining Company ("Highland") filed this civil action under the ***43** West Virginia Freedom of Information Act ("FOIA"), West Virginia Code §§ 29B–1–1 to – 7 (2012), seeking disclosure of public records from Respondent West Virginia University School of Medicine ("WVU"). The FOIA requests focused on documents related to several articles co-authored by WVU Associate Professor Michael Hendryx, Ph.D., suggesting that environmental impacts of surface coal mining play a role in the health problems of the area's residents. The parties litigated this matter for two years in the Circuit Court of Monongalia County; WVU released certain documents to Highland but withheld certain other documents, either in whole or in part, claiming they were statutorily exempt. Finally, the circuit

court granted summary judgment in favor of WVU, and dismissed this action.

On appeal to this Court, Highland raises several assignments of error and argues the circuit court's order should be reversed because it is based upon an unprecedented expansion of the FOIA exemptions. Upon review, we affirm, in part; reverse, in part; and remand the case for further proceedings. For the reasons discussed below, this Court finds: (1) WVU may invoke the FOIA's "internal memoranda" exemption set forth in West Virginia Code § 29B–1–4(a)(8) to withhold documents that reflect Professor Hendryx's deliberative process; (2) WVU may not claim an "academic freedom" privilege to avoid the plain language of the FOIA; (3) the FOIA's "personal privacy" exemption set forth in West Virginia Code § 29B–1–4(a)(2) is not applicable to documents containing anonymous peer review comments of the draft articles but those documents are still exempt from disclosure under the FOIA's "internal memoranda" exemption; (4) Highland should have been afforded the opportunity to modify its FOIA requests before the circuit court dismissed the action; and (5) the circuit court must issue a ruling on Highland's request for attorney fees and costs. Accordingly, we remand this matter for further proceedings consistent with this opinion.

I. FACTUAL AND PROCEDURAL HISTORY

Highland submitted extensive FOIA requests to WVU on February 1, 2012. Highland requested documents related to eight articles co-authored by Professor Hendryx, Director of the West Virginia Rural Health Research Center, with WVU's School of Medicine's Department of Community Medicine. In those articles, Professor Hendryx suggested there was a connection between surface coal mining and birth defects, cancer, and poor quality of life in the region. [1] Highland requested essentially all documents related to the initiation, preparation and publication of Professor Hendryx's articles.[2]

***44** By e-mails dated March 2, 2012, WVU refused to release any documents responsive to the FOIA requests. WVU asserted the documents were exempt from disclosure under the following FOIA exemptions: (1) information of a personal nature, West Virginia Code § 29B–1–4(a)(2); (2) information specifically exempt from disclosure by statute, West Virginia Code § 29B–1–4(a)(5) ; (3) internal memoranda, West Virginia Code § 29B–1–4(a)(8) ; and (4) trade secrets, West Virginia Code § 29B–1–4(a)(1) .

On April 12, 2012, Highland instituted this action against WVU, seeking disclosure of the documents it requested pursuant to the FOIA. WVU filed a motion to dismiss on August 3, 2012, claiming the FOIA requests were overly broad and unduly burdensome; Highland filed a motion for summary judgment on September 11, 2012. Following a hearing on these motions, the circuit court rejected WVU's claim of undue burden. The circuit court stated WVU was "stonewalling" Highland by refusing to provide any responsive documents. By order entered November 7, 2012, the circuit court denied WVU's motion to dismiss and deferred a ruling on Highland's motion for summary judgment. The circuit court required that WVU release any responsive information to Highland, and if any responsive documents were withheld from disclosure or redacted, that WVU provide a *Vaughn* index [3] and explanative affidavit.

Thereafter, WVU retained the services of a document management company to electronically manage the production of documents for Highland's FOIA requests. Over the course of this litigation, WVU has made five productions of documents to Highland, producing some 2,364 documents, totaling 11,090 pages. Four of those document productions [4] included a separate *Vaughn* index and corresponding affidavit, explaining WVU's decision to redact 119 documents and withhold 772 documents.

***45** On April 3, 2013, Highland filed a renewed motion for summary judgment, arguing the *Vaughn* indices that WVU provided were facially insufficient and that most, if not all, of the exemptions cited by WVU were not applicable. Following briefing, the circuit court held a hearing on this motion. On May 30, 2013, the circuit court entered an "Agreed Order Regarding Preparation of Sample *Vaughn* Index." The circuit court required WVU to provide a sample *Vaughn* index with respect to a limited number of withheld documents; this *Vaughn* index was to include a more detailed explanation of each withheld document, specifically, how each cited exemption applied to justify the respective withholding.

On July 17, 2013, WVU provided the sample *Vaughn* index and the affidavit of WVU's associate general counsel. The sample *Vaughn* index listed ninety-three documents that were redacted or withheld from production. According to WVU, some documents were withheld on the basis of the FOIA's "internal memoranda" exemption, some documents were withheld on the basis of "academic freedom" privilege,

VW FOIA, EPA 06/20/2017 2017-FFP_036276

and some documents were withheld on the basis of the FOIA's "trade secret" exemption.

On November 6, 2013, the circuit court entered an "Agreed Order Regarding Briefing on Outstanding Issues," pursuant to which it required both parties to file renewed motions for summary judgment. Thereafter, the parties filed briefs and identified those documents listed on the sample *Vaughn* index they wanted the circuit court to review in camera.

In Highland's memorandum of law in support of its renewed motion for summary judgment, Highland provided the following factual background regarding its request for documents concerning Professor Hendryx's work:

> At all relevant times, Michael Hendryx, Ph.D., was a professor employed by the defendant West Virginia University School of Medicine ("WVU") who holds degrees in psychology but is not a medical doctor, toxicologist, or epidemiologist. Prof. Hendryx was the Director of the West Virginia Rural Health Research Center, where he and his colleagues received public funds to research rural health issues. In that capacity, Hendryx published taxpayer-funded papers such as those that are the subject of the FOIA Requests, focused on linking coal mining and adverse health impacts. His goal ~~in~~ his own words ~~is~~ to convince "politicians" that West Virginia "can have a better economy if we work to create a more diverse economy that does not depend on coal." He further hopes his studies help eliminate mountaintop removal mining and focus policymakers away from coal and towards "cleaner" forms of energy. He thinks that "tighter standards on emissions controls is an important outcome of [his] research." He hopes "to get [his papers] more in the eyes of state policy makers" so that "the Appalachian people and governments could consider whether our reliance on coal mining for the economy is a good idea or not." (footnotes and citations omitted).

Highland requested that the circuit court order WVU to provide all responsive documents listed on the sample *Vaughn* index, arguing they do not fall under any applicable FOIA exemption. Highland also requested that the circuit court order WVU to confer with Highland regarding the retrieval and review of additional responsive materials that have yet to be gathered in response to the FOIA request. Finally, Highland asserted the circuit court should award it attorney fees and costs in accordance with West Virginia Code § 29B–1–7 because WVU improperly denied Highland access to the public records.

In WVU's memorandum of law in support of its renewed motion for summary judgment, WVU argued:

> The majority of the documents were withheld or redacted because they contain the preliminary deliberations and research of an academic professor. Specifically, these documents include draft research papers and correspondence between co-authors with comments or suggestions regarding the drafts themselves. Like other state employees (perhaps even more so), these faculty members must be permitted the latitude to craft and hone their work in ***46** an environment that fosters the free exchange of ideas.

Thus, WVU claimed the documents withheld were exempt from disclosure under the "internal memoranda" exemption of the FOIA, and/or an "academic freedom" privilege. [5] WVU also argued that Highland's FOIA requests were unduly burdensome because WVU identified over 240,000 documents that were potentially responsive to Highland's requests and "[t]o date, WVU [had] reviewed 43,733 documents in a process that ... spanned the pendency of this case."

[1] **[2]** Following an in camera review of the documents,[6] the circuit court entered an order on March 19, 2014, granting summary judgment to WVU and denying Highland's cross-motion. The circuit court held that WVU had properly refused to provide all withheld and redacted documents on the basis of: (1) the FOIA's "internal memoranda" exemption found at West Virginia Code § 29B–1–4(a)(8) ; (2) an "academic freedom" privilege it incorporated into the FOIA's "personal privacy" exemption found at West Virginia Code § 29B–1–4(a)(2) ; and/or (3) the FOIA requests were unduly burdensome. The circuit court did not address Highland's motion for attorney fees and costs.

On appeal to this Court, Highland raises eight assignments of error. [7] Highland urges this Court to reverse the order of the circuit court and find that WVU must provide the documents requested below. Highland maintains it needs this information in order to evaluate the internal validity of the studies and the conclusions reached in Professor

Hendryx's articles. Highland also requests that it be granted its reasonable attorney fees and costs incurred in prosecuting this action, pursuant to West Virginia Code § 29B–1–7 .

II. STANDARD OF REVIEW

[3] **[4]** **[5]** "Summary judgment is the preferred method of resolving cases brought under FOIA." *Farley v. Worley,* 215 W.Va. 412, 418, 599 S.E.2d 835, 841 (2004) (quoting *Evans v. Office of Pers. Mgmt.,* 276 F.Supp.2d 34, 37 (D.D.C.2003)). An order granting summary judgment engenders plenary review. "A circuit court's entry of summary judgment is reviewed *de novo.* " Syl. Pt. 1, *Painter v. Peavy,* 192 W.Va. 189, 451 S.E.2d 755 (1994).

III. DISCUSSION

[6] The FOIA requires the release of public records upon request. *See AT & T Commc'ns of W.Va., Inc. v. Pub. Serv. Comm'n,* 188 W.Va. 250, 253, 423 S.E.2d 859, 862 (1992) ("The general policy of th[e] act is to allow as many public records as possible to be made available to the public." (footnote omitted)).

***47** **[7]** Pursuant to the FOIA, "[e]very person has a right to inspect or copy any public record of a public body in this State, except as otherwise expressly provided by ... [W.Va.Code § 29B–1–4][.]" W.Va.Code, § 29B–1–3(1) . A FOIA requester is not required to explain why a record should be disclosed or for what purpose a record is being requested.[8] The FOIA sets forth nineteen specific exemptions to its general disclosure provisions. *See id.* § 29B–1–4 .

[8] **[9]** This Court has made clear that the FOIA's exemptions are to be strictly construed, while the FOIA's disclosure provisions are to be liberally construed:

> " 'The disclosure provision of this State's Freedom of Information Act, *W.Va.Code,* 29B–1–1 *et seq.* , as amended, [is] to be liberally construed, and the exemptions to such Act are to be strictly construed. *W.Va.Code,* 29B–1–1 .' Syl. Pt. 4, *Hechler v. Casey,* 175 W.Va. 434, 333 S.E.2d 799 (1985) ." Syl. pt. 5, *Queen v. West Virginia University Hospitals,* 179 W.Va. 95, 365 S.E.2d 375 (1987).

Syl. Pt. 1, *Daily Gazette Co. v. W.Va. Dev. Office,* 198 W.Va. 563, 482 S.E.2d 180 (1996) ("*Daily Gazette I* "). The burden of proof falls on the public body asserting the exemption to demonstrate that the public record should be protected from disclosure: "The party claiming exemption from the general disclosure requirement under West Virginia Code § 29B–1–4 has the burden of showing the express applicability of such exemption to the material requested."[9] Syl. Pt. 7, *Queen,* 179 W.Va. at 95, 365 S.E.2d at 375.

[10] With this background to guide us, we now address the two FOIA exemptions at issue in this appeal, [10] whether the FOIA requests are unduly burdensome to WVU, and Highland's request for attorney fees and costs.

A. The FOIA's Internal Memoranda Exemption

[11] The principal statutory provision at issue in this case, West Virginia Code § 29B–1–4(a)(8) provides: "[i]nternal memoranda or letters received or prepared by any public body" are specifically exempt from disclosure under the FOIA. Through the development of case law, this FOIA exemption is commonly referred to as the "deliberative process" exemption and we use the terms interchangeably. The precise question presented here is an issue of first impression for this Court: whether a state university may invoke the "internal memoranda" exemption with respect to documents related to its professor's scientific/academic research. The parties do not cite any precedent interpreting other states' FOIAs directly on point.

[12] **[13]** We begin our analysis with our leading case on this issue, *Daily Gazette I.* A newspaper made FOIA requests to the West Virginia Development Office seeking information involving the Development Office's deliberations about whether to support a proposed industrial plant in Mason County, West Virginia. In response, the Development Office released certain documents but withheld others on the ground they were "internal memoranda" exempt from disclosure under the FOIA. ***48** 198 W.Va. at 567, 482 S.E.2d at 184–85 . We set forth the criteria courts must apply when addressing the FOIA's "internal memoranda" exemption in syllabus point four of *Daily Gazette I:*

> *W.Va.Code,* [§ 29B–1–4(a)(8)], [11] which exempts from disclosure "internal memoranda or letters received or prepared by any public body" specifically exempts

> from disclosure only those written internal government communications consisting of advice, opinions and recommendations which reflect a public body's deliberative, decision-making process; written advice, opinions and recommendations from one public body to another; and written advice, opinions and recommendations to a public body from outside consultants or experts obtained during the public body's deliberative, decision-making process. *W.Va.Code,* [§ 29B–1–4(a)(8)] does not exempt from disclosure written communications between a public body and private persons or entities where such communications do not consist of advice, opinions or recommendations to the public body from outside consultants or experts obtained during the public body's deliberative, decision-making process.

198 W.Va. at 575, 482 S.E.2d at 192 (footnote added).

In *Daily Gazette I,* we recognized the relationship between West Virginia's FOIA "internal memoranda" exemption and the federal FOIA counterpart, which exempts from public disclosure "inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency[.]" 5 U.S.C. § 552(b)(5) (1994). 198 W.Va. at 571, 482 S.E.2d at 188. This federal FOIA exemption "preserves to government agencies 'such recognized evidentiary privileges as the attorney-client privilege, the attorney work-product privilege, and the executive "deliberative process" privilege.' *Schell [v. U.S. Dep't of Health & Human Services],* 843 F.2d [933] at 939 [(6th Cir.1988)] (citing *Parke, Davis & Co. v. Califano,* 623 F.2d 1, 5 (6th Cir.1980))." *Daily Gazette I,* 198 W.Va. at 571, 482 S.E.2d at 188 . We acknowledged the "deliberative process" privilege wording of the federal FOIA differs from that of West Virginia's FOIA. *Id.* Nevertheless, we found federal precedent useful in construing our FOIA.

[14] In *Daily Gazette I,* we cited a seminal decision from the United States Supreme Court on the "deliberative process" privilege, *N.L.R.B. v. Sears, Roebuck & Co.,* 421 U.S. 132, 95 S.Ct. 1504, 44 L.Ed.2d 29 (1975):

> [t]he cases uniformly rest the [deliberative process] privilege on the policy of protecting the "decision making processes of government agencies," ... and focus on documents "reflecting advisory opinions, recommendations and deliberations comprising part of a process by which governmental decisions and policies are formulated." ... The point, plainly made in [S.Rep. No. 813, 89th Cong., 1st Sess. 9 (1965)], is that the "frank discussion of legal or policy matters" in writing might be inhibited if the discussion were made public; and that the "decisions" and "policies formulated" would be the poorer as a result.

Daily Gazette I, 198 W.Va. at 572, 482 S.E.2d at 189 (quoting *Sears, Roebuck,* 421 U.S. at 150, 95 S.Ct. 1504).

[15] **[16]** **[17]** **[18]** The "deliberative process" privilege is designed to protect the quality of government decision-making by ensuring that it is not done "in a fishbowl." *EPA v. Mink,* 410 U.S. 73, 87, 93 S.Ct. 827, 35 L.Ed.2d 119 (1973), *superceded by statute,* Freedom of Information Act, 5 U.S.C. § 552(b)(1) (2002) . This FOIA exemption encourages free discussion of alternatives, and "insulates against the chilling effect likely were officials to be judged not on the basis of their final decisions, but 'for matters they considered before making up their minds.' " *City of Virginia Beach, Va. v. U.S. Dep't of Commerce,* 995 F.2d 1247, 1253 (4th Cir.1993) (quoting *Jordan v. U.S. Dep't of Justice,* 591 F.2d 753, 772–73 (D.C.Cir.1978) , *overruled in part on other grounds, Crooker v. Bureau of Alcohol, Tobacco & Firearms,* 670 F.2d 1051 (D.C.Cir.1981)). "While transparency ***49** in government is an important democratic value, our society has often recognized that many important governmental functions operate best removed from the public glare." Michael N. Kennedy, *Escaping the Fishbowl: A Proposal to Fortify the Deliberative Process Privilege,* 99 Nw. U.L. Rev. 1769, 1770 (2005). Nevertheless, because of the FOIA's strong policy favoring disclosure, this exemption should be construed "as narrowly as consistent with efficient Government operation." *Mink,* 410 U.S. at 87, 93 S.Ct. 827 (quoting S.Rep. No. 813, 89th Cong., 1st Sess. 9 (1965)). [12] We are mindful that the "deliberative process" FOIA exemption benefits the public and not the officials who assert it. *See Kaiser Aluminum and Chem. Corp. v. U.S.,* 157 F.Supp. 939, 944 (Ct.Cl.1958).

[19] **[20]** **[21]** To invoke the "internal memoranda" exemption successfully, the public body must meet two prerequisites: in "the context in which the materials are used," the documents must be both predecisional and deliberative. *Virginia Beach,* 995 F.2d at 1253 (quoting *Wolfe v. Dep't of Health & Human Servs.,* 839 F.2d 768, 774 (D.C.Cir.1988)). Predecisional documents are "prepared in order to assist an agency decisionmaker in arriving at his decision." *Renegotiation Bd. v. Grumman Aircraft Eng'g Corp.,* 421 U.S. 168, 184, 95 S.Ct. 1491, 44 L.Ed.2d 57 (1975). Deliberative material "reflects the give-and-take

of the consultative process," by revealing the manner in which the agency evaluates possible alternative policies or outcomes. *Virginia Beach,* 995 F.2d at 1253 (citing *Coastal States Gas Corp. v. Dep't of Energy,* 617 F.2d 854, 866 (D.C.Cir.1980)).

WVU argues the FOIA's "internal memoranda" exemption justifies its decision to withhold 760 documents. A research scientist at a public college or university is subject to FOIA because he or she is employed by a public body. Therefore, WVU maintains he or she must be equally and congruently entitled to the protection of this FOIA exemption. For these public body employees, the public function they are hired to perform is the research and publication of scholarly articles. WVU contends the "deliberations" they undertake and the "decisions" the professors make include the final publication of their research efforts. A public university or college's "policy" is to nurture, support, and publish academic research on areas of public concern; its mission is fulfilled when the article is published. Therefore, WVU maintains that if the deliberative processes of its researchers are open for public inspection, WVU will be unable to fulfill its mission.

In opposition, Highland argues this FOIA exemption does not apply because Professor Hendryx was not engaged in policy making on behalf of WVU when preparing the subject articles. In fact, WVU has expressly disclaimed the notion that any research paper published by a WVU professor represents WVU's position or policy. [13] Furthermore, Highland argues the publication of the articles at issue did not involve policy making or a deliberative process within the meaning of this FOIA exemption. Highland relies on a narrow reading of *Ethyl Corp. v. Environmental Protection Agency,* 25 F.3d 1241 (4th Cir.1994), wherein the Fourth Circuit Court of Appeals held the "deliberative process" exemption only allows for the withholding of documents that "bear on the formulation or exercise of *policy-oriented judgment.*" *Id.* at 1248 (emphasis added), *see also Coastal States,* 617 F.2d at 866 (declaring federal FOIA "deliberative process" privilege protects "premature disclosure of *proposed policies*") (emphasis added).

Ultimately, Highland maintains WVU can *never* avail itself of the "internal memoranda" FOIA exemption because neither the WVU School of Medicine nor its Rural ***50** Health Research Center is a state agency; they do not regulate any activity, promulgate rules or policies that govern any entity's conduct, or engage in any other type of governmental function. Highland acknowledges, however, that Professor Hendryx may have sought to influence the development of policy by federal and state agencies responsible for regulating surface coal mining, but he had no authority to directly develop or impose any such policies.

We agree with Highland's factual assessment that while WVU is a public body, it is not a state agency engaged in policy making. We further agree that Professor Hendryx did not formulate policy on behalf of WVU when he published the research articles. Nevertheless, we emphatically reject Highland's legal argument that WVU may not invoke the "internal memoranda" exemption because that exemption covers only documents reflecting agency policy making communications. There is a bulk of case law applying the federal FOIA's "deliberative process" exemption in the context of administrative agency policy/decision making. [14] At the same time, however, a plethora of federal FOIA cases also extend this exemption to public bodies engaged in activities other than agency policy making. "In its relatively short life, the deliberative process privilege has become one of the most predominate privileges exercised by the government and is now routinely asserted in a wide array of litigation challenging government decisionmaking." Michael Ray Harris, *Standing in the Way of Judicial Review: Assertion of the Deliberative Process Privilege in APA Cases,* 53 St. Louis U.L.J. 349, 350 (2009).

[22] Having considered all of these competing arguments, we reject Highland's contention that the "internal memoranda" exemption applies only to administrative agency policy making. A plain reading of our FOIA confirms that WVU has the stronger argument. In West Virginia, administrative agencies are not the only public bodies subject to the FOIA and its accompanying exemptions.West Virginia Code § 29B–1–4(a)(8) exempts from disclosure "internal memoranda or letters received or prepared by *any public body.*" *Id.* (emphasis added). And the definition of "public body" under our FOIA is extensive:

> "Public body" means every state officer, agency, department, including the executive, legislative and judicial departments, division, bureau, board and commission; every county and city governing body, school district, special district, municipal corporation, and any board, department, commission, council or agency thereof; and any other body

> which is created by state or local authority or which is primarily funded by the state or local authority.

Id. § 29B–1–2(3) .[15] The public body entities and their employees set forth above engage in an immensely diverse range of endeavors related to government service. Therefore, we expect their internal deliberations will necessarily address a variety of matters related ***51** to their state and/or local governmental responsibilities.

Consequently, in *Daily Gazette I,* we did not confine the "internal memoranda" exemption to deliberations preceding agency policy making. Instead, we held a public body may exempt from disclosure documents which reflect its "*deliberative decision-making process.* " 198 W.Va. at 575, 482 S.E.2d at 192 (emphasis added). We explained that courts must evaluate the "function and significance of the documents" to the public body's decision-making process, including an explanation of "the nature of the decision-making authority vested in the office or person issuing the disputed documents[.]" *Id.*[16]

[23] **[24]** **[25]** We hereby announce that West Virginia's Freedom of Information Act, West Virginia Code § 29B–1–4(a)(8) (2012), exempts from disclosure "internal memoranda or letters received or prepared by any public body" as defined by West Virginia Code § 29B–1–2(3) (2012). The FOIA reflects our Legislature's recognition that disclosure of public body communications reflecting deliberative processes on any subject could have a chilling effect on future communications. Confidentiality of certain documents connected with a public body's decision-making process ensures frank and open discussion among its employees, which in turn enhances the quality of their decisions. Considering the strong policy favoring disclosure of public documents, courts must construe this exemption narrowly as consistent with efficient state and local government operations. The key question in every case is whether the disclosure of documents would expose a public body's decision-making process so as to discourage candid discussion and thereby undermine the public body's ability to perform its functions. *See Times Mirror Co. v. Super. Ct.,* 53 Cal.3d 1325, 283 Cal.Rptr. 893, 813 P.2d 240, 250 (1991) ("In short, the courts' focus ... is less on the nature of the records sought and more on the effect of the records' release.").

[26] Having determined that WVU, as a public body, may assert the "internal memoranda" exemption, we now turn to the pivotal question of whether the withheld documents fall within this exemption. As discussed above, to invoke the "internal memoranda" exemption set forth in West Virginia Code § 29B–1–4(a)(8) (2012) successfully, the public body must show that in the context in which the materials are prepared or considered, the documents are both predecisional and deliberative to its decision-making process. Predecisional documents are prepared in order to assist a public body decisionmaker in arriving at his or her decision. Deliberative material reflects the give-and-take of the consultative process, by revealing the manner in which the public body evaluates possible alternatives relevant to the decisional process.

[27] The relevant public body decision for purposes of applying the "deliberative process" exemption to these public records is not whether WVU adopted a position or policy regarding mountaintop coal removal's health effects on state residents. Rather, when a FOIA requester seeks records surrounding or leading up to an agency publication, the relevant agency decision for purposes of applying the "deliberative process" exemption is the development and ultimate publication of the article. *See United Am. Fin., Inc. v. Potter,* 531 F.Supp.2d 29, 44 (D.D.C.2008) (finding that relevant agency decision was agency's publication of article where plaintiff's FOIA request sought all ***52** supporting documents and drafts of documents relating to article), *accord, Hooker v. U.S. Dep't of Health and Human Servs.,* 887 F.Supp.2d 40, 57 (D.D.C.2012).

In *Hooker,* a parent of an autistic child filed a federal FOIA action against the Department of Health and Human Services ("HHS") and the Centers for Disease Control ("CDC"), seeking disclosure of information, including all correspondence among researchers, regarding the publication of studies relating to a possible connection between a mercury-based compound used in vaccines and autism. *Id.* at 45. Like Highland sought in the instant case, Mr. Hooker wanted access to this information to refute the conclusions reached in the articles. Mr. Hooker contended the HHS and CDC consistently denied a relationship between the mercury-based compound and autism, "in the face of 'a mounting body of compelling scientific literature' that support[ed] the existence of such a relationship." *Id.* The court rejected Mr. Hooker's arguments and found the HHS and CDC properly applied the federal FOIA "deliberative process" exemption to material that was deliberative in nature when withholding

VW FOIA, EPA 06/20/2017 2017-FFP_036281

internal communications revealing the analysis underlying the draft manuscripts. *Id.* at 58.

[28] **[29]** **[30]** We find the court's analysis in *Hooker* instructive. Thus, we limit our inquiry to whether a requested document, regardless of its nature, (1) was generated before the publication of the research article to which it relates, and if so, (2) whether it reflects Professor Hendryx's deliberative, decision-making or thought process employed to arrive at the article's conclusions and ultimate publication. "[T]he deliberative process exemption protects 'recommendations, draft documents, proposals, suggestions, and other subjective documents which reflect the personal opinions of the writer rather than the policy of the agency.' " *Virginia Beach,* 995 F.2d at 1253 (quoting *Coastal States,* 617 F.2d at 866). "Draft documents, by their very nature, are typically predecisional and deliberative." *Keeper of the Mountains Found. v. U.S. Dep't of Justice,* 514 F.Supp.2d 837, 854 (S.D.W.Va.2007) (citations omitted).

In *Chemical Manufacturers Association v. Consumer Product Safety Commission,* 600 F.Supp. 114 (D.D.C.1984), the district court addressed this same issue and found documents qualified under the federal FOIA "deliberative process" exemption because they detailed an exchange of ideas among scientists regarding the agency's study of a chemical used in the manufacture of toys. *Id.* at 119. The court ruled these scientific deliberations were part of the agency's "give-and-take" and that disclosure of such deliberations would discourage open discussion among the agency scientists. *Id.* Specifically, the court held that "scientists should be able to withhold nascent thoughts where disclosure would discourage the intellectual risk-taking so essential to technical progress." 600 F.Supp. at 118.

Not only is the parallel to the concerns raised in *Hooker* and *Chemical Manufacturers* evident, but Highland's attempt to invade Professor Hendryx's deliberative process is patent. First, considering the context in which the materials were used, WVU has shown that any document which reveals the analysis underlying Professor Hendryx's articles is predecisional. In the state higher education academic setting, documents generated before the final publication of a scientific research article—all documents related to the initiation, preparation and publication of the articles—are by their very nature predecisional. Second, WVU has shown that any document, regardless of its nature, that exposes the give-and-take of the scientific research consultative process, by revealing the manner in which the researchers evaluate possible alternative outcomes, is deliberative. Because these drafts, data compilations [17] and analyses, proposed edits, e-mails ***53** and other communications, and peer review comments and responses relate to the planning, preparation and editing necessary to produce a final published article, they are exempt from disclosure. We therefore find that, on the evidence before the circuit court at the summary judgment hearing, [18] WVU successfully carried its burden of proving certain documents fell under the "internal memoranda" umbrella of the FOIA.

[31] **[32]** Our review of the appendix record, however, reveals that WVU improperly claimed the "deliberative process" exemption to some documents that are post-decisional and/or non-deliberative. [19] As the Supreme Court recognized in *Sears,* the purpose of the deliberative process privilege is to protect the quality of an agency's decision; revealing "communications made after the decision and designed to explain it" do not affect a decision's quality. 421 U.S. at 152, 95 S.Ct. 1504.

Our holding today comports with *American Tradition Institute v. Rector and Visitors of the University of Virginia,* 287 Va. 330, 756 S.E.2d 435 (2014) ("*UVA*"), where the Virginia Supreme Court was faced with facts analogous to the instant case. In *UVA,* a requester brought suit under Virginia's FOIA against the University of Virginia seeking disclosure of documents produced or received by a former professor while working at the university. *Id.* at 437. The professor was a climate scientist and former professor whose scholarly work had "generated much scientific and political interest." *Id.* Applying a FOIA exemption,[20] the court upheld the university's exclusion of the documents from production. *Id.* at 442. In *UVA*, "many noted scholars and academic administrators submitted affidavits attesting to the harmful impact disclosure would have in these circumstances." *Id.* The court quoted an affidavit from John Simon, Vice President and Provost of the university and former Vice–Provost of Duke University, addressing the concerns relevant to academia:

> If U.S. scientists at public institutions lose the ability to protect their communications with faculty at other institutions, their ability to collaborate will be gravely harmed. The result will be a loss of scientific and creative opportunities for faculty at institutions in states which have not established protections under state FOIAs for such communications.... For faculty at public institutions such

VW FOIA, EPA 06/20/2017 2017-FFP_036282

as the University of Virginia, compelled disclosure of their ***54** unpublished thoughts, data, and personal scholarly communications would mean a fundamental disruption of the norms and expectations which have enabled research to flourish at the great public institutions for over a century.

...

I can state unequivocally that recruitment of faculty to an institution like the University of Virginia will be deeply harmed if such faculty must fear that their unpublished communications with the scientific collaborators and scholarly colleagues are subject to involuntary public disclosure.

Id. at 442.

The same reasoning applies with equal force here. [21] When we focus on the resulting effect of the documents' release, the resolution of this case is decidedly clear. The involuntary public disclosure of Professor Hendryx's research documents would expose the decision-making process in such a way as to hinder candid discussion of WVU's faculty and undermine WVU's ability to perform its operations. We acknowledge that West Virginia's FOIA does not have an exemption specifically applicable to state institutions of higher education like Virginia does. Nevertheless, we find that documents generated during higher education academic research may be legally protected from disclosure under West Virginia Code § 29B–1–4(a)(8) , when the public body demonstrates the criteria outlined above are satisfied. Accordingly, we affirm the order of the circuit court insofar as it found WVU properly invoked the FOIA "internal memoranda" exemption to withhold certain documents.

B. The FOIA's Personal Privacy Exemption

[33] **[34]** The FOIA's "personal privacy" exemption permits the withholding of "information of a personal nature such as that kept in a personal, medical or similar file[.]" W.Va.Code § 29B–1–4(a)(2) . In syllabus point six of *Hechler v. Casey,* 175 W.Va. 434, 333 S.E.2d 799 (1985) , we held: "The primary purpose of the invasion of privacy exemption to the Freedom of Information Act, *W.Va.Code,* [§ 29B–1–4(a)(2)], [22] is to protect individuals from the injury and embarrassment that can result from the unnecessary disclosure of personal information." *Id.* (footnote added). We employ a two-pronged inquiry in deciding whether the public body has correctly withheld records under this exemption. First, we determine whether the records in question are "personal," "medical," or "similar" files. Second, if so, we then balance or weigh the individual's right of privacy against "the public's right to know." *Hechler,* 175 W.Va. at 444, 333 S.E.2d at 810.

Our analysis is consistent with case law interpreting the federal FOIA counterpart. The federal FOIA exemption provides that government can withhold "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6) (2009). *See* Martin E. Halstuk, *When Is An Invasion of Privacy Unwarranted Under the FOIA? An Analysis of the Supreme Court's "Sufficient Reason" and "Presumption of Legitimacy" Standards,* 16 U.Fla.J.L. & Pub. Pol'y 361, 371 (2005) ("When an agency makes a determination in a privacy-interests case[,] ... it first must decide whether the requested records fall within the definition of 'personnel,' 'medical,' or 'similar' files. Second, the agency must balance the invasion of the individual's personal privacy against the public's interest in disclosure to determine whether the disclosure is justified.") (footnotes omitted).

***55** **[35]** Here, the circuit court concluded WVU properly withheld 740 documents on the basis of "academic freedom," a concept which it incorporated into the FOIA's "personal privacy" exemption. [23] The circuit court conceded that its ruling was unprecedented. The circuit court's holding rested upon three distinct considerations: (1) the First Amendment encompasses an "academic freedom" privilege that is "transcendental, applicable to both constitutional law and to FOIA"; (2) the guarantee set forth in the West Virginia Constitution that provides all citizens have a right to a thorough and efficient educational system; and (3) the determination that individual peer reviewers have an expectation of privacy that will be harmed by the release of their comments, even though such comments are submitted anonymously.

[36] We summarily reject the first two considerations outlined above. First, the West Virginia Freedom of Information Act does not provide an "academic freedom" exemption to its general disclosure provision, West Virginia Code § 29B–1–3 (2012). Although the First Amendment has been held to apply to protect colleges and universities against undue interference by the government, [24] First Amendment jurisprudence does not support its application in the context of this case. Because the exemptions to the Act are required to be

strictly construed, this Court declines to create an "academic freedom" exemption not specifically set forth in the FOIA. *See* Syl. Pt. 5, *Queen,* 179 W.Va. 95, 365 S.E.2d 375 . In *Banker v. Banker,* 196 W.Va. 535, 474 S.E.2d 465 (1996) we stated, "[i]t is not for this Court arbitrarily to read into [a statute] that which it does not say. Just as courts are not to eliminate through judicial interpretation words that were purposely included, we are obliged not to add to statutes something the Legislature purposely omitted." *Id.* at 546–47, 474 S.E.2d at 476–77 . This Court has further cautioned that "[a] statute, or an administrative rule, may not, under the guise of 'interpretation,' be modified, revised, amended or rewritten." Syl. Pt. 1, *Consumer Advocate Div. v. Pub. Serv. Comm'n,* 182 W.Va. 152, 386 S.E.2d 650 (1989). Therefore, we find the broad principle of "academic freedom" would not justify WVU's wholesale avoidance of the plain language of the FOIA. [25]

Second, the guarantee of a "thorough and efficient system of free schools" under the West Virginia Constitution does not extend to institutions of higher education such as WVU. *See* W.Va. Const. art. XII, § 1 ; Syl. Pt. 7, *Randolph Co. Bd. of Educ. v. Adams,* 196 W.Va. 9, 467 S.E.2d 150 (1995) ("Whatever items are deemed necessary to accomplish the goals of a school system and are in fact an integral fundamental part of the elementary and secondary education must be provided free of charge to all students in order to comply with the constitutional mandate of a free school system pursuant to Section 1 of Article XII of the West Virginia Constitution."). Our Constitution does not establish a right to a higher education; the circuit court's reliance on this principle was entirely misplaced.

We now turn to the third consideration set forth above. The pertinent issue here is whether Highland's request for "[a]ll comments by peer reviewers concerning drafts ***56** of the documents" constitute "information of a personal nature" within the meaning of the privacy exemption at West Virginia Code § 29B–1–4(a)(2) . WVU asserts the peer reviewers' privacy expectations would be violated by the release of their anonymous, confidential comments. The identity of peer reviewers is traditionally kept confidential in order to facilitate a candid exchange regarding a proposed article and its research. WVU maintains that to subject a reviewer's comments to public scrutiny, even while keeping the identity of the reviewer withheld, would render a reviewer more reluctant to challenge traditional ideas and propose unconventional concepts.

Highland responds that WVU's argument "stands the notion of 'personal' information on its ear." Applying the plain meaning of the word "personal," Highland argues this exemption cannot apply to peer review comments, submitted anonymously to an academic or scientific journal, that are not kept in a "personal, medical, or similar file" pertaining to the person who prepared them. We agree.

This Court finds that WVU fails to meet the first prong of *Hechler* because the records in question are not "personal, medical or similar file[s]" that fall under the FOIA's "personal privacy" exemption. W.Va.Code § 29B–1–4(a)(2) . In fact, these anonymous peer review comments contain no personal identifying information at all. Therefore, the only case relied upon by WVU on this issue is distinguishable from the instant case. In *Cook v. National Archives & Records Administration,* 758 F.3d 168 (2nd Cir.2014) , the court held records pertaining to research requests made on behalf of former President and former Vice President for records from their own administration were "similar files" to "personnel" files exempt under the federal FOIA "personal privacy" exemption, because "they contain[ed] detailed records containing personal information identifiable to the former officials and their representatives." *Id.* at 175.

Because WVU fails to meet the first prong of *Hechler,* our analysis stops here; we need not proceed to address the second prong to balance or weigh the individual's right of privacy against "the public's right to know." 175 W.Va. at 444, 333 S.E.2d at 810 . Accordingly, we reverse the order of the circuit court insofar as it found that WVU properly withheld documents on the basis of "academic freedom," as it incorporated into the FOIA's "personal privacy" exemption set forth in West Virginia Code § 29B–1–4(a)(2) .

[37] We do, however, agree with the circuit court's finding that the same documents would fall under the FOIA "internal memoranda" exemption. As previously discussed, disclosure of the anonymous peer review comments submitted to Professor Hendryx, as he was drafting the articles, would undercut the decision-making process embodied by the FOIA's exemption and discourage open discussion necessary for scientific/academic research. *See Daily Gazette I,* 198 W.Va. at 572, 482 S.E.2d at 189 (stating that "in the spirit of further promoting frank and open discussions during an agency's deliberative process, courts have interpreted the deliberative process privilege to include opinions and recommendations to a governmental agency by outside consultants and experts so long as such opinions or

recommendations are obtained during the government agency's deliberative, predecisional process").

C. Reasonableness of FOIA Request

WVU initially moved to dismiss this action claiming the FOIA requests were unduly burdensome. The circuit court denied this motion and WVU engaged in document review and production. WVU produced 2,364 documents, totaling 11,090 pages and redacted 119 of those documents; WVU withheld 772 documents and claimed the FOIA exemptions discussed above. By the time the circuit court granted summary judgment in favor of WVU, the university claimed to have reviewed over 40,000 documents and identified over 200,000 potentially responsive documents.

In its March 19, 2014, order, the circuit court found "at this point," WVU had demonstrated that the FOIA requests were unduly burdensome, and noted it was concerned about the time and expense that "would be required to complete the process[.]" WVU ***57** maintains the circuit court correctly found that the past two years of litigation and document production proved Highland's FOIA requests were unduly burdensome. WVU argues that while the FOIA is designed to foster public transparency and accountability, the Act also reflects the Legislature's "concern that information requests not become mechanisms to paralyze other necessary government functions." *Farley,* 215 W.Va. at 422 n. 14, 599 S.E.2d at 845 n. 14.

Highland counters that the circuit court inexplicably failed to address its voluntary offer to limit or potentially eliminate the need for further document processing. In response to a letter from WVU's counsel pointing out the anticipated cost to process that information, Highland's counsel agreed that WVU could defer processing of those documents pending further rulings. In addition, Highland noted that if the documents that have been withheld thus far were provided, Highland may decide that it does not wish to receive any of the remaining documents. In accordance with this discussion, in its Cross–Motion for Summary Judgment, Highland only requested the release of previously-withheld documents as listed in the *Vaughn* indices, and that WVU be required to confer with Highland as to any additional documents.

[38] **[39]** To be sure, the FOIA requires a public body to conduct a reasonable search for responsive records. Further,

> [i]n response to a proper Freedom of Information Act request, a public body has a duty to redact or segregate exempt from non-exempt information contained within the public record(s) responsive to the FOIA request and to disclose the nonexempt information unless such segregation or redaction would impose upon the public body an unreasonably high burden or expense. If the public body refuses to provide redacted or segregated copies because the process of redacting or segregating would impose an unreasonably high burden or expense, the public body must provide the requesting party a written response that is sufficiently detailed to justify refusal to honor the FOIA request on these grounds. Such written response, however, need not be so detailed that the justification would compromise the secret nature of the exempt information.

Syl. Pt. 5, *Farley,* 215 W.Va. at 412, 599 S.E.2d at 835.

[40] However, the FOIA does not require a public body to conduct what amounts to an unreasonably burdensome search in response to a request. *See Am. Fed'n of Gov't Emps. v. U.S. Dep't of Commerce,* 907 F.2d 203, 208–09 (D.C.Cir.1990) (finding unreasonably burdensome FOIA request to locate "every chronological office file and correspondent file, internal and external, for every branch office, staff office [etc.]"); *Assassination Archives & Research Ctr. v. C.I.A.,* 720 F.Supp. 217, 219 (D.D.C.1989) (recognizing public record laws are not designed to "reduce government agencies to full-time investigators on behalf of requesters."), *but see Pub. Citizen, Inc. v. Dep't of Educ.,* 292 F.Supp.2d 1, 6 (D.D.C.2003) (rejecting claim of undue burden when defendants "merely claim that [manually] searching ... 25,000 paper files would be 'costly and take many hours to complete,' ... [w]ithout more specification as to why a search certain to turn up responsive documents would be unduly burdensome").

[41] When examining the burden on a public body to comply with a FOIA request, we note our FOIA provides "[t]he public body may establish fees reasonably calculated to reimburse it for its actual cost in making reproductions of

such records." W.Va.Code § 29B–1–3(5). This Court recently held in syllabus point two of *King v. Nease,* 233 W.Va. 252, 757 S.E.2d 782 (2014) : "Pursuant to West Virginia Code § 29B–1–3(5) (2012), a public body is vested with the authority and discretion to impose a search or retrieval fee in connection with a Freedom of Information Act request to provide public records provided that such fee is reasonable." [26]

***58 [42]** Based on Highland's proposal to limit the need for WVU to continue further document processing, we find the circuit court erred in finding the FOIA requests were unreasonably burdensome and dismissing the action at this stage of the litigation. The "FOIA requester is the 'master' of the FOIA request" and "FOIA requests are frequently clarified or modified even after a lawsuit is filed." *People for Am. Way Found. v. U.S. Dep't of Justice,*451 F.Supp.2d 6, 12 (D.D.C.2006).

Accordingly, we reverse the circuit court's order insofar as it dismissed this action and remand the case for further proceedings. We find Highland should have the opportunity to taper its FOIA requests correspondent to our holdings in this case. Thereafter, the circuit court should revisit its decision of whether Highland's FOIA requests are unduly burdensome. Applying this Court's ruling, the circuit court will find that WVU's document production obligations are dramatically reduced. If the circuit court does not dismiss this action, it should consider appointing a special commissioner pursuant to Rule 53 of the West Virginia Rules of Civil Procedure to review any documents withheld by WVU, in camera, to determine whether they are exempt from disclosure under the FOIA. Further, the parties are expected to confer regarding the fees Highland may incur with respect to any further document processing and production by WVU.

D. Highland's Request for Attorney Fees and Costs

[43] [44] [45] The FOIA provides that any person who is a successful FOIA litigant must be awarded attorney fees and costs. Specifically, West Virginia Code § 29B–1–7 provides:

> [a]ny person who is denied access to public records requested pursuant to this article and who successfully brings a suit filed pursuant to section five of this article shall be entitled to recover his or her attorney fees and court costs from the public body that denied him or her access to the records.

In syllabus point seven of *Daily Gazette Co. v. West Virginia Development Office,* 206 W.Va. 51, 521 S.E.2d 543 (1999) (hereinafter "*Daily Gazette II* "), we held:

> For a person to have brought a suit for the disclosure of public records under the West Virginia Freedom of Information Act (FOIA), as permitted by W.Va.Code § 29B–1–5 (1977) (Repl.Vol.1998), so as to entitle him/her to an award of attorney's fees for "successfully" bringing such suit pursuant to W.Va.Code § 29B–1–7 (1992) (Repl.Vol.1998), he/she need not have prevailed on every argument he/she advanced during the FOIA proceedings or have received the full and complete disclosure of every public record he/she wished to inspect or examine. An award of attorney's fees is proper even when some of the requested records are ordered to be disclosed while others are found to be exempt from disclosure or are released in redacted form. In the final analysis, a successful FOIA action, such as would warrant an award of attorney's fees as authorized by W.Va.Code § 29B–1–7 , is one which has contributed to the defendant's disclosure, whether voluntary or by order of court, of the public records originally denied the plaintiff.

Highland contends the circuit court erred in neglecting to address its request for attorney fees and costs. While WVU disagrees, Highland argues it successfully brought this FOIA suit because WVU originally denied it access to *any* public records, and, WVU was forced to produce more than 2,200 documents in compliance with the circuit court's November 7, 2012 order. WVU argues that the circuit court's final ruling that Highland's FOIA requests were unduly burdensome eliminates its claim for attorney fees and costs.

[46] "Typically, we have steadfastly held to the rule that we will not address a nonjurisdictional issue that has not been determined by the lower court." *State ex rel. Clark*

v. Blue Cross Blue Shield of W.Va., Inc., 203 W.Va. 690, 699, 510 S.E.2d 764, 773 (1998), *accord* Syl. Pt. 3, *Voelker v. Frederick Bus. Props. Co.,* 195 W.Va. 246, 465 S.E.2d 246 (1995). Accordingly, we remand this case for further proceedings to take up Highland's request for attorney fees and costs in ***59** accordance with the guidelines set forth in *Daily Gazette II.* The circuit court must determine if Highland instituted "a successful FOIA action," that would warrant such an award as authorized by West Virginia Code § 29B–1–7, and enter an order addressing this request.

IV. CONCLUSION

For the reasons set forth above, the March 19, 2014, order of the Circuit Court of Monongalia County is affirmed, in part; reversed, in part; and this action is remanded for further proceedings consistent with this opinion.

Affirmed, in part; reversed, in part; and remanded.

Justice BENJAMIN, deeming himself disqualified, did not participate in the decision of this case.

Senior Status Justice McHUGH sitting by temporary assignment.

Justice KETCHUM concurs in part, dissents in part, and reserves the right to file a separate opinion.

Justice KETCHUM, concurring, in part, and dissenting, in part:

I agree with the excellent majority opinion that the "deliberative process" exemption applies to the documents withheld by WVU except for the few documents that are post-decisional and/or non-deliberative. However, I believe this Court should have recognized the "academic freedom" exemption adopted by other states and not required the production of any documents. [1] Research professors should not be constrained by FOIA witch hunts which could deter them from pursing their work for fear of being barraged by voluminous, unduly-burdensome FOIA requests.

In addition, I believe that WVU should not be required to retrieve and review additional materials "not yet gathered" to comply with Highland Mining's open-ended FOIA requests. Highland Mining's FOIA requests have caused WVU to review over 240,000 documents. Enough is enough. Highland Mining's broad-based FOIA requests are nothing more than fishing expeditions which are unduly burdensome. My best trial lawyer guess is that WVU has already spent more than $1 million dollars on its legal fees, and the fees and costs of the document management company it hired.

Next, I would not have remanded the case for the circuit judge to determine whether Highland Mining instituted a "successful FOIA action" that would warrant an award of attorney fees. Our FOIA statute, W.Va.Code § 29B–1–7, provides that a requester shall be entitled to recover attorney fees and costs if their FOIA suit is successful. [2] *See also, Daily Gazette Co., Inc. v. W. Va. Development Office,* 206 W.Va. 51, 521 S.E.2d 543 (1999). While syllabus point 7 of *Daily Gazette* [3] provides a general statement of when ***60** attorney fees may be appropriate in a FOIA case, this Court has never set forth the specific parameters of what constitutes a successful FOIA suit. The vast majority of jurisdictions require that the FOIA requester substantially prevail before attorney fees may be awarded. The majority rule across the United States provides:

> [T]o be "eligible" to receive an award of attorney's fees or costs, plaintiffs must show that they "substantially prevailed" in obtaining the documents sought. This does not mean that the plaintiffs need necessarily have pursued the action to a successful judgment. Rather, proof that a plaintiff has "substantially prevailed" generally has been held to require convincing evidence of the following two threshold conditions: (1) the filing of the action could reasonably have been regarded as necessary to obtain the information; and (2) the filing of the action had a substantial causative effect on the delivery of the information.
>
> *Construction and Application of Freedom of Information Act Provision (5 U.S.C.A. § 552(a)(4)(E)) Concerning Award of Attorney's Fees and Other Litigation Costs,* 179 A.L.R. Fed. 1, § 2[a] (2002).

The majority opinion guts the heart of Highland Mining's FOIA requests. WVU had to retrieve and review over 200,000 documents as a result of Highland Mining's FOIA requests. The majority opinion's ruling only requires WVU to disclose a few documents, approximately 1% of those Highland requested. Highland Mining lost the major issues that were in dispute herein. Common sense and simple math dictate the obvious—Highland Mining did not substantially prevail.

VW FOIA, EPA 06/20/2017 2017-FFP_036287

Rather, the only thing Highland Mining accomplished was placing an expensive, unreasonable burden on WVU.

Finally, the majority opinion states that on remand, the circuit court must determine if this case should be dismissed after Highland submits its reduced FOIA requests. The majority states that if the circuit court does not dismiss the case upon remand, the circuit court should consider the appointment of a special commissioner pursuant to Rule 53 of the West Virginia Rules of Civil Procedure. This special commissioner would review the documents WVU produces to determine whether they are exempt from disclosure under our FOIA. Special commissioners are paid by the parties. They are super expensive. They are lawyers who usually charge for numerous hours at high hourly rates. These types of expenses have a tendency to lock the courthouse doors, depriving litigants of their day in court.

For the foregoing reasons, I respectfully concur, in part, and dissent, in part.

All Citations

235 W.Va. 370, 774 S.E.2d 36, 319 Ed. Law Rep. 1120

Footnotes

1 One of these articles sets forth the following conclusions:

> Results indicate that previously documented HRQOL [Health Related Quality of Life] disparities in Appalachia's coal mining areas are concentrated in MTM [Mountaintop Mining] zones in the central part of the region. These disparities partly reflect the chronic socioeconomic weaknesses inherent in coal-dependent economies and highlight the need for efforts at economic diversification in these areas. However, significant disparities persist after control for these risks and suggest that the environmental impacts of MTM may also play a role in the health problems of the area's population. In April 2010, the EPA [Environmental Protection Agency] issued new guidance regulating MTM that recognized the environmental and community health costs imposed by this practice: the guidance was intended to make new MTM permits much more difficult to obtain. Several weeks after this ruling, the first MTM permit application to come before the EPA was nevertheless approved, leading to concerns from environmental communities that the rules would not be interpreted or enforced as intended. Our results contribute to the evidence base in support of the April EPA decision.

Zullig, K.J. and Hendryx, M., et al.,*Health–Related Quality of Life Among Central Appalachian Residents in Mountaintop Mining Counties,* 101, No. 5 Am. J. Pub. Health 848, 852 (May 2011) (footnotes omitted).

2 Highland submitted two FOIA requests on the same day. In one FOIA request (referred to by the parties as the "subpoena-based FOIA request"), Highland requested the release of the same information that had been the subject of three subpoenas previously served on WVU by Highland in December of 2011. Articles co-authored by Professor Hendryx were used to challenge Highland's proposal to expand its Reylas surface coal mine in Logan County, West Virginia, in a civil action filed in the United States District Court for the Southern District of West Virginia. *Ohio Valley Environ. Coal., Inc., et al. v. U.S. Army Corps of Eng's*,Civil Action No. 3:11–cv–0149, 2011 WL 1485603 (S.D.W.Va.2011). The plaintiffs in that litigation sought to add a new claim to their complaint based upon adverse health effects associated with surface coal mining. Highland served three subpoenas on non-party WVU seeking information regarding the three articles cited by the plaintiffs in that lawsuit. After the district court denied the plaintiffs' motion to add health-based claims to their complaint, Highland withdrew the subpoena request in January of 2012. However, Highland advised WVU that it would file a FOIA request seeking the same information.

> In the subpoena-based FOIA request, Highland requested all documents related to the initiation, preparation and publication of those articles; it requested the curriculum vitae of the study authors, the data used in the statistical analysis presented in the subject articles, including data discussed but not shown, documents and communications related to the selection or rejection of particular mining areas to be examined in the studies, communications with members of specifically-identified third-party organizations in the course of preparing the articles, and documents related to the door-to-door health interviews conducted pursuant to the Self–Reported Cancer Study, including sample interview forms and the completed forms.
>
> In its other FOIA request (referred to by the parties as the "communications FOIA request"), Highland requested letters, e-mails and other communications sent to or from Professor Hendryx pertaining to five other articles that he co-authored. In addition, the communications FOIA request sought peer review comments on drafts of Professor Hendryx's articles.

3 *See* Syl. Pt. 6, *Farley v. Worley,* 215 W.Va. 412, 599 S.E.2d 835 (2004) ("When a public body asserts that certain documents or portions of documents in its possession are exempt from disclosure under any of the exemptions contained in W.Va.Code, 29B–1–4 (2002 Repl.Vol.) (2003 Supp.), the public body must produce a *Vaughn* index named for *Vaughn v. Rosen,* 484 F.2d 820 (D.C.Cir.1973), *cert. denied,* 415 U.S. 977, 94 S.Ct. 1564, 39 L.Ed.2d 873 (1974). The *Vaughn* index must provide a relatively detailed justification as to why each document is exempt, specifically identifying the reason(s) why an exemption under W.Va.Code, 29B–1–4 is relevant and correlating the claimed exemption with the particular part of the withheld document to which the claimed exemption applies. The *Vaughn* index need not be so detailed that it compromises the privilege claimed. The public body must also submit an affidavit, indicating why disclosure of the documents would be harmful and why such documents should be exempt. Syllabus point 3 of *Daily Gazette Co., Inc. v. West Virginia Development Office,* 198 W.Va. 563, 482 S.E.2d 180 (1996), is hereby expressly modified.").

4 The first *Vaughn* index listed 121 documents WVU withheld on the basis they were not considered "public records" subject to the FOIA; WVU later withdrew that justification for withholding any documents. Under the FOIA, a " '[p]ublic record' includes any writing containing information relating to the conduct of the public's business, prepared, owned and retained by a public body." W.Va.Code § 29B–1–2(4) .

5 In this pleading, WVU did not contend the documents were withheld based on the FOIA's "trade secret" exemption. WVU stated that although this exemption had been asserted previously, it no longer believed the circuit court had to specifically address this issue because the same documents covered by the "trade secret" exemption were subject to other exemptions asserted by WVU.

6 We note the availability and scope of in camera review is within the discretion of the circuit court. Such review offers a check on the accuracy and honesty of the public body's asserted exemptions. In camera review is conducted incident to, rather than as a substitute for, the *Vaughn* index.

7 Highland contends: (1) the "internal memoranda" exemption under the FOIA does not apply to matters involving scientific research and publication of articles by state university professors; (2) there is no "academic freedom" exemption under the FOIA; (3) the guarantee of a "thorough and efficient system of free schools" under the West Virginia Constitution does not extend to institutions of higher education such as WVU, and cannot serve as the basis for an "academic freedom" exemption under the FOIA; (4) the "personal privacy" exemption under the FOIA cannot be applied when no personal or identifying information is sought or threatened to be released; (5) the circuit court failed to impose the burden of proof on WVU to establish the applicability of the cited FOIA exemptions; (6) WVU either waived its reliance on the "trade secret" exemption under the FOIA or failed to establish it; (7) the circuit court erred in reversing its earlier ruling and finding—nearly two years after this action was filed—that Highland's FOIA requests were unduly burdensome; and (8) the circuit court should have awarded Highland attorney fees and costs as a successful FOIA litigant. For the sake of brevity, this Court has consolidated these assignments of error.

8 An exception to this general rule occurs when a request pertains to documents falling under the FOIA's "personal privacy" exemption, West Virginia Code § 29B–1–4(a)(2) . As discussed later in this opinion, we have crafted a two-pronged test to establish whether disclosure would result in an unwarranted invasion of privacy. *See Hechler v. Casey,* 175 W.Va. 434, 333 S.E.2d 799 (1985).

9 We promptly dispose of Highland's assignment of error that the circuit court failed to impose the burden of proof on WVU to establish the applicability of the FOIA exemptions it asserted. The appendix record reveals the circuit court properly held WVU to its burden: WVU produced multiple, detailed *Vaughn* indices (e.g., the index attached to the fourth production of documents was fifty-two pages); filed numerous briefs on the merits of its claimed exemptions; participated in oral arguments; and submitted documents for the circuit court's in camera review.

10 In Highland's brief to this Court, it argues that WVU either waived its reliance on the "trade secret" exemption under FOIA or failed to establish it. Because WVU does not argue how the "trade secret" exemption may apply to any documents withheld in this case, we agree. *See generally Addair v. Bryant,* 168 W.Va. 306, 316, 284 S.E.2d 374, 382 (1981) (holding this Court may deem as waived any issue not argued in party's appellate brief).

11 The syllabus point cites West Virginia Code § 29B–1–4(8) (1977), which contains the same language as West Virginia Code § 29B–1–4(a)(8) (2012).

12 Evidence of government misconduct, crime, and fraud bars the application of the "deliberative process" exemption. *See In re Sealed Case,* 121 F.3d 729, 738 (D.C.Cir.1997) ("[W]here there is reason to believe the documents sought may shed light on government misconduct, the privilege is routinely denied, on the grounds that shielding internal government deliberations in this context does not serve the public's interest in honest, effective government" (internal quotation marks omitted)).

13 In 2011, WVU released the following position statement: "The findings of any particular research project do not reflect, nor should they, any particular opinion or position of the University itself."

14 The root of this trend may be explained by the fact the federal FOIA represented the culmination of years of congressional effort to amend the public information provisions of the Administrative Procedure Act of 1946.

> The FOIA replaced Section 3 of the Administrative Procedure Act (APA) of 1946, which ostensibly served as a public information provision to permit the public to gain access to federal records. However, the law was filled with loopholes that the government routinely exploited to withhold records. The main obstacle to public access under the APA was a requirement that record requesters demonstrate that the solicited information pertain directly to them. This restriction prevented journalists, writers, historians, lawyers, and others from gaining access to information held by the federal government.

Martin E. Halstuk, *When Is An Invasion of Privacy Unwarranted Under the FOIA? An Analysis of the Supreme Court's "Sufficient Reason" and "Presumption of Legitimacy" Standards,* 16 U.Fla.J.L. & Pub. Pol'y 361, 367 (2005) (footnotes omitted).

15 The federal FOIA uses the term "agency," not "public body." *See Pub. Citizen Health Research Grp. v. Dep't of Health, Ed. & Welfare,* 668 F.2d 537, 542 (D.C.Cir.1981) ("For purposes of the Freedom of Information Act the statute provides that 'the term "agency" as defined in section 551(1) ... includes any executive department, military department, Government corporation, Government controlled corporation, or other establishment in the executive branch of the Government (including the Executive Office of the President), or any independent regulatory agency.' 5 U.S.C. § 552(e) (1976).").

16 Similarly, other state courts have applied their respective FOIA's "deliberative process" exemption to decisions unrelated to agency policy making. For instance, documents generated by public employees charged with hiring decisions may be exempt from disclosure when they are both predecisional and deliberative. *See Wilson v. Super. Ct.,* 51 Cal.App.4th 1136, 1143, 59 Cal.Rptr.2d 537 (1997) (applying California state's FOIA, documents held exempt when their sole purpose was to aid Governor in selecting gubernatorial appointees, process which depends upon confidential, candid discussion of candidates' professional competence, political views and private conduct). Other state courts have also applied this FOIA exemption to documents reflecting decision-making activities of judicial branch employees unrelated to agency policy making. *See Commonwealth v. Vartan,* 557 Pa. 390, 733 A.2d 1258, 1266 (1999) (holding "deliberative process" privilege protected deliberations by members of Pennsylvania Supreme Court regarding decision to build new courthouse).

17 Nearly all Professor Hendryx's articles that were the subject of Highland's FOIA requests were based on studies using secondary data only. However, the Self–Reported Cancer Rates Study did involve the use of personal surveys of residents living in areas where mountaintop coal removal took place. We find WVU may withhold documents generated in data compilation because these documents could reveal the deliberative process. *See Hooker,* 887 F.Supp.2d at 58 (" 'The choice of what factual material ... to include or remove during the drafting process is itself often part of the deliberative process, and thus is properly exempt under [the federal FOIA "deliberative process" exemption).']." (quoting *ViroPharma, Inc. v. Dep't of Health and Human Servs.,* 839 F.Supp.2d 184, 193 (D.D.C.2012)); *Montrose Chem. Corp. of Cal. v. Train,* 491 F.2d 63, 67–70 (1974) (holding "deliberative process" privilege applied to summaries containing only factual material because documents revealed author's evaluative judgment as to relative significance of facts and what facts he considered to be important or unimportant); *Washington Research Project, Inc. v. Dep't of Health, Educ. & Welfare,* 504 F.2d 238, 250–251 (D.C.Cir.1974) ("[T]he judgmental element arises through the necessity to select and emphasize certain facts at the expense of others."); *Farmworkers Legal Servs. v. U.S. Dep't of Labor,* 639 F.Supp. 1368, 1373 (E.D.N.C.1986) ("Because the list sought here is composed of selective fact, it ... could reveal the deliberative process.").

18 This Court reviewed the same evidence. The parties submitted a Joint Appendix that contained five DVDs of the documents provided by WVU in response to Highland's FOIA requests. WVU also submitted to this Court, under seal, the documents it submitted to the circuit court for in camera review.

19 For instance, Document No. 03–0217 in the sample *Vaughn* index consists of an e-mail dated July 28, 2011, regarding a potential speaking engagement pertaining to the various articles at issue. We find WVU's argument unconvincing that this e-mail should be protected from disclosure because it "reflect[s] these individuals' thought processes and analyses that ultimately resulted in the final decision on how such matters concerning publicity should be handled on behalf of [WVU.]" To accept WVU's argument here, we would be allowing the exception to swallow the rule.

20 Virginia Code § 2.2–3705.4(4) (West 2014) provides:

> Data, records or information of a proprietary nature produced or collected by or for faculty or staff of public institutions of higher education, other than the institutions' financial or administrative records, in the conduct of or as a result of study or research on medical, scientific, technical or scholarly issues, whether sponsored by the institution alone or

> in conjunction with a governmental body or a private concern, where such data, records or information has not been publicly released, published, copyrighted or patented.

21 The *UVA* case best illuminates the public policy facet of the issue before us. If West Virginia State colleges and universities cannot retain their researchers and scientists because the FOIA exposes them to an unfair intrusion into the scientific process, then the problem of operating in a "fishbowl" pales in comparison to the challenge of attracting and retaining highly qualified faculty. *See generally* Dianna G. Goldenson, *FOIA Exemption Five: Will it Protect Government Scientists From Unfair Intrusion?,* 29 B.C. Envtl. Aff. L. Rev. 311 (2002) (arguing federal FOIA "deliberative process" exemption should be recognized by courts as mode of protecting government scientists from unfair intrusion into scientific research).

22 The syllabus point cites West Virginia Code § 29B–1–4(2) (1977), which contains the same language as West Virginia Code § 29B–1–4(a)(2) (2012).

23 The circuit court noted, however, that the "deliberative process" exemption would shield the same documents from disclosure.

24 The primary case cited by WVU on this issue, *Sweezy v. New Hampshire,* 354 U.S. 234, 77 S.Ct. 1203, 1 L.Ed.2d 1311 (1957), is not relevant to the instant case. *Sweezy* was decided on the basis of a denial of due process, in the form of an open-ended, unlimited investigation of the personal conduct and affairs of a faculty member. The Supreme Court in *Sweezy* dealt with a challenge to the use of a New Hampshire statute to hold a university professor in contempt for failing to answer questions posed to him (by the New Hampshire Attorney General, on behalf of the Legislature) concerning his belief in Communism and involvement with the Progressive Party. *Id.* at 242–244, 77 S.Ct. 1203 . This case did not involve the federal FOIA or any similar statute, nor did it involve the professor's research activities/scientific publications.

25 Likewise, WVU wrongly suggests we should recognize an "academic freedom" exemption from FOIA to mirror "the justification for First Amendment protections afforded to journalists." The principles that support the extension of First Amendment protections to journalists and their confidential sources have no application to the matter before us.

26 Our Legislature recently amended this portion of the FOIA. *See* House Bill 2636, 2015 Leg. 82nd Sess. (W.Va. 2015) (effective June 12, 2015) (authorizing public body to establish fees reasonably calculated to reimburse actual costs in making reproductions of records; public body may not charge search or retrieval fee as part of costs associated with making reproduction of records).

1 Virginia adopted the "academic freedom" exemption by statute. Virginia Code § 2.2–3705.4(4) (2014) , sets forth a FOIA exemption covering:

> Data, records or information of a proprietary nature produced or collected by or for faculty or staff of public institutions of higher education, other than the institutions' financial or administrative records, in the conduct of or as a result of study or research on medical, scientific, technical or scholarly issues, whether sponsored by the institution alone or in conjunction with a governmental body or a private concern, where such data, records or information has not been publicly released, published, copyrighted or patented.

2 W.Va.Code § 29–1–7 states:

> Any person who is denied access to public records requested pursuant to this article and who successfully brings a suit filed pursuant to section five of this article shall be entitled to recover his or her attorney fees and court costs from the public body that denied him or her access to the records.

3 Syllabus Point 7 of Daily Gazette states:

> For a person to have brought a suit for the disclosure of public records under the West Virginia Freedom of Information Act (FOIA), as permitted by W. Va.Code § 29B–1–5 (1977) (Repl.Vol.1998), so as to entitle him/her to an award of attorney's fees for "successfully" bringing such suit pursuant to W. Va.Code § 29B–1–7 (1992) (Repl.Vol.1998), he/she need not have prevailed on every argument he/she advanced during the FOIA proceedings or have received the full and complete disclosure of every public record he/she wished to inspect or examine. An award of attorney's fees is proper even when some of the requested records are ordered to be disclosed while others are found to be exempt from disclosure or are released in redacted form. In the final analysis, a successful FOIA action, such as would warrant an award of attorney's fees as authorized byW. Va.Code § 29B–1–7 , is one which has contributed to the defendant's disclosure, whether voluntary or by order of court, of the public records originally denied the plaintiff.

End of Document

©2015 Thomson Reuters. No claim to original U.S. Government Works.

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Tue 12/1/2015 4:01:31 PM
Subject: Q7 test

Bill, are you or someone else planning to come tomorrow for the Q7?

Any word on the support docs for the 2017 Cert?

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Rodgers, William (EEO)
Sent: Tue 12/1/2015 4:18:49 PM
Subject: RE: Q7 test
EPA submission.pdf

Jim,

I guess I had my wires crossed when we talked. I had already submitted the Common sections on the 25th.

As discussed I will revise the Common with the GHG report in the coming days after its officially submitted.

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Tuesday, December 01, 2015 11:02 AM
To: Rodgers, William (EEO) <William.Rodgers@vw.com>
Subject: Q7 test

Bill, are you or someone else planning to come tomorrow for the Q7?

Any word on the support docs for the 2017 Cert?

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ex. 7
Ex. 7
From: Ex. 7
Sent: Tue 12/1/2015 5:35:05 PM
Subject: Audi Q7 EDV

Jim,

We've just learned that the installation of the driveshaft in the Q7 EDV currently at your facility will entail further installing a new center differential in the transmission. If you plan to do on-road testing with this EDV we recommend that we transport the vehicle back to our workshop after confirmatory tests have concluded for the installation process. Let us know your thoughts when you can.

Regards,

Ex. 7

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. **Ex. 7**

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
Cc: Mazaitis, Vincent[mazaitis.vincent@epa.gov]
From: Snyder, Jim
Sent: Tue 12/1/2015 9:11:28 PM
Subject: Q7 update

Well Brian got it working properly but it was too late to run the vehicle today. So no point in coming out Wednesday. It will prep and then run on Thursday.

Jim Snyder
Light-Duty Vehicle Group
Compliance Division
United States Environmental Protection Agency
(734) 214-4946
snyder.jim@epa.gov

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Rodgers, William (EEO)[William.Rodgers@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]; Thomas, Richard (EEO)[Richard.Thomas@vw.com]
From: Allen, Gregory (EEO)
Sent: Wed 12/2/2015 3:54:44 PM
Subject: MY2016 Audi GVGAV02.0AAC Decision Request

Hello Jim,

This morning I submitted decision requests for the vehicles below. These decision requests were to represent E0 tests that were recently ran on the vehicles below for the MY2016 GVGAV02.0AAC test group for fuel economy labeling purposes since prior to these tests, only E10 was ran.

This testgroup is the Audi 2.0L TFSI Gen-3, which the A4 has already been called in for confirmatory testing for MY2017.

Vehicle ID: GAAC-CAF, Configuration: 0

Vehicle ID: GAAC-CAQ, Configuration: 0

Please inform us of your decision as soon as possible.

Thanks Jim.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

ROBERT F. ESLICK, individually and on behalf of all others similarly situated,

Plaintiff,

v.

VOLKSWAGEN GROUP OF AMERICA, INC., VOLKSWAGEN AG, ROBERT BOSCH GMBH, MARTIN WINTERKORN, MICHAEL HORN, and DOES 1-25,

Defendants.

Civil Action No.
Hon.

COMPLAINT AND DEMAND FOR JURY TRIAL

WOLF HALDENSTEIN ADLER FREEMAN & HERZ LLP
Daniel W. Krasner (NY Bar No. 1099514)
krasner@whafh.com
Gregory M. Nespole (NY Bar No. 2594356)
nespole@whafh.com
Michael Jaffe (NY Bar No. 2276475)
jaffe@whafh.com
270 Madison Avenue
New York, New York 10016
Telephone: 212.545.4600
Facsimile: 212.545.4653

ROSSMAN LAW, P.C.
Mark C. Rossman (P63034)
mark@rossmanlawpc.com
2145 Crooks Road, Suite 220
Troy, Michigan 48084
Telephone: 313.590.0915
Facsimile: 248.480.4936

Attorneys for Plaintiff

INTRODUCTION

Plaintiff Robert F. Eslick ("Plaintiff"), by his undersigned counsel, individually and on behalf of all others similarly situated, alleges the following against Volkswagen Group of America, Inc. ("VW USA"), Volkswagen AG ("VW AG"), Martin Winterkorn ("Winterkorn"), and Michael Horn ("Horn") (collectively, "Volkswagen"), as well as Robert Bosch GmbH ("Bosch") (collectively, VW USA, VW AG , Winterkorn, Horn, and Bosch are referred to as "Defendants"), based, as to himself, on personal knowledge, and on information and belief in all other respects, based on the investigation of counsel. This Court has jurisdiction over this action pursuant to the Class Action Fairness Act ("CAFA"), 28 U.S.C. § 1332(d) and based on a federal question, 28 U.S.C. § 1331.

NATURE OF THE ACTION

1. This nationwide civil RICO, false advertising and consumer fraud class action is brought by Plaintiff on behalf of himself and all similarly situated consumers. This lawsuit concerns the intentional installation of so-called "defeat devices" on over a million diesel Volkswagen, Audi, and Porsche vehicles sold in the United States since 2009 . As of September 29, 2015, Volkswagen admitted that the emissions scandal could affect as many as 11 million Volkswagen vehicles worldwide, as well as an additional 2.1 million Audi -branded vehicles. By early November 2015, Volkswagen announced that its internal investigation had uncovered carbon dioxide emissions irregularities in approximately 800,000 additional vehicles. Over the last seven years, Volkswagen has pocketed $33 billion or more i n illicit profits or revenues from its scheme.

2. Volkswagen marketed its diesel vehicles as environmentally -friendly cars that combined extremely high fuel efficiency and performance with very low emissions.

Volkswagen touted the vehicles as containing a unique combustion system that enabled them to meet (indeed, exceed) national emissions standards on a cost-effective basis and without the need to add an additional chemical that was necessary to add in all other diesel systems in order to meet emissions standards.

3. Although Volkswagen successfully marketed and sold more than 1 million of these expensive cars nationwide as "green," Volkswagen has now publicly admitted that their environmentally-friendly representations were false . Volkswagen did not actually manufacture or sell cars with the desirable attributes advertised. Volkswagen's entire "CleanDiesel" system and marketing campaign was a fraud.

4. The United States government, through the Environmental Protection Agency ("EPA"), has passed and enforced laws designed to protect United States citizens from pollution and, in particular, certain chemicals and agents known to cause disease in humans. Automobile manufacturers must abide by these laws, and must adhere to EPA rules and regulations.

5. Volkswagen purposefully and intentionally breached these laws and regulations by manufacturing and then selling in the United States vehicles that made use of "defeat devices," which included computer software that was designed to "cheat" during emissio ns tests to make it appear as if the vehicles achieved certain low emissions levels that the vehicles did not in fact achieve while they were being driven. If the emissions tests reported the emissions levels the vehicles actually achieved while being dri ven, each vehicle tested would have failed the emissions test abysmally.

6. As stated by Cynthia Giles, Assistant Administrator for the Office of Enforcement and Compliance Assurance at the EPA, in a September 18, 2015 press release: "Using a defeat device in cars to evade clean air standards is illegal and a threat to public health."

VW FOIA, EPA 06/20/2017 2017-FFP_036301

7. According to the EPA and other sources, Volkswagen installed a "defeat device" in at least the following diesel models of its vehicles (the " Affected Vehicles"): Model Year ("MY") 2009 -2015 VW Jetta; MY 2009 -2014 VW Jetta SportW agen; MY 2012 -2015 VW Beetle; MY 2012 -2015 VW Beetle C onvertible; MY 2010 -2015 VW Golf; MY 2015 Golf SportWagen; MY 2012-2015 VW Passat; MY 2014 VW Touareg; MY 2009-2014 Audi A1; MY 2009-2014 Audi A3; MY 2009-2014 Audi A4; MY 2009 -2014 Audi A5; MY 2009 -2014 Audi A6; MY 2009 -2014 Audi Q3; MY 2009 -2014 Audi Q5; MY 2009 -2014 Audi TT; MY 2016 Audi A6 Quattro; MY 2016 Audi A7 Quattro; MY 2015-2016 Audi A8; MY 2016 Audi A8L; MY 2015-2016 Audi Q5 ; MY 2015 -2016 Audi Q7 ; and MY 2014 -2016 Porsche Cayenne . Investigations are currently under way to determine whether Volkswagen installed the device in additional models, so discovery may reveal that additional vehicle models and/or model years are properly included a s "Affected Vehicles." As new facts are discovered, additional vehicle models and/or model years may be added to this list.

8. While initial reports named limited models of "4 -cylinder Volkswagen and Audi vehicles from model years 2009 -2015," within days of the Notice of Violation (" NOV") being issued by the EPA, Volkswagen issued a press release that provided further details on the breadth of the Company's misconduct. Volkswagen reported that "[f]urther internal investigations conducted to date have established that the relevant engine management software is also installed in other Volkswagen Group vehicles with diesel engines…Discrepancies related to vehicles with Type EA 189 engines, involving some eleven million vehicles worldwide." This news was quickly reported by news outlets across the world, including a September 22, 2015 article in *The New York Times* entitled "Volkswagen Says 11 Million Cars Worldwide Are Affected in Diesel Deception."

VW FOIA, EPA 06/20/2017 2017-FFP_036302

9. The following week, owners of 2.0L 4-cylinder vehicles identified from Volkswagen's records as not complying with emissions standards, including Plaintiff, received a letter from VW USA President and Chief Executive Officer ("CEO") Michael Horn , offering a "personal and profound apology." The letter, among other things, set forth the following:

> Earlier this month, Volkswagen Group of America, Inc., and Volkswagen AG received notice from the U.S. Environmental Protection Agency, U.S. Department of Justice, and the California Air Resources Board, informing us th at those agencies had determined that certain 2.0L 4-cylinder TDI vehicles do not comply with emissions standards. According to our records, you own or lease one of these vehicles.
>
> I am writing you today to offer a personal and profound apology. Volkswa gen has violated your trust. I understand and fully appreciate your anger and frustration. I would like you to know that we take full responsibility and are cooperating with all responsible agencies. I can also assure you that we are committed to making this right for you – and taking steps to prevent something like this from ever happening again.
>
> Right now, we are working hard on remedies to bring your vehicles into emissions compliance as soon as possible. Getting this right will take some time, but we will notify you immediately once we have more information. Until then, please know that your vehicle remains both safe to drive and legal to drive, as noted by the EPA in its September 18 press release. You do not need to take any action at this time ; all we ask for is your patience.
>
> Along with our parent company, Volkswagen AG, we are committed at every level of our company to do what must be done to regain your trust.

10. On November 3, 2015, a day after it denied several new allegations from a second NOV issued by the EPA alleging that it had installed software to skirt emissions testing on more cars than previously admitted, Volkswagen announced that its internal investigation had uncovered emissions irregularities in an additional 800,000 vehicles. While Volkswagen stated that a reliable assessment of the scale of these irregularities was not yet possible, it estimated that the estimated risk of this discovery would be approximately $2.2 billion.

11. Instead of delivering on its promise of extremely hig h fuel mileage coupled with low emissions, Volkswagen devised a way to make it appear that its cars complied with EPA

VW FOIA, EPA 06/20/2017 2017-FFP_036303

regulations when, in fact, they did not. As detailed in the E PA's September NOV, Volkswagen violated consumers' trust by employing sophisticated software in the Affected Vehicles to detect when vehicles are undergoing offic ial emissions testing, and turn full emissions controls on solely for the purposes of such tests. In all other circumstances, however, the emissions controls are suppres sed. This results in cars that meet emissions standards in the laboratory or state testing station but, at all other times when the vehicle is running, emit nitrogen oxides ("NOx") at up to 40 times the standard allowed under United States laws and regula tions. This software, as produced and used by Volkswagen, is a "defeat device" as defined by the Clean Air Act.

12. NOx pollution contributes to nitrogen dioxide, ground-level ozone, and fine particulate matter. Exposure to these pollutants has been linked with serious health dangers, including asthma attacks and other respiratory illness es serious enough to send people to the hospital. Ozone and particulate matter exposure, in particular, have been associated with premature death due to respiratory-related or cardiovascular-related consequences. Children, the elderly, and people with pre-existing respiratory illness are at acute risk of negative health effects from these pollutants.

13. According to a working paper by three researchers affiliated with the Na tional Bureau of Economic Research , reduced NOx emissions that resulted from new power plant regulations resulted in about five fewer deaths for every 100,000 people each year, as well as a decrease in spending on prescription drugs. Extrapolating from th at research, the estimated 46,000 tons of extra NOx emissions from Volkswagen's TDI vehicles in the U.S. since 2008 has caused 106 deaths in the U.S. Another researcher, at the Massachusetts Institute of Technology, using EPA data on mortality rates stemm ing from particulate pollutants produced by NOx , concluded that the number of deaths attributable to Volkswagen's deception could be as high as

VW FOIA, EPA 06/20/2017 2017-FFP_036304

146 people. That number does not include the direct effects of NOx pollution or smog, and it does not include t he number of people who suffer from non -fatal health consequences of the extra NOx related pollutants that flooded the air due to Volkswagen's heinous scheme.

14. The Clean Air Act has strict emissions standards for vehicles, and requires that vehicle manufacturers certify to the EPA that vehicles sold in the United States meet applicable federal emissions standards meant to control air pollution. Every vehicle sold in the United States must be covered by an EPA -issued certificate of conformity. Under federal law, cars equipped with defeat devices, which reduce the effectiveness of emissions control systems during normal driving conditions, cannot be certified by the EPA. By manufacturing and selling cars with defeat devices that allowed for higher level s of emissions than the EPA permits, and certifying to the EPA that such vehicles were compliant with the Clean Air Act, Volkswagen violated the Clean Air Act, defrauded its customers, and engaged in unfair competition under state and federal law.

15. Volkswagen has charg ed a substantial premium for its diesel vehicles , which are paradoxically marketed by Volkswagen as "CleanDiesel" vehicles. For example, the base S model of the 2015 Volkswagen Jetta has a starting MSRP of $18,780. The base TDI S CleanDiesel, however, has a starting MSRP of $21,640, a price premium of $2,860. The CleanDiesel premium for the highest model Jetta is even more significant. The highest level gas Jetta SE has a starting MSRP of $20,095, while the CleanDiesel TDI SEL MSRP is $26,410 . Thus, a consumer who purchased the highest model of the C leanDiesel Jetta may have paid a $6,315 premium for a benefit that he or she was not actually receiving.

16. Similar premiums arise across all of Volkswagen's diesel vehicles, ranging from over $2,000 to nearly $10,000.

VW FOIA, EPA 06/20/2017 2017-FFP_036305

17. Volkswagen has been ordered by the EPA to recall the Affected Vehicles and perform repairs that will ensure that the vehicles comply with EPA emissions requirements at all times during normal operation. As of October 9, 2015, Volkswagen had disseminated notice of a "service campaign" to owners of Volkswagen 2.0L 4 -cylinder TDI vehicles, including Plaintiff, informing them that Volkswagen was "proceeding as quickly as possible" to "work on the remedy and review it with the government." Volkswagen will not be able to make the Affected Vehicles comply with emissions standards, however, without substantially downgrading their performance characteristics, including their horsepower and their efficiency. As a result, even if Volkswagen is ab le to make the Affected Vehicles EPA -compliant, Class members will still suffer actual harm and damages, as their vehicles will no longer perform as they did when purchased and as advertised. This will necessarily result in a diminution of value of every Affected Vehicle, and it will cause owners of Affected Vehicles to pay more for fuel when using the cars subsequent to the repairs.

18. Volkswagen's fraudulent scheme was facilitated and aided and abetted by Defendant Bosch, which created the software program used in Volkswagen's defeat device. As early as 2007, Bosch warned Volkswagen that using its software in vehicles that were driven on the road would constitute a criminal offense. Nevertheless, Bosch proceeded to sell or license 11,000,000 of the compone nt devices to Volkswagen over the next seven years knowing that Volkswagen intended to use them in production vehicles. Instead of refusing to provide Volkswagen with the defeat devices that Bosch knew would enable Volkswagen to engage in criminal fraud, Bosch decided instead to profit from Volkswagen's fraud by selling the 11,000,000 units. Under American law, that decision to profit from what Bosch knew was Volkswagen's ongoing fraud makes Bosch and aider and abettor of that crime and a RICO co -

VW FOIA, EPA 06/20/2017 2017-FFP_036306

conspirator with Volkswagen that is jointly liable for treble the damages that Volkswagen's fraud has caused U.S. consumers.

19. As a result of Volkswagen's unfair, deceptive, and/or fraudulent business practices, the Bosch-Volkswagen RICO conspiracy, and Volkswagen's failure to disclose that, under normal operating conditions, the Affected Vehicles emit up to 40 times the allowed levels of pollution, owners and lessees of the Affected Vehicles have suffered losses in money and/or property.

20. Moreover, due to the scale of Volkswagen's deliberate fraud, there has been exhaustive media coverage of the emissions scandal throughout the world, placing the Company under a spotlight for its extreme dishonesty and changing consumers' opinions about Volkswagen's diesel vehicles. Defendants engaged in a scheme to defraud and made numerous materially false and misleading statements and omissions regarding Volkswagen's operations, in order to increase Volkswagen's market share in the United States. Defendants' use of illegal defeat devices allowed Volkswagen to market all of its diesel vehicles to environmentally-conscious consumers, increasing its sale of diesel cars in the United States and, as a result, the profitability of the entire enterprise.

21. Had Plaintiff and the other Class members known of the presence of the "defeat device" at the time they purchased their Affected Vehicles, they would not have purchased those vehicles, or they would have paid substantially less for the Affected Vehicles than they did. Moreover, when Volkswagen recalls the Affected Vehicles in order to make them compliant with EPA standards, the owners and lessees of the Affected Vehicles will be required to spend additional money on fuel and will not obtain the performance that was characteristic of their

VW FOIA, EPA 06/20/2017 2017-FFP_036307

vehicles at the time of purchase. The Affected Vehicles will necessarily be worth less in the marketplace because of this decreased performance and efficiency.

PARTIES

22. Plaintiff Robert F. Eslick is an individual residing in Old Bethpage, Nassau County, New York. Plaintiff purchased a 2013 Passat TDI SEL Premium from Platinum Volkswagen in Hicksville, New York on or about February 20, 2013. Plaintiff had been a loyal Mercedes-Benz customer for decades, but decided to purchase a Volkswagen TDI vehicle based on Volkswagen's representations that it combined high mileage and good fuel economy with being good for the environment. After the emissions scandal broke, Plaintiff felt shocked and violated by the utter dishonesty of Defendants, and worries that he will not be able to sell his car at all and, if he is able to do so, recognizes that he will have to sell for a substantial discount. Plaintiff has received several notices from Volkswagen that his vehicle is affected by the emissions scandal.

23. Defendant VW USA is a corporation organized under the laws of the State of New Jersey, with its principal place of business at 2200 Ferdinand Porsche Drive, Herndon, Virginia 20171. Volkswagen does business in every state and the District of Columbia, but is a citizen of New Jersey and Virginia pursuant to 28 U.S.C. § 1332(d)(10).

24. Defendant Volkswagen Aktiengesellschaft, doing business as Volkswagen Group and/or Volkswagen AG, is a corporation organized and existing under the laws of Germany, with its principal place of business located in Wolfsburg, Germany. V W AG is the parent corporation of VW USA.

25. Defendant Winterkorn is a resident of Germany and was the Chief Executive Officer ("CEO") of VW AG until he resigned on September 23, 2015, in the wake of the diesel

VW FOIA, EPA 06/20/2017 2017-FFP_036308

emissions scandal. Notably, Mr. Winterkorn was widely regarded as a detail-oriented, micromanaging CEO who "r etained control over engineering details that many other CEOs would relinquish fully to deputies" and reportedly hand -picked the engineers who designed the defeat devices. Mr. Winterkorn is currently being investigated by the German government for allegations of fraud.

26. Defendant Winterkorn received compensation from the illegal scheme and course of conduct based on the revenues and profits from the Affected Vehicles, as well as Volkswagen's increased market share. Mr. Winterkorn approved, authorized, dire cted, ratified, and/or participated in the acts complained of herein. Mr. Winterkorn is subject to the personal jurisdiction of this Court as he has availed himself of the laws of the United States and Michigan through his management and control over VW U SA, as well as the manufacture, distribution, testing, and sale of hundreds of thousands of Affected Vehicles imported and sold across the United States, in this State, and in this District.

27. Defendant Horn is a resident of Virginia and serves as President and CEO of VW USA. Mr. Horn received compensation from the illegal scheme and course of conduct based on the revenues and profits from the Affected Vehicles, as well as Volkswagen's increased market share. Mr. Horn approved, authorized, directed, ratified, and/or participated in the acts complained of herein, and has admitted that he was aware of the Affected Vehicles' emissions non-compliance since at least 2014.

28. Defendant Bosch is a German multinational engineering and electronics company, headquartered in Stuttgart, Germany. At all times from at least January 1, 2007 through the present, Bosch supplied the defeat device to Volkswagen.

VW FOIA, EPA 06/20/2017 2017-FFP_036309

29. Defendants Does 1-25 are other persons or entities involved in the design, manufacture, sale, distribution, testing, and marketing of the Affected Vehicles and/or the defeat device and/or other auxiliary emissions devices installed therein.

30. At all times from January 1, 2008 through the present (the "Relevant Period"), Volkswagen manufactured, distributed, sold, leased, and warranted the Affected Vehicles under the Volkswagen, Audi, and Porsche brand names throughout the United States. Volkswagen and/or its agents designed, manufactured, and installed the "CleanDiesel" engines and engine control systems, including the "defeat device," in the Affected Vehicles. Volkswagen also developed and disseminated the owners' manuals and warranty booklets, advertisements, and other promotional materials relating to the Affected Vehicles.

JURISDICTION AND VENUE

31. This Court has jurisdiction pursuant to the Class Action Fairness Act of 2005, 28 U.S.C. § 1332(d), because there are at least 100 members of the proposed class, at least one of whom is a citizen of a different state than Defendants, and the aggregate claims of the proposed class members exceed $5,000,000, exclusive of interest and costs. This Court also has Federal Question jurisdiction pursuant to 28 U.S.C. § 1331 and supplemental jurisdiction over the state law claims pursuant to 28 U.S.C. § 1367.

32. This Court has personal jurisdiction over Defendants pursuant to 18 U.S.C. §§ 1965(b) and (d), and Michigan's long-arm statute, MCL § 600.705. This Court has personal jurisdiction over Defendants because they have minimum contacts with the United States and this State, and have intentionally availed themselves of the laws of Michigan by conducting a substantial amount of business throughout the State of Michigan and this District, including the manufacture, distribution, promotion, and/or sale of Affected Vehicles here, and because

VW FOIA, EPA 06/20/2017 2017-FFP_036310

Volkswagen committed the acts and omissions complained of herein, in part, in the State of Michigan and this District.

33. Venue is proper in this District under 28 U.S.C. § 1391 because: (i) Defendants conduct substantial business in this District and have intentionally availed themselves of the laws and markets of the United States and this District; and/or (ii) many of the acts and transactions giving rise to this action occurred in this District, including, *inter alia*, Defendants' promotion, marketing, distribution, and sale of the Affected Vehicles in this District. Defendants sell a substantial amount of automobiles in this District, and much of the misconduct occurred in this District. Venue is also proper under 18 U.S.C. § 1965(a), because Defendants are subject to personal jurisdiction in this District, as alleged above, and Defendants have agents located in this District. Additionally, Defendants' domestic engineering and environmental compliance activities are conducted from their Auburn Hills, Michigan offices, and VW USA's website sets forth that visitors to the website "consent to the exclusive jurisdiction of the state and federal courts for the County of Oakland, Michigan." Defendants also promoted the Affected Vehicles in the North American International Auto Show ("Detroit Auto Show"), which occurs annually in this District.

TOLLING OF THE STATUTE OF LIMITATIONS

A. Discovery Rule Tolling

34. The tolling doctrine was designed specifically for cases like this , where pertinent facts were concealed from Plaintiff. Thus, for the following reasons, any statutes of limitation s that might have otherwise applied have been tolled by the discovery rule with respect to all claims.

VW FOIA, EPA 06/20/2017 2017-FFP_036311

35. Even through the exercise of reasonable diligence, Plaintiff and other members of the Class could not have discovered, within any applicable statute of limitations, that Volkswagen was concealing and misrepresenting the true emissions levels of its vehicles or that Volkswagen was using defeat devices to bypass the EPA's emissions requirements.

36. As reported in *The Wall Street Journal* on September 18, 2015, th e International Council on Clean Transportation, together with researchers from West Virginia University, uncovered Volkswagen's use of defeat devices during comprehensive research and testing over the last couple of years. The International Council on Cl ean Transportation brought the issues to the attention of the EPA, which conducted further tests and ultimately discovered these "very serious" violations by Volkswagen. As defect devices were even used to "fool[] the emissions tests," Volkswagen's decept ion with respect to the Affected Vehicles was carefully concealed from both regulators and consumers.

37. Plaintiff and the other Class m embers could not have reasonably discovered, and could not have known of facts that would have caused a reasonable person t o suspect, that Volkswagen intentionally failed to report information within its knowledge to federal and state authorities, its dealerships, and its consumers.

38. Moreover, a reasonable and diligent investigation could not have disclosed that Volkswagen had information in its sole possession about the existence of its sophisticated emissions deception and that it had concealed that information, which was discovered by Plaintiff only very shortly before this action was file d. Plaintiff and other Class m embers could not have previously learned that Volkswagen valued profits over compliance with applicable federal and state emissions regulations and consumer law.

VW FOIA, EPA 06/20/2017 2017-FFP_036312

B. Fraudulent Concealment Tolling

39. Throughout the Relevant Period , all applicable statutes of limitation s have been tolled by Volkswagen's knowing and active fraudulent concealment and denial of the facts alleged in this Complaint.

40. Instead of disclosing its fraudulent emissions scheme, or that the emissions from the Affected Vehicles were far worse than had been represented, Volkswagen falsely represented to consumers and regulators that its vehicles complied with federal and state emissions standards, and that it was a reputable manufacturer whose representations could be trusted.

C. Estoppel

41. Volkswagen was und er a continuou s duty to disclose to Plaintiff and the other members of the Class the facts that it knew about the emissions from the Affected Vehicles, as well as information regarding the Affected Vehicles ' failure to comply with federal and state laws.

42. Volkswagen knowingly, affirmatively, and actively concealed the true nature, quality, and character of the emissions systems, and the emissions, of the Affected Vehicles, as well as the culture of dishonesty that appears to be pervasive throughout the organization.

43. Although Volkswagen had a duty, throughout the Relevant P eriod, to disclose to Plaintiff and the Class that it had engaged in the deception described in this Complaint, Defendants chose to evade federal and state emissions and clean air standards with respect to the Affected Vehicles. Furthermore, Volkswagen intentionally misrepresented its blatant and deceptive lack of compliance with state law regulating vehicle emissions and cl ean air.

44. Thus, Volkswagen is estopped from relying on any statutes of limitations in defense of this action.

VW FOIA, EPA 06/20/2017 2017-FFP_036313

FACTUAL ALLEGATIONS

45. Volkswagen intentionally designed and sold cars that misled both consumers and regulators about the amount of pollution those cars created and the fuel efficiency they produced.

46. Despite touting itself as an environmentally-conscious company that produced thoughtful cars for people who cared about the environment, Volkswagen knowingly and deliberately sold cars at greatly marked u p prices that produced pollution at up to 40 times the magnitude allowed by federal and state regulations.

47. Simultaneously, while Volkswagen was promoting itself as being environmentally-aware, Volkswagen intentionally and knowingly concealed the truth about the fuel efficiency and emissions of the Affected Vehicles.

A. Volkswagen Promotes its CleanDiesel Vehicles as Being Fuel Efficient and Environmentally-Friendly

48. For years, Volkswagen has advertised its diesel vehicles as low -emission, fuel - efficient ca rs. Indeed, this marketing message is at the core of Volkswagen' s image in the United States, stimulating a successful advertising campaign that has led Volkswagen to become the largest seller of diesel passenger vehicles in the country.

49. Volkswagen's success is based, in large part, on promotion of its diesel cars as "clean" and "green" vehicles. In fact, Volkswagen has promoted the Affected Vehicles under the name "CleanDiesel." Promotions of the CleanDiesel vehicles have centered on the alleged high fuel efficiency and "clean" engine of these vehicles.

50. Volkswagen touts its ostensible concern for the environment through means other than the names and purported attributes of its vehicles. For example, on the Volkswagen USA website, Volkswagen places an emphasis on its commitment to environmental sustainability, stating that this is "at the core of [its] operating philosophy." Volkswagen states that it does not

VW FOIA, EPA 06/20/2017 2017-FFP_036314

just talk about environmental sustainability, but rather the company "take[s] action, findi ng inventive ways to be responsible in everything [it] do[es]."

51. Volkswagen even states that it "take[s] steps to ensure that every vehicle [it] manufacture[s] is the best it can be in terms of its environmental properties." Notwithstanding these representations, Volkswagen was knowi ngly hiding its failure to even meet minimum emissions standards.

52. Volkswagen further bolster s its claims to be concerned for the environment by promoting the fact that the Audi A3 TDI and VW Jetta TDI were named the 2010 Green Car of the Year and the 2009 Green Car of the Year, respectively. Both awards have been rescinded since news of the emissions scandal broke.

53. Volkswagen also launched the "Think Blue" initiative, which the company explains is intended to help the company b ecome the world's most ecologically sustainable car manufacturer by 2018. As part of this initiative, Volkswagen claims, among other things, that it intends "to reduce the environmental burden produced by each vehicle and each component in production by 25% from 2010 to 2018" and that each "new Volkswagen should be at least 10% more efficient than its predecessor."

54. Beyond merely advertising its vehicles, Volkswagen supported and directed a website – *www.clearlybetterdiesel.org* – to promote its "clean" diesel technology. According to this website, Volkswagen's diesel technology reduces smog and "meets the highest standards in all 50 states, thanks to ultra-low sulfur diesel (ULSD) fuel and innovative engine technology that burns cleaner."

55. Volkswagen goes so far as to use the tagline "Truth in Engineering" to promote its Audi brand.

VW FOIA, EPA 06/20/2017 2017-FFP_036315

56. Unfortunately for consumers who paid Volkswagen's significant premiums to purchase "green" cars – and people who breathe the air into which the Affected Vehicles emit egregious amounts of pollutants – Volkswagen was far from truthful in promoting its CleanDiesel vehicles. Rather than promoting "environmentally conscious lifestyles," Volkswagen designed and sold cars that emit pollutants at extraordinary levels, failing state and federal environmental regulations by breathtaking margins.

B. Volkswagen Intentionally and Systematically Concealed the Excessive and Illegal Levels of Pollution Emitted by its Vehicles

57. Contrary to Volkswagen's representations that it is a "green" company committed to promoting the "greater good," many of its CleanDiesel cars produce illegal and unhealthy levels of pollution.

58. On September 18, 2015, the EPA issued an NOV to Volkswagen (the "September NOV"). The NOV explains that Volkswagen installed sophisticated software in the Affected Vehicles. This software detects when the vehicle is undergoing official emissions testing, an d turns on full emissions controls ***only*** during that test. At all other times that the vehicle is running, however, the emissions controls are deactivated, meaning that pollution is freely released into the environment at levels that far exceed those allow ed by federal and state clean air regulators. As defined by the Clean Air Act, the software produced and used by Volkswagen to falsify emissions testing results is a "defeat device."

59. Moreover, the September NOV alleges that Volkswagen knew or should have known that these defeat devices would "render inoperative elements of the vehicle design related to compliance with…emissions standards," because of "the design of these defeat devices." The software was specifically designed to "track the parameters of t he federal test procedure and

VW FOIA, EPA 06/20/2017 2017-FFP_036316

cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure."

60. On November 2, 2015, the EPA issued a second NOV to Volkswagen, detailing its determination that Volkswagen "manufactured and installed defeat devices in certain model year 2014 -2016 diesel light -duty vehicles equipped with 3.0 liter engines" (the "November NOV"). According to the November NOV, the defeat devices installed in the A ffected Vehicles described therein cause those vehicles to employ a different injection timing, exhaust gas recirculation rate, and common rail fuel pressure, leading to higher levels of NOx from the engine and reduced exhaust temperatures. Depending on t he model type of the vehicle and the type of drive cycle (*e.g.*, city, highway, etc.), "tailpipe emissions of NOx are up to 9 times the applicable NOx standard levels." As with the September NOV, the EPA stated that, "given the design of these defeat devic es," Volkswagen "knew or should have known that the software described…bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with…emission standards."

61. Most modern engines, including Volkswagen's CleanDiesel engines, use computerized engine control systems to monitor sensors throughout a car's engine and exhaust systems and control operation of the car's systems to ensure optimal performance and efficiency. These functions can include controlling fuel injection, valv e and ignition timing and, as in Volkswagen's CleanDiesel engines, operating the engine's turbocharger. The en gine control computer can, for example, ensure that the air-to-fuel mixture is correct, based on sensor readings such as throttle position, amount of air flowing into the engine, and engine temperature.

62. Engine control computers also receive data from sensors in the car's exhaust system, which measure the amounts of chemical substances included in the car's exhaust. This

VW FOIA, EPA 06/20/2017 2017-FFP_036317

data provides a measure of the engine's operation and efficiency, and is thus used by the engine control computer in operating the car's systems to ensure the desired performance and efficiency.

63. The ability of modern cars to use these sophisticated computers and sensors throughout the car's systems allows emissions testing to make use of a car's existing sensors to measure the presence of pollutants and track compliance with EPA and state emissions standards. Emissions testing stations, for example, plug a diagnostic device into the car's on-board diagnostics ("OBD II") port, and use the car's exhaust sensors during the testing procedure, in order to measure the substances emitted. Some states, instead of or in addition to an OBD II diagnostic device, use a measurement probe inserted into the car's exhaust pipe to measure the chemicals emitted by the vehicle.

64. Volkswagen programmed the engine control computers in the Affected Vehicles with software that first detects when the cars are undergoing emissions testing, and then operates the car's engine and exhaust systems to fool the test. Only when the vehicle is undergoing emissions testing will the engine control computers in the Affected Vehicles ensure that emissions comply with EPA pollution standards. When the car is not undergoing emissions testing (*i.e.*, when it is being used by consumers), the engine control systems operate the vehicle in a manner that does not comply with EPA emissions requirements.

65. Essentially, the defeat device software used by Defendants allows Defendants' CleanDiesel vehicles to meet emissions standards in labs or state testing stations, while permitting the vehicles to emit NOx at up to 40 times the standard allowed under United States laws and regulations during normal operation of the vehicles. NOx pollution contributes to nitrogen dioxide, ground-level ozone, and fine particulate matter. Exposure to such pollutants can lead to hospitalization for various serious respiratory illnesses, as well as premature death

VW FOIA, EPA 06/20/2017 2017-FFP_036318

due to respiratory -related or c ardiovascular-related effects. Children, the elderly, and people with pre-existing respiratory illnesses are particularly at risk. Researchers have estimated that the extra 46,000 tons of NOx that Volkswagen's Affected Vehicles have spewed into the atmosphere in the U.S. since 2008 has caused 106 to 146 or more deaths in the U.S.

66. Due to the serious health risks posed by such pollutants, the Clean Air Act obligates vehicle manufacturers to comply with strict emissions standards, and to certify to the EPA that all vehicles sold in the United States meet applicable federal emissions standards to control air pollution. In fact, every vehicle sold in the United States must be covered by a certificate of conformity issued by the EPA. Under federal law, cars eq uipped with defeat devices, which reduce the effectiveness of emissions control systems during normal driving conditions, cannot be certified.

67. By manufacturing, promoting, and selling cars with defeat devices that enabled the Affected Vehicles to pass emis sions tests before shutting down and releasing exorbitant levels of pollutants into the air, Volkswagen violated the Clean Air Act, misled regulators, defrauded its customers, and engaged in unfair competition under state and federal laws.

68. In fact, Volks wagen AG's top United States executive, Michael Horn, admitted that the "company was dishonest with the EPA and the California Air Resources board, and with all of you," and that the company had "totally screwed up." In spite of that admission, Horn protested that "[t]his kind of behavior is totally inconsistent with [Volkswagen's] qualities."

69. According to *The New York Times* , however, Volkswagen executives admitted that the CleanDiesel "vehicle s it sold in the United States u sed software meant to cheat on the [emissions] tests" only ***after*** the EPA "took the extraordinary action of threatening to withhold approval for the company's 2016 Volkswagen and Audi diesel models." Again, when

VW FOIA, EPA 06/20/2017 2017-FFP_036319

confronted with a second NOV from the EPA, Volkswagen initially denied the claims, emphatically stated that "no software has been installed in the 3.0 liter V6 diesel power units to alter emissions characteristics in a forbidden manner." The day after Volkswagen issued this denial, the company admitted that its own internal investigation had, in fact, discovered emissions irregularities in about 800,000 additional vehicles.

70. Bosch supplied Volkswagen with the software used in the defeat device and sold or licensed 11,000,000 units of its component de vice to Volkswagen knowing that Volkswagen intended to install them in its production line TDI vehicles and to sell them to consumers in America and elsewhere around the world. Bosch, thereby, knew it was facilitating and assisting Volkswagen in what Bosch itself identified, as early as 2007, would be a criminal fraud.

71. According to German and French newspaper reports, a team currently conducting a Volkswagen internal review of the scandal uncovered a 2007 letter from Bosch to Volkswagen in which Bosch warned that using its software in production vehicles would constitute an "offense." Nevertheless, Bosch proceeded to deliver 11,000,000 units of its defeat device to Volkswagen knowing that Volkswagen intended to commit the very "offense" Bosch had anticipated, and Bosch profited handsomely from its sales to Volkswagen.

72. In a September 24, 2015 press release, Bosch admitted that it had " supplied the common-rail injection system as well as the supply and dosing module for exhaust-gas treatment," but it attempte d to distance itself from the Volkswagen fraud by claiming that "Bosch supplie[d] these components to the automaker's specifications" and that "[h]ow these components [were] calibrated and integrated into complete vehicle systems is the responsibility of each automaker." Bosch's "hear no evil, see no evil" rationale for knowingly profiting from Volkswagen's crimes does not enable Bosch to escape civil liability under American law. Bosch

VW FOIA, EPA 06/20/2017 2017-FFP_036320

knew Volkswagen intended unlawfully to use its defeat device software in production vehicles. Instead of preventing that fraud by refusing to sell the devices to Volkswagen under those circumstances, Bosch elected to facilitate and profit from Volkswagen's fraud. Consequently, Bosch is just as responsible for the harm Volkswagen has caused as Volkswagen itself.

73. By continuing to sell millions of the defeat devices to Volkswagen, Bosch knew it was aiding and abetting criminal fraud and wire fraud in the United States, and it knowingly participated in a RICO conspiracy.

C. Defendants Have Profited Enormously from their CleanDiesel Vehicles

74. Volkswagen charges substantial premiums for the Affected Vehicles. For example, the starting MSRP for the base model of the Volkswagen Passat with a gasoline engine is $21,340. In order to purchase the base model of a Volkswagen Passat that is outfitted with a CleanDiesel engine, however, an individual would need to spend a minimum of $27,095 – a $5,755 premium over the base price of the comparable gasoline engine model. Consumers are willing to pay this 27% premium because they believe they are driving a vehicle that is EPA-compliant and environmentally-friendly, but this is not the case with the Affected Vehicles.

75. These premiums occur across all of the vehicles in which Defendants installed a defeat device for emissions testing. As an example, the table below sets forth the price premium, for many of the Affected Vehicles, of a CleanDiesel model as opposed to a comparable model with a gasoline engine, both as a percentage and in terms of dollar value. These premiums are based on the starting MSRP for the base model of each type of Affected Vehicle and its non-CleanDiesel counterpart.

Model	Gas Engine MSRP	CleanDiesel MSRP	Premium (%)	Premium ($)
VW Jetta	$18,780	$21,640	15%	$2,860
VW Beetle	$20,695	$25,330	22%	$4,635

VW FOIA, EPA 06/20/2017 2017-FFP_036321

Model	Gas Engine MSRP	CleanDiesel MSRP	Premium (%)	Premium ($)
VW Golf	$20,175	$22,345	11%	$2,170
VW Passat	$21,340	$27,095	27%	$5,755
VW Touareg	$44,705	$52,245	17%	$7,540
Audi A3	$30,900	$33,200	7%	$2,300
Audi A6	$49,900	$59,500	19%	$9,600
Audi Q5	$42,750	$48,100	13%	$5,350
Porsche Cayenne	$58,300	$62,300	7%	$4,000

76. Even higher premiums were charged with respect to many non -base models of the Affected Vehicles. The highest level gas Jetta SE has a starting MSRP of $20,095, while the CleanDiesel TDI SEL MSRP is $26,410 , a $6,315 premium . Premiums across the Affected Vehicles ranged from more than $2,000 to nearly $10,000.

77. Making the conservative assump tion that the average premium charged for the 11,000,000 Affected Vehicles sold worldwide was $3,000, Volkswagen's fraud yielded $33,000,000,000 in excess illicit profits or revenues to Volkswagen. That estimate assumes also that every Volkswagen TDI purchaser would have bought another Volkswagen model if the truth about the CleanDiesel TDI models were known at the time of sale. The estimate does not include additional profits that Volkswagen earned by drawing market share away from its competitors via consumers who were deceived into buying a Volkswagen or Audi TDI model rather than a gasoline or diesel model offered by a competitor.

78. Bosch earned excess illicit profits and revenues by selling or licensing to Volkswagen 11,000,000 units of the defeat dev ice component that it would not have sold but for Volkswagen's fraud, and which Bosch should not have sold given it knew that Volkswagen intended to commit fraud by installing those component units into production line vehicles that would be sold to the public.

VW FOIA, EPA 06/20/2017 2017-FFP_036322

D. Defendants' Illegal Actions Have Caused Plaintiffs and the Class Significant Harm

79. Although the EPA has notified Volkswagen that the EPA will likely order a recall of the Affected Vehicles requiring Volkswagen to repair them so that they comply with EPA emissions requirements at all times, purchasers of the Affected Vehicles have suffered and will continue to suffer significant harm as a result of Defendants' illegal acts.

80. First, Volkswagen will not be able to make the Affected Vehicles comply with emissions standards without substantially degrading the performance and mileage characteristics Volkswagen promoted to consumers. As a result, even if Volkswagen is able to make the Affected Vehicles EPA-compliant, Plaintiff and the Class will be unable to sell their Affected Vehicles for the price expected based on the performance of the vehicles when purchased and as advertised, thereby damaging Plaintiff and the Class.

81. Second, even if Volkswagen is able to make the Affected Vehicles compliant with EPA emissions standards, the recall remedy will necessarily result in a diminution in the value of each Affected Vehicle. Plaintiff and Class members paid significant premiums for cars that will now have greatly reduced residual value due to their reduced performance and mileage . In fact, an October 2015 article in *The Wall Street Journal* quotes analysts from Kelley Blue Book as stating that resale values of Volkswagen's diesel cars have fallen by an average of 13% in the weeks since the emissions scandal emerged. Though less severe, Volkswagen's gasoline models have also experienced a decline in resale values over the same period.

82. According to *The New York Times* , Volkswagen has said that it will be "setting aside the equivalent of half a year's profits – 6.5 billion euros, or about $7.3 billion – to cover the cost of fixing the cars to comply with pollution standards and to cover other expenses, which are likely to include fines as well as responses to civil lawsuits from angry customers." Even

VW FOIA, EPA 06/20/2017 2017-FFP_036323

Volkswagen's beleaguered former Chief Executive Officer, Martin Winterkorn, referred to the way in which the company deceived consumers and regulators as "manipulation." Winterkorn has already announced his resignation due to the scandal.

83. As a result of Volkswagen's unfair, deceptive, and fraudulent business practices, and its failure to disclose that the Affected Vehicles typically emit up to 40 times the permissible levels of pollutants, and as a result of Bosch's facilitation of Volkswagen's fraud, Class members have suffered losses in money and/or property.

84. According to research by scientists at Harvard University and the Massachusetts Institute of Technology, taking into account the risk posed by excess emissions from Volkswagen's rigging of its diesel cars to cheat on emissions tests, by the end of 2016, approximately 60 people in the United States have died or will die earlier than they otherwise would have. According to the study, the estimated cost of these deaths to the economy is about $450 million. The report also found that the healthcare study in the U.S. would be affected, with "approximately 31 cases of chronic bronchitis, 34 hospital admissions, 120,000 minor restricted activity days, 21,000 lower respiratory symptom days, and 33,000 days of increased bronchodilator usage."

85. Had Plaintiff and other members of the Class known of the presence of the defeat device at the time they purchased their Affected Vehicles, they would not have purchased those vehicles, or would have paid substantially less than they did for those vehicles.

86. Moreover, when Volkswagen recalls the Affected Vehicles and repairs the CleanDiesel engine performance in order to make the Affected Vehicles complaint with EPA emissions standards, Plaintiff and other Class members will be required to spend more on fuel and will no longer benefit from the performance qualities of their vehicles as advertised. This

VW FOIA, EPA 06/20/2017 2017-FFP_036324

will likely cause a sharp decline in the sale prices of the Affected Vehicles, should owners of the Affected Vehicles attempt to sell their cars.

87. In order to achieve the drastic drop in NOx emissions required for the Affected Vehicles to comply with EPA regulations, the cars will have to sacr ifice some fuel economy, or performance. In addition to a drop in gas mileage, attempting to make the Affected Vehicles EPA-compliant will also likely require some drop in torque, which allows diesel vehicles to really accelerate off the line – one of the features owners of diesel vehicles value most.

88. An alternative to recalibrating the defeat device software so that the Affected Vehicles always run the way they do during EPA testing is to add a urea tank to the Affected Vehicles. The standard way of maki ng diesel vehicles run cleanly is to use selective catalytic reduction, a chemical process that breaks NOx down into nitrogen and water. Part of this process, which is used by other diesel manufacturers like Mercedes and BMW, involves adding urea to the mix. While this system is incredibly effective in that it can eliminate between seventy and ninety percent of NOx emissions, it adds both complication and cost to the equation. The system costs between $5,000 and $8,000 per car, and consumers need to peri odically add the urea-based solution to their vehicles in order to keep them running. In addition, making room for the urea tank could mean sacrificing cargo space or giving up the spare tire.

89. Volkswagen's fraudulent scheme to conceal substantial defects in the Affected Vehicles placed profit over the safety of its customers and the health of the environment, ca using serious harm to consumers, leasing agencies, and rental car companies nationwide.

90. While Defendant Winterkorn, who resigned from his position as CEO of VW AG on September 23, 2015 in the wake of the scandal, has apologized for breaking the trust of the company's customers and the public, such candor after years of misrepresentations and

VW FOIA, EPA 06/20/2017 2017-FFP_036325

omissions of material information is presumptively a public relations effort at damage control and insincere, and it does not compensate Plaintiff and other members of the Class for the damages they have incurred as a result of Defendants' illegal actions.

91. The United States Department of Justice will conduct a criminal investigation into Volkswagen after the company admitted to developing software that allowed its diesel cars to circumvent emissions testing, in violation of the Clean Air Act . The New York State Attorney General, in collaboration with state attorneys general throughout the country, will also investigate Volkswagen's attempts to evade environmental protection laws and its practice of "promis[ing] consumers a fake bill of goods." According to a *USA Today* editorial, "[t]he simple word for the accusation against VW is cheating, and on a grand scale."

CLASS ACTION ALLEGATIONS

92. Plaintiff brings this action on behalf of itself and as a class action, pursuant to the provisions of Rules 23(a), (b)(2), and (b)(3) of the Federal Rules of Civil Procedure on behalf of the following class and subclass (collectively, the "Class" or "Classes"):

The Nationwide Class

All persons or entities in the United States who are current or former owners and/or lessees of an "Affected Vehicle." Affected Vehicles include, without limitation, all vehicles described in Paragraph 7 herein.

The Michigan Subclass

All persons or entities in the State of Michigan who are current or former owners and/or lessees of an "Affected Vehicle." Affected Vehicles include, without limitation, all vehicles described in Paragraph 7 herein.

The New York Subclass

All persons or entities in the State of New York who are current or former owners and/or lessees of an "Affected Vehicle." Affected Vehicles include, without limitation, all vehicles described in Paragraph 7 herein.

VW FOIA, EPA 06/20/2017 2017-FFP_036326

93. Excluded from the Class are employees or agents of Defendants and their subsidiaries and affiliates, all persons who make a timely request to be excluded from the Class, all governmental entities, and the judge to whom this case is assigned and his or her immediate family. Plaintiff reserves the right to revise the Class definition based upon information learned through discovery.

94. Certification of Plaintiff's claims for class-wide treatment is appropriate because Plaintiff can prove the elements of its claims on a class-wide basis using the same evidence as would be used to prove those elements in individual actions alleging the same claim.

95. This action has been brought and may be properly maintained on behalf of the Class proposed herein under Federal Rule of Civil Procedure 23.

96. The members of the Class es are so numerous and geographically dispersed that individual joinder of all Class members is impracticable. The precise number of Class members is unknown to Plaintiff at this time, but may be ascertained from Volkswagen's records. Plaintiff is informed and believes that there are thousands of Class members. Class members may be notified of the pendency of this action by recognized, Court-approved notice dissemination methods, which may include U.S. mail, electronic mail, Internet postings, and/or published notice.

97. This action involves common questions of law and fact, which predominate over any questions affecting individual Class members, including, without limitation:

(a) Whether Defendants engaged in the conduct alleged herein;

(b) Whether Defendants designed, advertised, marketed, distributed, leased, sold, or otherwise placed Affected Vehicles into the stream of commerce in the United States;

VW FOIA, EPA 06/20/2017 2017-FFP_036327

(c) Whether the CleanDiesel engine system in the Affected Vehicles contains a defect in that it does not comply with EPA requirements;

(d) Whether the CleanDiesel engine systems in the Affected Vehicles can be made to comply with EPA standards without substantially downgrading the performance and/or efficiency of the Affected Vehicles;

(e) Whether Defendants knew about the "defeat device" and, if so, for how long;

(f) Whether Volkswagen designed, manufactured, marketed, and distributed Affected Vehicles with a "defeat device;"

(g) Whether Defendants' conduct violates RICO, consumer protection statutes, warranty laws, and other laws asserted herein;

(h) Whether Plaintiff and the other members of the Class es overpaid for their Affected Vehicles and suffered losses of rental income;

(i) Whether Plaintiff and the other members of the Classes are entitled to equitable relief including, but not limited to, restitution or injunctive relief; and

(j) Whether Plaintiff and the other members of the Class es are entitled to treble damages and other monetary relief and, if so, in what amount.

98. Plaintiff's claims are typical of the other Class members' claims because, among other things, all Class members were comparably injured through the wrongful conduct of Volkswagen, as described above.

99. Plaintiff is an adequate Class representative because his interests do not conflict with the interests of the other members of the Class es he seeks to rep resent. Furthermore, Plaintiff has retained counsel competent and experienced in complex class action litigation. The

VW FOIA, EPA 06/20/2017 2017-FFP_036328

Classes' interests will be fairly and a dequately protected by Plaintiff, who intends to prosecute this action vigorously, and by Plaintiff's skilled and experienced counsel.

100. Volkswagen has acted or refused to act on grounds generally applicable to Plaintiff and the other members of the Class es, thereby making appropriate final injunctive and declaratory relief, as described below, with respect to the Class as a whole.

101. A class action is superior to any other available means for the fair and efficient adjudication of this controversy, and no unusu al difficulties are likely to be encountered in the management of this class action. The damages or other financial detriment suffered by Plaintiff and the other Class members are relatively small compared to the burden and expense that would be required to individually litigate their claims against Volkswagen, so it would be impracticable for members of the Classes to individually seek redress for Volkswagen's wrongful conduct.

102. Even if Class members could afford individual litigation, the court system cou ld not. Individualized litigation creates a potential for inconsistent or contradictory judgments, and increases the delay and expense to all parties and to the court system. By contrast, the class action device presents far fewer management difficulties , and provides the benefits of single adjudication, economy of scale, and comprehensive supervision by a single court.

A. Claims Brought on Behalf of the Nationwide Class

COUNT I
Violation of The Racketeer Influenced And Corrupt Organizations Act ("RICO")
(18 U.S.C. § 1962(c))

103. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

104. The Defendants are all "persons" under 18 U.S.C. § 1961(3).

VW FOIA, EPA 06/20/2017 2017-FFP_036329

105. The Defendants violated 18 U.S.C. § 1962(c) by participating in or conducting the affairs of the RICO Enterprise through a pattern of repeatedly defrauding consumers. The methodology of the fraud is set forth a bove and as described in this Count. The persons participating in the Enterprise and their respective roles in the Enterprise are set forth below.

106. This Count is asserted by Plaintiff on behalf of the Nationwide Class an d the respective Subclasses.

107. For purposes of Count I, Volkswagen and Bosch are RICO co-conspirators. The Bosch-Volkswagen conspiracy undertook a fraudulent scheme to create a defeat device and to install it in Affected Vehicles that were sold in the United States and elsewhere through the use of false and misleading statements and omissions re lating to the qualities of the emissions controls installed in those vehicles through the use of the U.S. Mails, and interstate and international wire, radio and television transmissions.

108. At all relevant times and as describe d above, Defendants carried out their scheme to defraud Plaintiff and other members of the Classes, in connection with the conduct of an "enterprise" within the meaning of 18 U.S.C. § 1961(4).

109. The Enterprise consisted of the following persons, and others presently unknown, who constitute an "association-in-fact enterprise" within the meaning of RICO and who collectively constitute the "Fraudulent 'CleanDiesel' Enterprise" or "Enterprise":

(1) Volkswagen USA;

(2) Volkswagen AG;

(3) Martin Winterkorn;

(4) Michael Horn;

(5) Bosch; and

VW FOIA, EPA 06/20/2017 2017-FFP_036330

(6) Does 1-25.

110. The Fraudulent "CleanDiesel" Enterprise, whose activities affected interstate and foreign commerce, is an association-in-fact of individuals and corporate entities within the meaning of 18 U.S.C. § 1961(4) and consists of persons associated together for the common purpose of sel ling the Affected Vehicles that the membe rs of the Enterprise knew could not provide the results promised to consumers.

111. The Fraudulent "CleanDiesel" Enterprise was formed in 2007 or earlier and continued to at least 2015, if not to this day. That RICO Enterprise en gaged in a pattern of racketeering activity by placing the Affected Vehicles into commerce over a seven year period from 2008 to 2015, collecting tens of billions of dollars of illicit profits as a result.

112. The Fraudulent "CleanDiesel" Enterprise is separat e and distinct from the pattern of racketeering activity. The Enterprise is an ongoing organization or group and exists to advance the interests of the individual entities that comprise its membership, *i.e.*, selling the Affected Vehicles described above. From 2008 through 2015, the Fraudulent "CleanDiesel" Enterprise members all served the common purpose of shipping and selling as many fraudulent "CleanDiesel" vehicles as possible to the United States, therein maximizing their own profits and revenues and sharing the more than $30 billion in illicit gains derived from deceived and defrauded consumers. Each member of the Fraudulent "CleanDiesel" Enterprise benefited from the common purpo se: Volkswagen sold mo re Affected Vehicles, and received more for those vehicles than they otherwi se would have, had the Affected Vehicles been truthfully advertised, marketed and labeled; thus, Bosch was able to sell to Volkswagen more defeat device software to be installed in the Affected Vehicles.

VW FOIA, EPA 06/20/2017 2017-FFP_036331

113. The Fraudulent "CleanDiesel" Enterprise also exists for the legitimate purpose of selling vehicles with software that does not allow those vehicles to evade emissions standards. It operates within a framework that includes the sale of other consumer goods that are not infected with fraud. Each member of the Enterprise performs a role in the group consistent with its structure that furthers the activities of the Fraudulent "CleanDiesel" Enterprise in connection with the Enterprise members' sale of EPA-compliant vehicles to consumers.

114. Alternatively, Bosch and Volkswagen AG are RICO co-conspirators. The Bosch-Volkswagen AG conspiracy undertook a fraudulent scheme to create a defeat device and to install it in Affected Vehicles that were sold in the United States through Volkswagen USA and elsewhere through the use of false and misleading statements and omissions relating to the qualities of the emissions controls installed in those vehicles through the use of the U.S. Mails, and interstate and international wire, radio and television transmissions.

115. At all relevant times and as described above, Defendants carried out their scheme to defraud Plaintiff and other members of the Classes, in connection with the conduct of an alternative "enterprise" within the meaning of 18 U.S.C. § 1961(4).

116. The alternative Enterprise consisted of Volkswagen USA.

117. Through the conduct of the Enterprise or alternative Enterprise, Defendants undertook a fraudulent scheme to sell the Affected Vehicles based upon the false and misleading misrepresentations and omissions set forth herein.

118. Through this scheme, Defendants and others agreed to utilize the false and misleading representations and omissions relating to the Affected Vehicles in a conscious and deliberate effort to sell products at a premium price that, in fact, provided no benefit whatsoever to the purchaser and/or user of the products. Alternatively, the Affected Vehicles sold through

VW FOIA, EPA 06/20/2017 2017-FFP_036332

the Fraudulent "CleanDiesel" Enterprise or Volkswagen USA Enterprise had significantly less value than consumers paid for them because the efficacy claims made were fraudulent and the products did not have the possibility of providing the promised results.

119. As is set forth above, Bosch and Volkswagen knowingly participated in the formulation and manufacture of the def eat device software , as well as the false marketing materials used to sell the Affected Vehicles.

120. At all t imes relevant to this case, Defendants were all willing and deliberate participants in the Enterprise or alternative Enterprise.

121. The Enterprise and alternative Enterprise were, at all relevant times , a continuing unit functioning with a common purpose of selling Affected Vehicles through the use of the false and misleading representations and omissions described above, and those omissions identified below, in order to increase sale of th e Affected Vehicles and thereby i ncrease Defendants' profits.

122. In furtherance of t he scheme, Volkswagen , facilitated by and in concert wit h Bosch, engaged in thousands of acts of mail fraud and wire fraud, each of which c onstitute "racketeering activity," as that term is defined in 18 U.S.C. § 1961(1).

123. Those acts of mail fraud and wire fraud include generally distributing the false and misleading marketing materials described herein via mail, television, radio, and the Int ernet to members of the public as well as communicating among themselves with respect to the scheme via interstate and international email and telephone with the common p urpose of selling the Affected Vehicles to an unsuspecting public based upon the fraudulent and deceptive representations and omissions described above.

VW FOIA, EPA 06/20/2017 2017-FFP_036333

124. In addition to the foregoing, each downlo ad or view of one of Volkswagen's advertisements and videos on the Internet constituted a separate offense of wire fraud.

125. As a result of the foregoing, Plaintiff and the Classes have been injured in their business and/or property in that they paid for Affected Vehicles that did not, and could not, provide the benefits promised in the advertisements and other promotional materials associated with the products. Plaintiff's out-of-pocket losses are a direct result of the predicate acts described above. The Volkswagen Defendants' numerous false and misleading statements (and marketing and advertisements containing omissions) sent via the U.S. mail and interstate w ires were directed to Plaintiff and the members of the proposed Class and Subclasses, and were relied on by Plaintiff and/or the members of the proposed Class and Subclasses. Plaintiff would not have incurred such losses but for the predi cate acts described above. Absent Bosch's facilitation and the Volkswagen Defendants' numerous false and misleading statements (and marketing and advertising containing omissions) sent via the U.S. mail and interstate wires, Plaintiff would not have paid as high a price fo r the Affected Vehicles as it did, or would not have purchased th e Affected Vehicles at all.

COUNT II
Fraud by Concealment

126. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

127. Plaintiff brings this claim on behalf of the Nationwide Class.

128. Volkswagen intentionally concealed and suppressed material facts concerning the quality and character of the Affected Vehicles . As alleged in this Complaint, Volkswagen engaged in deception to evade federal and state vehicle emissions standards by installing "defeat

VW FOIA, EPA 06/20/2017 2017-FFP_036334

device" software designed to conceal its vehicles' emissions of the pollutants, which contribute to the creation of ozone and smog.

129. The software installed i n the Affected Vehicles was fraudulently designed to be activated only during emissions testing, such that the vehicles would show far lower emissions during testing than when actually operating on the road. The result, as Defendants intended, was that vehicles passed emissions t esting and received the requisite EPA certifications by way of deliberately-induced false readings. This deliberate, secret deception reportedly resulted in noxious emissions from these vehicles at rates of 40 times permissible levels.

130. Plaintiff and the other members of the Class reasonably relied upon Volkswagen's false representations when decidi ng whether to purchase an Affected Vehicle. They had no way of knowing that Volkswagen's representations were false and gravely misleading. As alleged herein, Volkswagen employed extremely sophisticated methods of deception, such that Plaintiff and the other members of the Class did not, and could not, unravel Volkswagen's deception on their own.

131. Volkswagen concealed and suppressed material facts concerning what is evidently the true culture of Volkswagen – one characterized by an emphasis on profits and sales above compliance with emissions regulations that are meant to protect consumers and the public at large. Defendants also placed more value on profits than they did on maintaining the trust that Plaintiff and the Class had in Volkswagen's representations about the Affected Vehicles and the culture of the company. Such crucial misrepresentations and omissions have left consumers feeling angered and betrayed.

132. Necessarily, Volkswagen also took steps to ensure that its employees did not reveal the details of its deception to regulators or consumers, including Plaintiff and Class

VW FOIA, EPA 06/20/2017 2017-FFP_036335

members. Volkswagen made such a strategic decision in order to boost the reputation s of its vehicles and to falsely assure purchasers and lessors of its vehicles, including certified previously-owned vehicles, that Volkswagen is a reputable manufacturer that complies with applicable law, including federal and state clean air law and emis sions regulations, and that its vehicles likewise comply with applicable law and regulations.

133. Volkswagen's false representations were material to consumers, both because these misrepresentations concerned the quality of the Affected Vehicles, including their compliance with applicable federal and state laws and regulations regarding clean air and emissions, and also because the misrepresentations played a significant role in assessing the value of the Affected Vehicles. As Volkswagen well knew, its customers, including Plaintiff and the Class, highly valued that the vehicles they were purchasing or leasing were clean diesel cars, and they paid accordingly.

134. Volkswagen had a duty to disclose the emissions deception in which it engaged with respect to the Affected Vehicles because: (1) knowledge of the deception and its details were known and accessible only to Volkswagen; (2) Volkswagen had exclusive knowledge as to the implementation and maintenance of its deception; and (3) Volkswagen knew the facts surrounding the deception were unknown to and unable to be rea sonably discovered by Plaintiff and other members of the Class.

135. Volkswagen also had a duty to disclose its sophisticated deception of emissions testing because the company made general affirmative repr esentations about the qualities of its vehicles with respect to emissions standards, starting with references to the Affected Vehicles as "CleanDiesel" cars, or cars with clean diesel engines. Such references were misleading, deceptive, and incomplete without the disclosure of the additional facts set forth herein regarding

VW FOIA, EPA 06/20/2017 2017-FFP_036336

Volkswagen's emissions deception, the actual emissions of its vehicles, its actual philosophy with respect to complying with federal and state clean air law and emissions regulations, a nd its actual practices with respect to the Affected Vehicles.

136. Having volunteered to provide information to Plaintiff and the Class, Volkswagen had a duty to disclose the entire truth. All of the facts omitted and concealed by Volkswagen a re material beca use they directly affect the value of the Affected Vehicles purchased by Plaintiff and other members of the Class. Whether a manufacturer's products comply with federal and state clean air law and emissions regulations, whether that manufacturer is honest about such compliance or non-compliance, and whether the vehicles passed the requisite emissions testing in order to receive EPA certification, are material concerns to a consumer. Volkswagen represented to Plaintiff and other members of the Class that t hey were purchasing clean diesel vehicles, and that emissions testing had confirmed this. Secretly, however, Volkswagen had thoroughly subverted the entire emissions-testing process.

137. Volkswagen actively concealed and/or suppressed these material facts, in whole or in part, to expand and protect its profits, and to avoid the perception that its vehicles did not or could not comply with federal and state laws governing clean air and emissions, which perception would damage the brand's image and cost Volkswagen money. Volkswagen concealed these material facts at the expense of Plaintiff and Class members.

138. On information and belief, Volkswagen has still not made full and adequate disclosures, and continues to defraud Plaintiff and the Class by concealing mater ial information regarding the emissions qualities of its referenced vehicles and the company's systematic emissions deception.

VW FOIA, EPA 06/20/2017 2017-FFP_036337

139. Plaintiff and the other members of the Class were unaware of the omitted material facts referenced herein, and they would not hav e acted as they did if they had known of the concealed and suppressed facts, in that they would not have purchased the Affected Vehicles from Volkswagen or would have taken other affirmative steps in light of the information concealed from them. Plaintiff's and Class members' actions were entirely justified. Volkswagen was in exclusive control of the material facts, and such facts were not known to the public, Plaintiff, or the other members of the Class.

140. As a result of Volkswagen's concealment and suppre ssion of the facts, Plaintiff and the Class have sustained damages. Plaintiff and the Class have been damaged because they own vehicles that are diminished in value as a result of Volkswagen's concealment of the true quality and quantity of those vehicles ' emissions and because Volkswagen failed to timely disclose the actual emissions qualities and quantities of millions of Volkswagen - and Audi - branded vehicles. Had Plaintiff and the Class been aware of the serious issues generated by Volkswagen's deceptive corporate policies, the emissions deceptions with regard to the Affected Vehicles, or the company's callous disregard for compliance with applicable federal and state laws and regulations, Plaintiff and Class members who purchased Affected Vehicles would have paid less for those vehicles or would not have purchased them at all.

141. The value of Plaintiff's and Class members' vehicles has diminished as a result of Volkswagen's fraudulent concealment of its emissions deception, which has greatly tarnished the Volkswagen and Audi brand names attached to Plaintiff' s and Class members' vehicles, and made any reasonable consumer reluctant to purchase any of the Affected Vehicles, let alone pay what otherwise would have been fair market value for those vehicles.

VW FOIA, EPA 06/20/2017 2017-FFP_036338

142. Accordingly, Volkswagen is liable to Plaintiff and the other members of the Class for damages in an amount to be proven at trial.

143. Volkswagen's acts were done wantonly, maliciously, oppressively, deliberately, with intent to defraud, and in reckless disregard of Plaintiff's and Class members' rights and the representations that Volkswagen made to them . These malicious acts were performed solely in order to enrich Volkswagen. Such egregious conduct warrants an assessment of punitive damages in an amount suffic ient to deter such conduct in the future, which amount is to be determined to evidence submitted at trial.

144. Plaintiff pleads this count pursuant to the law of New Jersey, where Volkswagen is incorporated, on behalf of all members of the Class. As necessary , an d in the alternative, Plaintiff may allege sub -classes, based on the residences at pertinent times of members of the Class, to allege fraudulent concealment under the laws of states other than New Jersey.

COUNT III
Breach of Contract

145. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

146. Plaintiff brings this claim on behalf of the Nationwide Class.

147. Volkswagen's misrepresentations and omissions alleged herein, including Volkswagen's failure to disclose the existence of the "d efeat device," caused Plaintiff and the other Class members to purchase their Affected Vehicles. Absent those misrepresentations and omissions, Plaintiff and the other members of the Class would not have purchased the Affected Vehicles, would have paid substantially less for the Affected Vehicles, and/or would have purchased less expensive alternative vehicles that did not contain the CleanDiesel engine system

VW FOIA, EPA 06/20/2017 2017-FFP_036339

and the "defeat device." Accordingly, Plaintiff and the Class overpaid for their Affected Vehicles and did not receive the benefit of their bargain.

148. Each and every sale of an Affected Vehicle constitutes a contract between Volkswagen and the purchaser or lessee. Volkswagen breached these contracts by selling Plaintiff and the other members of the Class defective vehicles and by misrepresenting or failing to disclose the existence of the "defeat device," including information known to Volkswagen that rendered each Affected Vehicle less safe and emissions -compliant, and thus less valuable, than vehicles not equipped with CleanDiesel engine systems and "defeat devices."

149. As a direct and proximate result of Volkswagen' s breach of contract, Plaintiff and the Class have been damaged in an amount to be proven at trial, which shall include, but is not limited to, all compensatory damages, incidental and consequential damages, and other damages allowed by law.

COUNT IV
Breach of Express Warranty

150. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

151. Plaintiff brings this claim on behalf of the Nationwide Class.

152. Defendants made numerous representations, descriptions, and promises to Plaintiff and Class members regarding the perfor mance and emission controls of their diesel vehicles.

153. Defendants, however, knew or should have known that their representations, descriptions, and promises were false. Defendants were well aware that they had installed defeat devices in the vehicles they sold to Plaintiff and the other members of the Class.

VW FOIA, EPA 06/20/2017 2017-FFP_036340

154. Plaintiff and the Class reasonably relied on Volkswagen's representations in purchasing "clean" diesel vehicles. Those vehicles, however, did not perform as was warra nted. Unbeknownst to Plaintiff, th ose vehicles included devices that caused their emission reduction systems to perform at levels worse than advertised. Those devices are defects. Accordingly, Volkswagen breached its express warranty by providing a product containing defects that were never disclosed to Plaintiff and the Class.

155. As a direct and proximate result of Volkswagen's false and misleading representations and warranties, Plaintiff and the Class suffered significant damages and seek the relief described below.

COUNT V
Breach of Implied Warranty

156. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

157. Plaintiff brings this claim on behalf of the Nationwide Class.

158. Volkswagen made numerous representations, descriptions, and promises to Plaintiff and the other members of the Class regarding the functionality of Volkswagen's "clean" diesel technology.

159. Plaintiff and Class members reasonably relied on Volkswagen's representations in purchasing the Affected Vehicles.

160. As set forth throughout this Complaint, Volkswagen knew that its representations, descriptions, and promises regarding its diesel engines were false.

161. When Plaintiff and the other members of the Class purchased Volkswagen's diesel vehicles, those vehicles did not conform to t he promises or affirmations of fact made in Volkswagen's promotional materials, including that the vehicles were designed to meet the most

VW FOIA, EPA 06/20/2017 2017-FFP_036341

demanding environmental standards. Instead, as alleged herein, those vehicles were designed to cheat those standards , and the Affected Vehicles emitted far higher levels of pollution than promised.

162. Accordingly, the Affected Vehicles failed to conform to Volkswagen's implied warranty regarding their functionality.

163. As a direct and proximate result of Volkswagen's false and misleading representations and warranties, Plaintiff and the Class suffered significant injury when Volkswagen sold them cars that, it is now clear, are worth far le ss than the price Plaintiff and the Class paid for them. Accordingly, Plaintiff and the Class seek the relief described below.

COUNT VI
Violation of the Magnuson-Moss Warranty Act
(15 U.S.C. §§ 2301, *et seq.*)

164. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

165. Plaintiff brings this claim on behalf of the Nationwide Class.

166. This Court has jurisdiction to decide claims brought under 15 U.S.C. § 2301 by virtue of 28 U.S.C. § 2301(3).

167. Volkswagen's Affected Vehicles are a "consumer product," as that term is defined in 15 U.S.C. § 2301(1).

168. Plaintiff and the other members of the Class are "consumers," as that term is defined in 15 U.S.C. § 2301(3).

169. Volkswagen is a "warrantor" and a "supplier," as those terms are define d in 15 U.S.C. §§ 2301(4) and (5), respectively.

VW FOIA, EPA 06/20/2017 2017-FFP_036342

170. 15 U.S.C. § 2310(d)(1) provides a cause of action for any consumer who is damaged by the failure of a warrantor to comply with an implied warranty.

171. Volkswagen provided Plaintiff and the other members of the Class with "implied warranties," as that term is defined in 15 U.S.C. § 2301(7).

172. Volkswagen has breached these implied warranties as described in more detail above. Without limitation, Volkswagen's Affected Vehicles are defective, as described herein, which resulted in the problems and failures also described herein.

173. By Volkswagen's conduct as described in this Complaint, including Volkswagen's knowledge of the defects inherent in the Affected Vehicles and its action, and inaction, in the face of this know ledge, Volkswagen has failed to comply with its obligations under its written and implied promises, warranties, and representations.

174. In its capacity as a warrantor, and by the conduct described herein, any attempts by Volkswagen to limit the implied warran ties in a manner that would exclude coverage of the defective software and systems is unconscionable and any such effort to disclaim, or otherwise limit, liability for the defective software and supporting systems is null and void.

175. All jurisdictional prerequisites have been satisfied.

176. Plaintiff and members of the Class are in privity with Volkswagen in that they purchased the defeat device software from Volkswagen or its agents.

177. As a result of Volkswagen's breach of implied warranties, Plaintiff and the Nationwide Class members are entitled to revoke their acceptance of the vehicles, obtain damages and equitable relief, and obtain costs pursuant to 15 U.S.C. § 2310.

VW FOIA, EPA 06/20/2017 2017-FFP_036343

COUNT VII
Unjust Enrichment

178. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

179. Plaintiff brings this claim on behalf of the Nationwide Class.

180. Plaintiff and members of the Class conferred a benefit on Defendants by, *inter alia*, purchasing their vehicles.

181. Defendants have retained this benefit, and know of and appreciate this benefit.

182. Defendants were and continue to be unjustly enric hed at the expense of Plaintiff and Class members.

183. Defendants should be required to disgorge this unjust enrichment.

B. Claims Brought on Behalf of the Michigan Subclass

COUNT VIII
Violation of the Michigan Consumer Protection Act
(Mich. Comp. Laws §§ 445.901, *et seq*.)

184. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

185. Plaintiff brings this claim on behalf of the Nationwide Class or, alternatively, on behalf of the Michigan Subclass.

186. The Michigan Consumer Protection Act ("MCPA") holds unlawful "[u]nfair, unconscionable, or deceptive methods, acts, or practices in the conduct of trade or commerce." Mich. Comp. Laws §§ 445.901, *et seq*.

187. At all times relevant hereto, Defendants were conducting trade or commerce as defined under the MCPA, § 445.902(1)(g).

VW FOIA, EPA 06/20/2017 2017-FFP_036344

188. At all times relevant hereto, Defendants were "persons" engaged in "trade or commerce" within the meaning of the MCPA, § 445.902(1)(d).

189. Plaintiff and the Class members are "persons" under the MCPA, § 445.902(1)(d).

190. A party to a transaction covered under the MCPA must provide the other party the promised benefits of the transaction.

191. Defendants' acts and practices, as discussed throughout this Complaint, were unfair or deceptive acts that are unlawful in violation of the MCPA for, *inter alia*, one or more of the following reasons:

(a) Defendants designed and secretly installed the defeat devices with the intention of deceiving regulators and the public;

(b) Defendants represented that the Affected Vehicles had approval, characteristics, uses, and benefits that they do not have;

(c) Defendants provided and otherwise distributed false and misleading information to c onsumers regarding the legality of the Affected Vehicles, their true emissions characteristics, and their actual performance capabilities;

(d) Defendants represented that the Affected Vehicles were of a particular standard, quality, or grade, when they were of another;

(e) Defendants engaged in unconscionable commercial practices in failing to reveal, and intentionally concealing, material facts and information about the Affected Vehicles, which misled Plaintiff and the Class; and

(f) Defendants failed to reveal, and i ntentionally concealed, facts about the Affected Vehicles that were material to the transaction and upon which they intended Plaintiff and other members of the Class would rely.

VW FOIA, EPA 06/20/2017 2017-FFP_036345

192. Defendants committed these and other unfair and deceptive acts with regard to the marketing and sale and/or lease of the Affected Vehicles.

193. Defendants knew that the Affected Vehicles contained the defeat device designed to deceive regulators and the public.

194. Defendants' concealment and/or failure to warn that the Affected Vehicles contained the defeat device constitutes an unfair, unconscionable, or deceptive act within the meaning of the MCPA.

195. The unfair, unconscionable, and deceptive acts committed by Defendants caused damages to Plaintiff and the other members of the Class. Plaint iff and the Class members have lost money and/or property by purchasing or leasing the Affected Vehicles, which they otherwise would not have purchased or leased, and/or by paying a premium for the Affected Vehicles, which they otherwise would not have pai d. Additionally, the Affected Vehicles have suffered a diminution in value, and any fix would result in increased fuel and efficiency costs, as well as decreased performance, thereby further damaging Plaintiff and the Class.

196. Plaintiff and members of the Class are entitled to compensatory damages, injunctive/equitable relief, and attorneys' fees under the MCPA.

C. Claims Brought on Behalf of the New York Subclass

COUNT IX
Violation of the New York General Business Law
(N.Y. Gen. Bus. Law § 349)

197. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

198. Plaintiff brings this claim on behalf of the New York Subclass.

VW FOIA, EPA 06/20/2017 2017-FFP_036346

199. Plaintiff and the New York Subclass are "persons," as defined by the New York General Business Law ("New York GBL"), N.Y. Gen. Bus. Law § 349(h).

200. Defendants are "persons," "firms," "corporations," or "associations," as defined by the New York GBL, N.Y. Gen. Bus. Law § 349.

201. The New York GBL makes unlawful "[d]eceptive acts or practices in the conduct of any business, trade or commerce." N.Y. Gen. Bus. Law § 349. Defendants' conduct directed toward consumers, as described herein, constitutes "deceptive acts or practices" within the meaning of the New York GBL.

202. Defendants' actions as set forth above occurred in the conduct of trade or commerce.

203. In the course of their business, Defendants failed to disclose and actively concealed the dangers and risks posed, to consumers and the public at large, by the Affected Vehicles, and otherwise engaged in activities with a tendency or capacity to deceive.

204. Defendants also engaged in unlawful trade practices by employing deception, deceptive acts or practices, fraud, misrepresentations, or concealment, suppression or omission of any material fact with intent that others rely upon such concealment, suppression or omission, in connection with the sale of the Affected Vehicles.

205. Volkswagen has known about the "defeat device" installed in the Affected Vehicles since at least 2009, when it began marketing and selling vehicles that were intended to fool federal and state emissions testing. Nevertheless, Defendants failed to disclose and actively concealed the dangers and risks posed to consumers and the public by the Affected Vehicles.

206. By failing to disclose and actively concealing the presence of the "defeat device" in the Affected Vehicles, by marketing the Affected Vehicles and environmentally-friendly, and

VW FOIA, EPA 06/20/2017 2017-FFP_036347

fuel-efficient, and by presenting itself as a reputable and trustworthy manufacturer that values its customers and works to promote a healthy environment, Defendants engaged in unfair or deceptive business practices in violation of the New York GBL. Defendants deliberately withheld the information about the "defeat devices" in the Affected Vehicles, as well as the propensity of the Affected Vehicles to expel nearly 40 times the permissible levels of pollutants into the air, instead of protecting consumers and the public from the negative health effects of these noxious fumes, in order to ensure that customers would purchase the Affected Vehicles.

207. In the course of Defendants' business, it willfully failed to disclose and actively concealed the negative effects of the Affected Vehicles both on the environment and on the health of the public. Defendants compounded the deception by repeatedly asserting that the Affected Vehicles were safe, fuel-efficient, and EPA-compliant, and by continuously claiming to be a trustworthy company that values the environment.

208. Defendants' unfair or deceptive acts or practices, including these concealments, omissions, and suppressions of material facts, had a tendency or capacity to mislead, tended to create a false impression in consumers, were likely to and did in fact deceive reasonable consumers, including Plaintiff, about the true safety and legality of the Affective Vehicles and the true value of the Affected Vehicles.

209. Defendants intentionally and knowingly misrepresented material facts regarding the Affected Vehicles and/or the "defeat devices" installed in them with an intent to mislead Plaintiff and the New York Subclass.

210. Defendants knew or should have known that their conduct violated the New York GBL.

VW FOIA, EPA 06/20/2017 2017-FFP_036348

211. As alleged above, Defendants made material misstatements about the EPA compliance and safety of the Affected Vehicles that were either false or misleading.

212. To protect their profits and to avoid remediation costs and a public relations nightmare, Defendant s concealed the health and environmental risks posed by the Affected Vehicles, and allowed unsuspecting new and used car purchasers to continue to buy/lease the Affected Vehicles, and allowed them to continue driving vehicles that are highly toxic to the environment and public health.

213. Defendants owed Plaintiff and the New York Subclass a duty to disclose the true health and environmental effects of the Affected Vehicles because Defendants:

(a) Possessed exclusive knowledge of the risks posed by the foregoing;

(b) Intentionally concealed the foregoing from Plaintiff and the Class; and

(c) Made incomplete representations about the safety and legality of the foregoing generally, while purposefully withholding material facts from Plaintiff and the Class that contradicted these representations.

214. Because Defendants fraudulently concealed the fact that the Affected Vehicles do not comply with federal and state clean air laws and emissions regulations, resulting a raft of negative publicity once the truth began to be disclosed, the value of the Affected Vehicles has greatly diminished. In light of the stigma attached to the Affected Vehicles because of Volkswagen's conduct, they are now worth significantly less than they otherwise would be.

215. Defendants' failure to disclose and active concealment of the health and environmental risks posed by the Affected Vehicles was material to Plaintiff and the New York Subclass. A vehicle made by a reputable manufacturer of EPA-compliant vehicles is worth more

VW FOIA, EPA 06/20/2017 2017-FFP_036349

than an otherwise comparable vehicle made by a disreputable manufacturer of non-EPA-compliant vehicles that creates elaborate schemes to deceive both regulators and consumers.

216. Plaintiff and the New York Subclass suffered ascertainable losses caused by Defendants' misrepresentations and failure to disclose material information. Had they been aware of the "defeat device" that existed in the Affected Vehicles, and Defendants' complete disregard for the safety of its customers or the environment, Plaintiff either would have paid less for his vehicle or would not have purchased or leased it at all. Plaintiff did not receive the benefit of his bargain as a result of Defendants' misconduct.

217. Defendants' violations present a continuing risk to Plaintiff as well as to the general public. Defendants' unlawful acts and practices complained of herein affect the public interest.

218. As a direct and proximate result of Defendants' violations of the New York GBL, Plaintiff and the New York Subclass have suffered injury-in-fact and/or actual damage.

219. Plaintiff and the New York Subclass seek punitive damages against Defendants because Defendants' conduct was egregious. Defendants misrepresented the safety and legality hundreds of thousands of Affected Vehicles, concealed the presence of illegal "defeat devices" in the Affected Vehicles, deceived Plaintiff and the New York Subclass on matters affecting public health, and concealed material facts that only Defendants knew, all to avoid the expense and public relations nightmare of correcting the systems in the Affected Vehicles to ensure that those vehicles complied with federal and state law and regulations. Defendants' egregious conduct warrants punitive damages.

220. Because Defendants' willful and knowing conduct caused injury to the New York Subclass, the New York Subclass seeks recovery of actual damages or $50, whichever is greater,

VW FOIA, EPA 06/20/2017 2017-FFP_036350

discretionary treble damages up to $1,000, punitive damages, reasonable attorneys' fees and costs, an order enjoining Defendants ' deceptive conduct, and any other just and proper r elief available under N.Y. Gen. Bus. Law § 349.

COUNT X
Violation of the New York General Business Law
(N.Y. Gen. Bus. Law § 350)

221. Plaintiff realleges and incorporates by reference all preceding paragraphs as though fully set forth herein.

222. Plaintiff brings this claim on behalf of the New York Subclass.

223. Defendants were and are engaged in the "conduct of business, trade or commerce" within the meaning of N.Y. Gen. Bus. Law § 350.

224. N.Y. Gen. Bus. Law § 350 makes unlawful "[f]alse advertising in the conduct of any business, trade or commerce." False advertising includes "advertising, including labeling, of a commodity … if such advertising is misleading in a material respect," taking into account "the extent to which the advertising fails to reveal facts materia l in light of … representations [made] with respect to the commodity …" N.Y. Gen. Bus. Law § 350-a.

225. Defendants caused to be made or disseminated through New York, through advertising, marketing and other publications, statements that were untrue or mislea ding, and that were known, or by which the exercise of reasonable care should have been known to Defendants, to be untrue and misleading to consumers and the New York Subclass.

226. Defendants have violated New York GBL § 350 because the misrepresentations and omissions regarding the "defeat devices" installed in the Affected Vehicles, and Defendants' failure to disclose and active concealment of the risks to public health and the environment posed

VW FOIA, EPA 06/20/2017 2017-FFP_036351

by the Affected Vehicles, as set forth above, were material and likely to deceive a reasonable consumer.

227. Members of the New York Subclass have suffered an injury, including the loss of money or property, as a result of Defendants' false advertising. In purchasing or leasing Affected Vehicles, Plaintiff and the New York Subclass relied on the misrepresentations and/or omissions of Defendants with respect to the safety and legality of those Affected Vehicles. Defendants' representations were false and/or misleading because the concealed "defeat devices" allowed the Affected Vehicles to emit nearly 40 times more than the permissible level of pollutants into the environment, and seriously undermined the value of the Affected Vehicles. Had Plaintiff and the New York Subclass known this, they would not have purchased or leased their vehicles and/or paid as much for them.

228. Pursuant to N.Y. Gen. Bus. Law § 350-e, the New York Subclass seeks monetary relief against Defendants measured as the greater of (a) actual damages in an amount to be determined at trial and (b) statutory damages in the amount of $500 each for every New York Subclass member. Because Defendants' conduct was committed willfully and knowingly, each New York Subclass member is entitled to recover three times actual damages, up to $10,000.

229. The New York Subclass also seeks an order enjoining Defendants' unfair, unlawful, and/or deceptive practices, attorneys' fees, and any other just and proper relief available under New York GBL § 350.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff, individually and on behalf of members of the Class, respectfully requests that the Court enter judgment in their favor and against Volkswagen, as follows:

VW FOIA, EPA 06/20/2017 2017-FFP_036352

A. Certification of the proposed Class and Subclass, including appointment of Plaintiff's counsel as Class Counsel;

B. An order temporarily and permanently enjoining Volkswagen from continuing the unlawful, deceptive, fraudulent, and unfair business practices alleged in this Complaint;

C. Injunctive relief in the form of a recall or free replacement program;

D. Costs, restitution, damages, and disgorgem ent in an amount to be determined at trial;

E. Revocation of acceptance;

F. Damages under the Magnuson-Moss Warranty Act;

G. Treble and/or punitive damages as permitted by applicable laws;

H. An order requiring Volkswagen to pay both pre - and post-judgment interest on any amounts awarded;

I. An award of costs and attorneys' fees; and

J. Such other or further relief as may be appropriate.

DEMAND FOR JURY TRIAL

Plaintiff demands a jury trial as to all issues so triable.

Respectfully submitted,

ROSSMAN LAW, P.C.
Attorneys for Plaintiff

By: s/ Mark C. Rossman
Mark C. Rossman (P63034)
mark@rossmanlawpc.com
2145 Crooks Road, Suite 220
Troy, Michigan 48084
Telephone: 313.590.0915
Facsimile: 248.480.4936

VW FOIA, EPA 06/20/2017 2017-FFP_036353

WOLF HALDENSTEIN ADLER FREEMAN & HERZ LLP
Attorneys for Plaintiff
Daniel W. Krasner (NY Bar No. 1099514)
krasner@whafh.com
Gregory M. Nespole (NY Bar No. 2594356)
nespole@whafh.com
Michael Jaffe (NY Bar No. 2276475)
jaffe@whafh.com
270 Madison Avenue
New York, New York 10016
Telephone: 212.545.4600
Facsimile: 212.545.4653

Dated: November 30, 2015

VW FOIA, EPA 06/20/2017 2017-FFP_036354

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Mazaitis, Vincent[mazaitis.vincent@epa.gov]; Rodgers, William (EEO)[William.Rodgers@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]; Thomas, Richard (EEO)[Richard.Thomas@vw.com]
From: Allen, Gregory (EEO)
Sent: Wed 12/2/2015 8:47:33 PM
Subject: New test Date Request - MY2017 HAAC-BAF, Configuration 0

Hello Jim,

As discussed earlier, we are requesting the test date for the MY2017 Vehicle ID: HAAC-BAF, Configuration: 0 (A4 FWD) be changed to EPA delivery date of January 11th, 2016 , with a test date of January 13th, 2016.

The original test date that was requested and was scheduled in Verify was a test date of December 17, 2015.

If we could get a new Verify message sent to us with the new date confirmed I would appreciate it.

If you have any questions please let me know. Thanks Jim.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Allen, Gregory (EEO)
Sent: Thur 12/3/2015 1:29:38 PM
Subject: FW: A4 test car
ccd0214.pdf

Hello Jim,

After discussing the 2 "eyelet" issue with our factory, they reference a CCD that I haven't seen in a while (CCD-02-14):

Pg 3:

3. All front-wheel-drive vehicles must have two sturdy hold-down eyelets (2.5 inch inside diameter) installed. The eyelets should be located on each side of the vehicle forward of the front wheel centerline and at least 6 inches outboard of the vehicle centerline.

Is this CCD outdated? I briefly looked for an update but was unable to find one. This is why our vehicle is currently being re-worked to add the eyelets.

Regards,

Greg Allen

VWGoA EEO

(248)754-4209

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
2565 PLYMOUTH ROAD
ANN ARBOR, MICHIGAN 48105-2498

OFFICE OF
AIR AND RADIATION

September 23, 2002 CCD-02-14 (LDV/LDT/MDV/Alt Fuel Convertors)

SUBJECT: Preparing Light-Duty Vehicles and Trucks for Testing at EPA NVFEL

Dear Manufacturer:

Enclosed with this letter are instructions to vehicle manufacturers regarding the preparation of test vehicles prior to delivery to the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan for EPA confirmatory testing. These instructions replace EPA's Advisory Circular No. 23B dated June 6, 1990.

Please use these instructions to expedite the testing of your certification and fuel economy data vehicles at NVFEL.

If you have questions about these instructions, please contact Ted Cieslak of the Laboratory Operations Division at (734)214-4500, or your assigned EPA certification representative.

Sincerely,

Gregory A. Green, Director
Certification and Compliance Division
Office of Transportation and Air Quality

PREPARING VEHICLES FOR TESTING AT EPA NVFEL

I. Background - Why Does EPA Test Vehicles?:

A. 40 CFR Part 86.1835-01(a)(1) provides that the Administrator may require submission of test vehicles selected for demonstrating compliance with emission standards to a designated test laboratory. The Agency conducts emission tests at the NVFEL under this provision.

B. 40 CFR Part 86.600.008-77 (d) provides that the Administrator may require fuel economy data vehicles be submitted to a designated test laboratory. The Agency conducts fuel economy tests at the NVFEL under this provision.

II. Applicability:

These instructions are effective immediately and are applicable to all light-duty vehicles, light-duty trucks and medium-duty vehicles being tested for certification and/or fuel economy compliance following the Federal light duty test procedures (FTP).

The instructions are primarily directed at conventionally-fueled vehicles. Please provide written operating instructions and testing procedures for advanced technology vehicles, such as hybrids and fuel cells, to the EPA Certification and Compliance Division representative prior to delivery of the vehicle to NVFEL

III. Preparation of Test Vehicles:

The attachments to this guidance list the preparation requirements for vehicles delivered to the NVFEL in Ann Arbor for testing. The following instructions are designed to facilitate efficient testing of the vehicle.

A. General

1. Two sets of keys, clearly marked with vehicle make, identification number, and model, should be provided with each test vehicle. Please try to limit the size of the key identification tag to no larger than 1 inch by 2 inches.

2. Information pertinent to the testing of the vehicle should be displayed in or on the vehicle in a manner that enables the data to be read from outside the vehicle. Include the following information:

- Manufacturer vehicle identification number
- Location of fuel tank drainage valve
- A fuel tank shutoff valve for gaseous fueled vehicles
- Location of fuel filler door release

VW FOIA, EPA 06/20/2017 2017-FFP_036359

- Canister loading information including load port and vent location

Attachment A-1 is an example format to be used for these data. Attachment A-2 is a completed example of A-1.

Special operating instructions, starting procedures, identification of the dynamometer drive wheels, and traction control operation must be submitted with each vehicle. EPA cannot test a vehicle without this information. Attachment A-2 provides an example for supplying this information.

3. Each vehicle must have the appropriate shift schedule (FTP, HWFET, and US06) entered into the data base for the Video's Drivers Aid (VDA) System. The shift schedule information must be entered in the NVFEL CFEIS database prior to the vehicle arriving at NVFEL. If the vehicle is not in the NVFEL CFEIS database, e.g., after-market alternative fueled vehicles, the shift instructions must be provided in advance to NVFEL.

4. Test vehicles should be delivered to and received by EPA no later than two days prior to the scheduled testing. Also, due to storage limitations, vehicles should arrive no more than four days prior to scheduled testing, unless prior arrangements are made with EPA.

5. The vehicle information in Attachment A-1 should be completed and test number(s) assigned in advance of vehicle inspection.

6. Gaseous-fueled vehicles must be delivered with a sample of the same fuel used to fill the vehicle fuel tank. An example of an acceptable sample container is a stainless steel canister with a "Summa" polished surface and stainless steel valve, part number 87-300 available from Thermo Andersen, 770-319-9999. Another acceptable sample canister is part number 29-10621 available from Entech, 805-527-5939.[1] The fuel supplied by the manufacturer will be used for preconditioning, emission testing, and fuel economy testing.

B. Items Associated with the Evaporative Emission Test

1. A drain line, separate from the main fuel line, must originate from the lowest point in the fuel tank(s) and must incorporate a positive shut-off valve and terminate in an accessible place (e.g., under the rear bumper, in the trunk, or near the fuel filler pipe). The line should end with either a 3/8 inch outside-diameter rigid tube or a quick disconnect similar to an Aeroquip Part No. 5602-8-105.

[1]References to specific manufacturers or suppliers do not constitute EPA promotion or endorsement of the equipment items described in this letter.

VW FOIA, EPA 06/20/2017 2017-FFP_036360

2. Duplicate type J iron-constantan, 0-500°F thermocouples must be installed and be accessible, terminating in a male type J plug (Honeywell No. 30728096-001 or equivalent). The thermocouple should be installed as near as possible to the volumetric center of the fuel when the tank contains 40 percent of its nominal fuel tank capacity.

3. For vehicles which can be tested utilizing fuel tank heat builds, EPA's fuel tank heating system controllers are compatible with heating pads. If the fuel tank surface area is not easily accessible, the manufacturer should install a fuel tank heating source that will allow fuel tank heating. This heating source (preferably a heating blanket) must comply with the provisions of 40 CFR 86.107-78(a)(4). Also, if the heating apparatus supplied with the test vehicle is electric, it should be capable of operating on a 120-volt, 60 Hz alternating current and have a 10 foot power cord, ending in a U.S.A. conventional three-prong plug.

4. The evaporative emission canister must be accessible and the load and vent ports must be labeled. If not, external labeled access lines must be available.

C. Items Associated with the Dynamometer Portion of the Test.

1. The tailpipes of all vehicles must be equipped with a 2.5 inch stainless steel Marmon flange (Aeroquip/Servicemaster Part No. MFF61196-250S, or equivalent). Flanges must be permanently welded to preclude leaks. The face of the flanges must project 3/8 inch beyond the end of the tailpipes as shown in Attachment A-3 to ensure leak-tight connections with the EPA CVS flanges. Any deviation from this configuration which precludes proper mating with the EPA CVS flange will result in rejection of the vehicle.

2. Flanges must extend far enough beyond the body of the vehicles to ensure adequate accessibility. Vehicles with dual exhaust systems should allow a minimum of 3 inches between flanges with faces parallel to one another to facilitate coupling to the EPA CVS flanges.

3. All front-wheel-drive vehicles must have two sturdy hold-down eyelets (2.5 inch inside diameter) installed. The eyelets should be located on each side of the vehicle forward of the front wheel centerline and at least 6 inches outboard of the vehicle centerline.

4. Rear-wheel-drive vehicles that do not have bumpers adequate for restraining require one hold-down eyelet.

VW FOIA, EPA 06/20/2017 2017-FFP_036361

Attachment A-1

Format for Basic Data

Manufacturer Vehicle Identification Number:

Starting Instructions:

Location of Fuel Tank Drain Valve:

Location of Fuel Filler Door Release:

Traction Control Switch Location and Operating Instructions:

Diagram of Fan Placement and Positions:

VW FOIA, EPA 06/20/2017 2017-FFP_036362

Attachment A-2

Completed Sample of Format for Basic Data

Manufacturer Vehicle Identification Number:
ABC-12345678

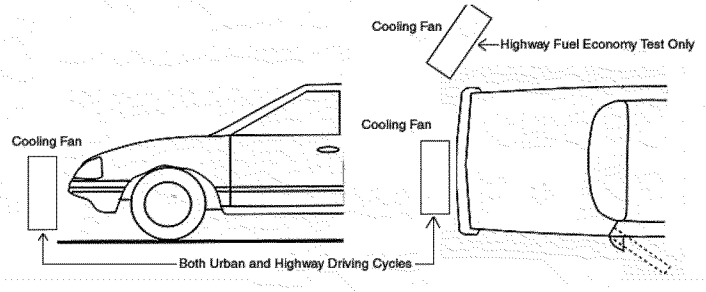
Starting Instructions:
Cold Start – Start engine by turning key to "Start" position Hot Start – Start engine by turning key to "Start" position

Location of Fuel Tank Drain Valve:
Behind right corner of rear bumper

Location of Fuel Filler Door Release:
Release inside glove box, door is on driver's side

Traction Control Switch Location and Operating Instructions:
Center of dash board under radio, labeled TCS. To turn the traction control off, push the TCS button after starting the engine

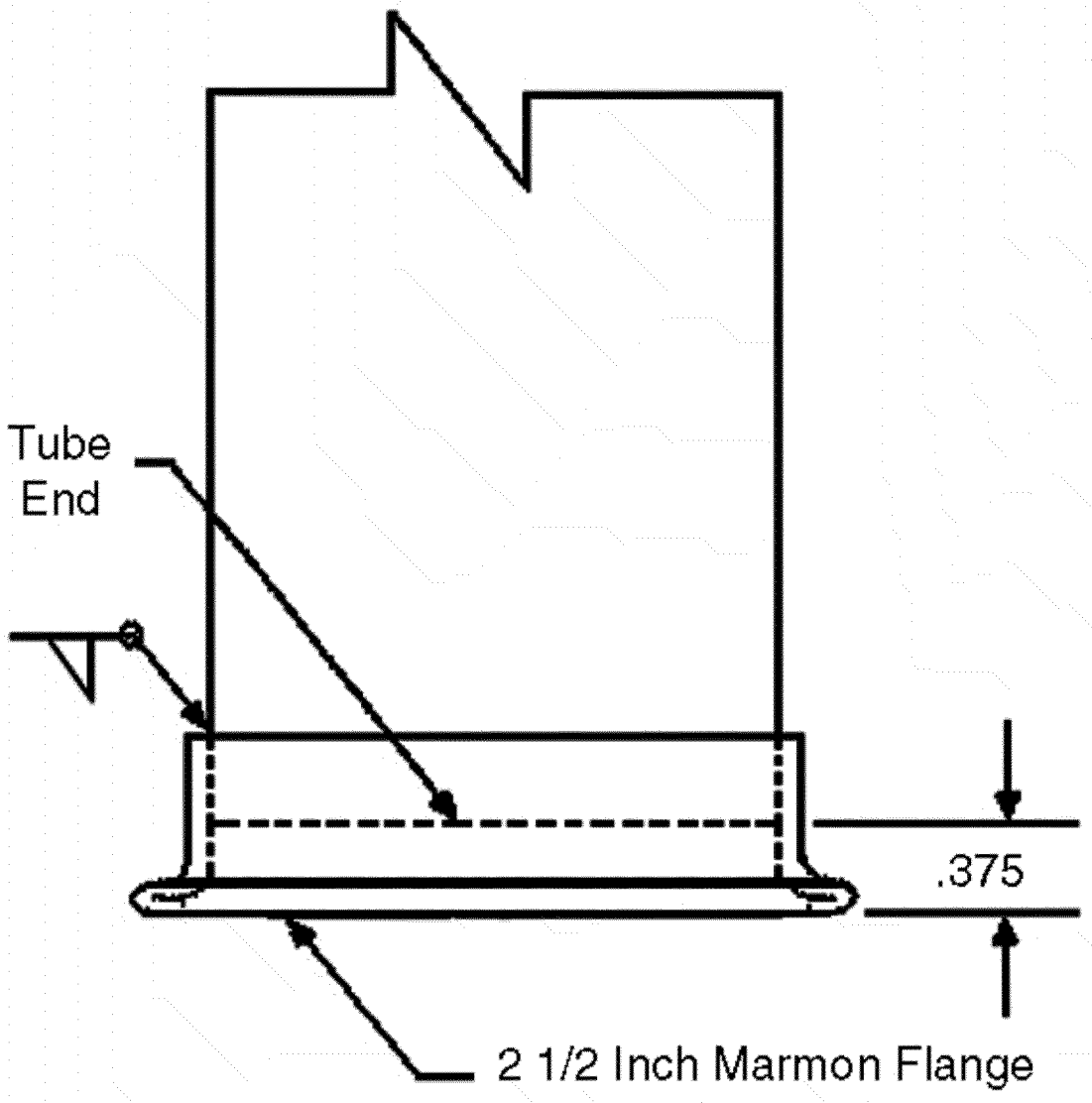
Diagram of Fan Placement and Positions:



VW FOIA, EPA 06/20/2017 2017-FFP_036363

Attachment A-3

Tail Pipe End Flange



VW FOIA, EPA 06/20/2017 2017-FFP_036364

To: Belser, Evan[Belser.Evan@epa.gov]
From: Alexander, David
Sent: Thur 12/3/2015 3:13:28 PM
Subject: FW: Susman Godfrey Letter (VW)
VW CAA Violations.pdf
ATT00001.htm

Evan,

Attached again is the second VW citizen suit NOI which Bethany distributed to us via Meetu and yourself on Nov. 17.

David

David E. Alexander, Attorney

WJC South Room 1111-B

OECA/Air Enforcement Division (2242-A)

(202) 564-2109

From: Kaul, Meetu
Sent: Tuesday, November 17, 2015 10:20 PM
To: Alexander, David <Alexander.David@epa.gov>
Subject: FW: Susman Godfrey Letter (VW)

Ms.Meetu Kaul, Attorney-Advisor

Air Enforcement Division
United States Environmental Protection Agency

Direct: 202-564-5472
Email: kaul.meetu@epa.gov

From: Engel, Bethany (ENRD) [mailto:Bethany.Engel@usdoj.gov]
Sent: Tuesday, November 17, 2015 12:56 PM
To: Fisherow, Walter Benjamin (ENRD) <Walter.Benjamin.Fisherow@usdoj.gov>; karen.dworkin@usdoj.gov; Allen, Leslie (ENRD) <Leslie.Allen@usdoj.gov>; Kaul, Meetu <Kaul.Meetu@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>
Cc: Van Eaton, Josh (ENRD) <Josh.Van.Eaton@usdoj.gov>
Subject: Fwd: Susman Godfrey Letter (VW)

FYI. Second citizen suit notice letter, dated 11/6, covers both NOVs.

Sent from my iPad

Begin forwarded message:

From: David Nachman <David.Nachman@ag.ny.gov>
Date: November 17, 2015 at 9:32:08 AM PST
To: "Van Eaton, Josh (ENRD) (Josh.Van.Eaton@usdoj.gov)" <Josh.Van.Eaton@usdoj.gov>, "Engel, Bethany (ENRD) (Bethany.Engel@usdoj.gov)" <Bethany.Engel@usdoj.gov>
Cc: "Lisa M. Burianek" <Lisa.Burianek@ag.ny.gov>, John Turrettini <John.Turrettini@ag.ny.gov>
Subject: FW: Susman Godfrey Letter (VW)

Here's the second letter I mentioned to Josh this morning.

IMPORTANT NOTICE: This e-mail, including any attachments, may be confidential, privileged or otherwise legally protected. It is intended only for the addressee. If you received this e-mail in error or from someone who was not authorized to send it to you, do not disseminate, copy or otherwise use this e-mail or its attachments. Please notify the sender immediately by reply e-mail and delete the e-mail from your system.

B0000YAAS.XML

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA STREET
HOUSTON, TEXAS 77002-5096
(713) 651-9366
FAX (713) 654-6666
WWW.SUSMANGODFREY.COM

SUITE 5100
901 MAIN STREET
DALLAS, TEXAS 75202-3775
(214) 754-1900

SUITE 950
1901 AVENUE OF THE STARS
LOS ANGELES, CALIFORNIA 90067-6029
(310) 789-3100

SUITE 3800
1201 THIRD AVENUE
SEATTLE, WASHINGTON 98101-3000
(206) 516-3880

15TH FLOOR
560 LEXINGTON AVENUE
NEW YORK, NEW YORK 10022-6828
(212) 336-8330

ROBERT S. SAFI
DIRECT DIAL (713) 653-7850

E-MAIL RSAFI@SUSMANGODFREY.COM

November 6, 2015

VIA CERTIFIED MAIL

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
William Jefferson Clinton Federal Building
Washington, DC 20460

Volkswagen AG
Audi AG
Porsche AG
Volkswagen Group of America, Inc.
Porsche Cars North America, Inc.
Thru:

David Geanacopoulos
Executive Vice President Public Affairs
and General Counsel
Volkswagen Group of America, Inc.
2200 Ferdinand Porsche Drive
Herndon, VA 20171

Joseph Folz
Vice President, General Counsel and
Secretary
Porsche Cars North America, Inc.
One Porsche Drive
Atlanta, GA 30354

Stuart Johnson
General Manager
Engineering and Environmental Office
Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326

Walter J. Lewis
Manager, Regulatory Affairs
Porsche Cars North America, Inc.
980 Hammond Drive, Suite 1000
Atlanta, GA 30328

[State addressees listed at the end]

3963705v2/014996

Re: Notice of Clean Air Act Violations Pursuant to 42 U.S.C. § 7604(b)(1)(A)

Ladies and Gentlemen,

We represent Rich Hill, Elvis Foster, Robert Nesbitt, Joe Howbert, Callum Dorey, Don Cunningham, Angelyen Wood, Marcia Andru Moshe, Edmund Steppan, Mireya Perez, Kristen Van de Biezenbos, Ann Marie Stief, William Stief, Thomas C. Jorgensen, Kartik Pillutla, Kathryn Sue Vordenberg, Michael Brown, Carol Spindel, Jason Welch, Thomas Bassett, Joshua R. Geller, Michelle Geller, Fred M. Flores, Gary Butterwei, Terri Butterwei, Thomas Michael Carran, Michael Fuerstein, Grant Garcia, Howard Katz, Timothy P. Yerkes, Beth Glassman, Stephanie Waddoups, Mary Jones, Diego Alberto Diaz, Michael Santos, Mark Pomerantz, and Tiffany Ford, individually and on behalf of all others similarly situated (collectively, "Plaintiffs"), and write to provide notice of violations of the Clean Air Act ("CAA") by Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") to the Administrator of the EPA, to the States in which the violation occurs (in this case, all fifty States and the District of Columbia), and to the alleged violators of the CAA. This is notice is pursuant to 42 U.S.C. § 7604(b)(1)(A), and is made 60 days before Plaintiffs commence a civil action against VW to enforce the applicable emission standards or limitations and to recover civil penalties, costs of litigation (including reasonable attorney and expert witness fees), and all other relief that is proper in citizen suits under the CAA.

The allegations in this notice are based on the Notices of Violation issued by the United States Environmental Protection Agency ("EPA") on September 18, 2015 and November 2, 2015. As stated therein, the EPA has investigated and continues to investigate Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") for compliance with the CAA, 42 U.S.C. §§ 7401-7671q, and its implementing regulations. The EPA has determined that VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0 liter engines, and certain model year 2014 through 2016 diesel light-duty vehicles equipped with 3.0 liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles' emission control system that exist to comply with CAA emission standards. Therefore, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B). Additionally, the EPA has determined that, due to the existence of the defeat devices in these vehicles, these vehicles do not conform in all material respects to the vehicle specifications described in the applications for the certificates of conformity that

VW FOIA, EPA 06/20/2017 2017-FFP_036368

purportedly cover them. Therefore, VW also violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing these vehicles, or for causing any of the foregoing acts.

Law Governing Alleged Violations

This notice arises under Part A of Title II of the CAA, 42 U.S.C. §§ 7521-7554, and the regulations promulgated thereunder. In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting dangers to the public health and welfare." CAA § 101(a)(2), 42 U.S.C. § 7401(a)(2). Congress' purpose in creating the CAA, in part, was "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." CAA § 101(b)(l)-(2), 42 U.S.C. § 740 l (b)(l)-(2). The CAA and the regulations promulgated thereunder aim to protect human health and the environment by reducing emissions of nitrogen oxides (NOx) and other pollutants from mobile sources of air pollution. Nitrogen oxides are a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds (VOCs) that produce ozone (smog) on hot summer days. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma. Children are at greatest risk of experiencing negative health impacts from exposure to ozone.

The allegations here concern light-duty motor vehicles for which 40 C.F.R. Part 86 sets emission standards and test procedures and section 203 of the CAA, 42 U.S.C. § 7522, sets compliance provisions. Light-duty vehicles must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce.

To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-0l(d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of

VW FOIA, EPA 06/20/2017 2017-FFP_036369

activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) such conditions are substantially included in the Federal emission test procedure; (2) the need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) the AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control systems performance are AECDs. EPA, *Advisory Circular Number 24-2: Prohibition of Emission Control Defeat Devices - Optional Objective Criteria* (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-10(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications), 86.1848-01(b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should

VW FOIA, EPA 06/20/2017 2017-FFP_036370

know that such part or component is being offered for sale or installed for such use or put to such use."' CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86. 1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(l), 42 U.S.C. § 7522(a)(l); 40 C.F.R. § 86.1854-1 2(a)(l). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854-12(a).

2.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of these vehicles that sensed when the vehicle was being tested for compliance with EPA emission standards. The EPA calls this the "switch." The "switch" senses whether the vehicle is being tested or not based on various inputs including the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs precisely track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA emission testing, the vehicles' ECM ran software which produced compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). At all other times during normal vehicle operation, the "switch", was activated and the vehicle ECM software ran a separate "road calibration" which reduced the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean Ox trap). As a result, emissions of Ox increased by a factor of 10 to 40 times above the EPA compliant levels, depending on the type of drive cycle (e.g., city, highway).

The California Air Resources Board (CARB) and the EPA were alerted to emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. VW issued a voluntary recall in December 2014 to address the issue. CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the

VW FOIA, EPA 06/20/2017 2017-FFP_036371

testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' on board diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing. It became clear that CARB and the EPA would not approve certificates of conformity for VW's 2016 model year diesel vehicles until VW could adequately explain the anomalous emissions and ensure the agencies that the 20 16 model year vehicles would not have similar issues. Only then did VW admit it had designed and installed a defeat device in these vehicles in the form of a sophisticated software algorithm that detected when a vehicle was undergoing emissions testing.

VW knew or should have known that its "road calibration" and "switch" together bypass, defeat, or render inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track the parameters of the federal test procedure and cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure.

VW's "road calibration" and "switch" are AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), each time it sold, offered for sale, introduced into commerce, de livered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the hundreds of thousands of new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch" and " road calibration."

The vehicles are identified by the table below. All vehicles are equipped with 2.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen,

VW FOIA, EPA 06/20/2017 2017-FFP_036372

		Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGA V02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

3.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of each vehicle that causes the vehicle to perform differently when the vehicle is being tested for compliance with EPA emission standards than in normal operation and use.

When this software determines the vehicle has begun the FTP 75 Federal emission test procedure, it directs the vehicle to employ a low NOx temperature conditioning mode. A status bit in the software indicates that a "temperature conditioning" mode is active. In this low NOx temperature conditioning mode, the vehicle operates under a number of emission control parameters, including injection timing, exhaust gas recirculation rate, and common rail fuel pressure in such a way that the parameters yield low engine-out NOx emissions and high exhaust temperatures. The high exhaust temperatures heat the selective catalytic reduction system ("catalyst") and improve the catalyst's ability to reduce tailpipe NOx emissions. In this low NOx temperature conditioning mode, the combination of low engine-out NOx and improved catalyst performance results in tailpipe NOx emissions that are below the applicable emissions standard.

VW FOIA, EPA 06/20/2017 2017-FFP_036373

However, the software employs a "timer" that coincides with the low NOx temperature conditioning mode. At exactly one second after the completion of the initial phases of the FTP 75 Federal emissions test procedure (1,370 seconds, which is when the vehicle would normally be turned off), this software directs the vehicle to cease low NOx temperature conditioning mode. The "temperature conditioning" status bit switches to zero, and a second status bit indicates the activation of "transition to normal mode." In this "normal mode," the emission control system is immediately less effective. Compared to the low NOx temperature conditioning mode, the vehicle employs a different injection timing, exhaust gas recirculation rate, and common rail fuel pressure. This yields higher levels of NOx from the engine and reduced exhaust temperatures.

In addition, when the vehicle starts under conditions that the software determines *are not* the beginning of the FTP 75 Federal emission test procedure, the vehicle does not use the low NOx temperature conditioning mode at all. Instead, the emission control parameters are set consistent with the "normal mode." In sum, as soon as the vehicle senses that it is not being tested, it uses "normal mode." In "normal mode," tailpipe emissions of NOx are up to 9 times the applicable NOx standard levels, depending on model type and type of drive cycle (e.g., city, highway).

This notice is based on vehicle emission testing performed by the EPA's National Vehicle and Fuel Emissions Laboratory, California Air Resources Board's Hagen-Smit Laboratory, and Environment Canada's River Road Laboratory. This testing was performed since EPA's announcement on September 25, 2015, that it would perform additional testing "using driving cycles and conditions that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device." EPA, *EPA Conducted Confirmatory Testing* (Sept. 25, 2015).

VW knew or should have known that the software described above bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track federal test procedures and cause emission control systems to underperform when the software determined that the vehicle was not being tested.

VW's software described above includes one or more AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), each

VW FOIA, EPA 06/20/2017 2017-FFP_036374

time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the software described above. The vehicles are identified by the table below. All vehicles are equipped with 3.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2014	EADXT03.02UG	VW Touareg
2015	FPRXT03.0CDD	Porsche Cayenne
2016	GVGAJ03.0NU4	Audi A6 Quattro, A 7 Quattro, A8, A8L, and Q5

Citizen Enforcement

The investigation into this matter is continuing. The above tables represent specific violations that the EPA and Plaintiffs believe, at this point, are sufficiently supported by evidence to warrant the allegations in this notice. The EPA and Plaintiffs may find additional violations as the investigation continues, including violations related to carbon dioxide emissions from diesel and gasoline-power VW vehicles, as indicated by VW's public announcement on November 3, 2015.

Not less than 60 days following this notice, Plaintiffs may commence a civil action pursuant to 42 U.S.C. §7604, which provides that the district courts of the United States have jurisdiction to enforce emission standards or limitations, to apply any appropriate civil penalties, and to award costs of litigation (including reasonable attorney and expert witness fees) to any party.

Sincerely,

Robert S. Safi

State Addressees:

Alabama Department of Environmental Management
Air Division

Alaska Department of Environmental Conservation
Division of Air Quality

3963705v2/014996

P.O. Box 301463
Montgomery, AL 36130-1463
ATTN: Ron Gore

410 Willoughby Ave., Suite 303,
P.O. Box 111800
Juneau, AK 99811-1800
ATTN: Denise Koch

American Samoa Environmental
Protection Agency
Air and Land Division
P.O. BOX PPA
Pago Pago, AS 96799
ATTN: William Sili

Arizona Department of
Environmental Quality
Air Quality Division
1110 West Washington Street
Phoenix, Arizona 85007
ATTN: Enforcement

Arkansas Department of Environmental
Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

California Air Resources Board
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ATTN: Enforcement

Colorado Department of Public Health and
Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80246
ATTN: Janet Lovell

Connecticut Department of
Environmental Protection
Air Division
79 Elm Street
Hartford, CT 06106-5127
ATTN: Enforcement

Delaware Dept. of Natural Resources and
Environmental Control
Division of Air Quality
655 South Bay Road Suite 5 N
Dover, DE 19901
ATTN: Frank Frisby

DC Department of the Environment
Air Quality Division
1200 First Street NE
Washington, DC 20002
ATTN: Enforcement

Florida Department of Environmental
Protection
Division of Air Resource Management
2600 Blair Stone Road, M.S. 5500
Tallahassee, Florida 32399-2400
ATTN: Justin Green

Georgia Department Environmental
Protection Division
Air Protection Branch
2 Martin Luther King Jr. Drive,
Suite 1456, East Tower
Atlanta, GA 30334
ATTN: Karen Hays

Guam Environment Protection Agency

Hawaii Department of Health

VW FOIA, EPA 06/20/2017 2017-FFP_036376

Air Pollution Division
P.O. Box 22439
GMF Barrigada, Guam 96921
ATTN: Conchita Taitano

Environmental Health Analytical Branch
2725 Waimano Home Road
Pearl City, Hawaii 96782
ATTN: Wanda Chang

Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706
ATTN: Tiffany Floyd

Illinois Pollution Control Board
Air Division
1021 North Grand Avenue East, P.O. Box 19274
Springfield, Illinois 62794-9274
ATTN: Tom Johnson

Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue, Room N1003
Indianapolis, Indiana 46204
ATTN: Enforcement

Iowa Department of Natural Resources
Air Quality Division
502 East 9th Street, 4th Floor
Des Moines, IA 50319-0034
ATTN: Enforcement

Kansas Department of Health and Environment
Air Division
1000 SW Jackson, Suite 31
Topeka, KS 66612-1366
ATTN: Rick Brunetti

Kentucky Environmental Quality Commission
Division for Air Quality
200 Fair Oaks Ln., 1st Floor
Frankfort, KY 40601
ATTN: Candy Montgomery

Louisiana Department of Environmental Quality
Air Permits, Engineering and Planning Division
602 N. Fifth Street
Baton Rouge, LA 70802
ATTN: Enforcement

Maine Department of Environmental Protection
Air Quality Division
17 State House Station, 28 Tyson Drive
Augusta, Maine 04333-0017
ATTN: Marc Cone

Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard, Suite 715
Baltimore, Maryland 21230-1720
ATTN: Enforcement

Massachusetts Department of Environmental Protection
Air Quality Division
1 Winter Street
Boston, Massachusetts 02108
ATTN: Paul Davis

VW FOIA, EPA 06/20/2017 2017-FFP_036377

Michigan Department of Environmental Quality
Air Division
P.O. Box 30260
Lansing, MI 48909-7760
ATTN: Lynn Fiedler

Minnesota Pollution Control Agency
Air Division
525 Lake Avenue South, Suite 400
Duluth, MN 55802
ATTN: Enforcement

Mississippi Department of Environmental Quality
Office of Pollution Control
P. O. Box 2261
Jackson, MS 39225
ATTN: Enforcement

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
ATTN: Kyra Moore

Montana Department of Environmental Quality
Air Program
1520 E 6th Ave
Helena, MT 59601
ATTN: Eric Merchant

Nebraska Department of Environmental Quality
Air Quality Division
1200 N Street, Suite 400, P.O. Box 98922
Lincoln, NE 68509-8922
ATTN: Shelley Schneider

Nevada Division of Environmental Protection
Bureau of Air Quality Planning
901 So. Stewart St., Suite 4001
Carson City, NV 89701
ATTN: Enforcement

New Hampshire Department of Environmental Services
Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
ATTN: Enforcement

New Jersey Department of Environmental Protection
Division of Air Quality
P.O. Box 402
Trenton, NJ 08625-0402
ATTN: Enforcement

New Mexico Environment Department
Air Division
P.O. Box 5469
Santa Fe, New Mexico 87502-5469
ATTN: Enforcement

New York State Department of Environmental Conservation
Chemical and Pollution Control Division
625 Broadway
Albany, New York 12233-0001
ATTN: Enforcement

NC Division of Pollution Prevention and Environmental Assistance
Environmental Assistance and Customer Service
1639 Mail Service Center
Raleigh, NC 27699-1639
ATTN: Theodore Bush

3963705v2/014996

ND Department of Health - Environmental Health Section
Division of Air Quality
918 E. Divide Ave, 2nd Floor
Bismarck, ND 58501
ATTN: Terry L. O'Clair

Division of Environmental Quality
Air Division
P.O. Box 501304
Saipan, MP 96950
ATTN: Enforcement

Ohio Air Quality Development Authority
Air Division
50 W. Broad Street, Suite 1718
Columbus, Ohio 43215
ATTN: Enforcement

Oklahoma Department of Environmental Quality
Air Quality Division
P.O. Box 1677, 707 North Robinson
Oklahoma City, Oklahoma 73101-1677
ATTN: Gary Collins

Oregon Department of Environmental Quality
Air Quality Division
811 SW 6th Avenue
Portland 97204-1390
ATTN: Enforcement

Pennsylvania Department of Environmental Protection
Air Programs
400 Market Street
Harrisburg, PA 17101
ATTN: Enforcement

Departamento de Recursos Naturales y Ambientales
Air Division
P.O. Box 366147
San Juan, Puerto Rico 00936
ATTN: Enforcement

Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence, RI 02908-5767
ATTN: Doug McVay

South Carolina Department of Health and Environmental Control
Air Quality Enforcement
2600 Bull Street
Columbia, SC 29201
ATTN: Randy Stewart

South Dakota Department of Environment and Natural Resources
Air Quality Division
523 E Capitol
Pierre, SD 57501
ATTN: Enforcement

Tennessee Department of Environment and Conservation
Division of Air Pollution Control
312 Rosa L. Parks Ave
Nashville, TN 37243
ATTN: Barry Stephens

Texas Commission on Environmental Quality (TCEQ)
Office of Air
P.O. Box 13087
Austin, TX 78711-3087
ATTN: Steve Hagle, P.E.

VW FOIA, EPA 06/20/2017 2017-FFP_036379

Utah Department of Environmental Quality
Division of Air Quality
195 North 1950 West
Salt Lake City, Utah 84116
ATTN: Bryce Bird

Vermont Department of Environmental Conservation
Air Quality & Climate Division
One National Life Drive, 2nd Floor
Montpelier, VT 05620-3802
ATTN: Heidi Hales

US Virgin Islands Division of Environmental Protection
Air Pollution Control Program
Cyril E. King Airport, Terminal Building, 2nd Fl.
St. Thomas, VI 00802
ATTN: Enforcement

Virginia Department of Environmental Quality
Air Division
P.O. Box 1105
Richmond, VA 23218
ATTN: Michael Dowd

Washington Department of Transportation's Environmental Services
Air Quality Division
P.O. Box 47300
Olympia, WA 98504-7300
ATTN: Enforcement

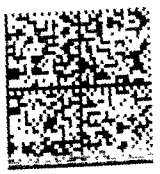
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
ATTN: Enforcement

Wisconsin Department of Natural Resources
Air Quality Division
101 S Webster Street, P.O. Box 7921
Madison WI
ATTN: Enforcement

Department of Environmental Quality
Air Quality Division
122 West 25th St, Herschler Building
Cheyenne 82002
ATTN: Cole Anderson

3963705v2/014996

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA
HOUSTON, TEXAS 77002-5096



US POSTAGE PITNEY BOWES

ZIP 77002 $ 000.90⁰
02 1W

Arkansas Department of Environmental Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

To: Haynes, Ben[haynes.ben@epa.gov]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]
From: Rodgers, William (EEO)
Sent: Thur 12/3/2015 3:32:51 PM
Subject: Audi Q7 - HAUT-Q7A

Hello Ben,

Due to the recent test delay can you please arrange to have a battery charger put on the Audi Q7 EDV while awaiting next week's rescheduled test?

Regards,

Bill Rodgers

EEO

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Thur 12/3/2015 4:24:06 PM
Subject: RE: 2017 Audi Q7 Certificate Request

Is the GHG small enough to email it?

From: Snyder, Jim
Sent: Thursday, December 03, 2015 11:22 AM
To: 'Rodgers, William (EEO)' <William.Rodgers@vw.com>
Subject: RE: 2017 Audi Q7 Certificate Request

I have the PRecert doc but I don't see the GHG doc. Just the place holder from a week ago. Is it listed under 2017?

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Thursday, December 03, 2015 10:26 AM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: 2017 Audi Q7 Certificate Request

Hello Jim,

The pending 2017 GHG pre-model year report and Certification preview documents have been uploaded to Verify. This should be the last of the pending information you need to

continue processing the certificate request for 2017 test group HVGAT03.0AUT by the end of business today as discussed. Please let us know if further information is required.

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

From: Bishop, Brant W.
Location: +1.866.331.1856,, Non-Responsive
Importance: Normal
Subject: Call regarding VW 208 requests
Start Date/Time: Tue 12/8/2015 3:00:00 PM
End Date/Time: Tue 12/8/2015 4:00:00 PM

....
;;;;
The information contained in this communication is confidential, may be attorney-client privileged, may constitute inside information, and is intended only for the use of the addressee. It is the property of Kirkland & Ellis LLP or Kirkland & Ellis International LLP. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify us immediately by return email or by email to postmaster@kirkland.com, and destroy this communication and all copies thereof, including all attachments.

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Thur 12/3/2015 7:18:42 PM
Subject: RE: 2017 Audi Q7 Certificate Request

CoC has been signed and issued.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Thursday, December 03, 2015 12:55 PM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: 2017 Audi Q7 Certificate Request

Thanks. Please let me know when the Certificate is signed.

I'll alert the troops about the other topics.

Bill

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, December 03, 2015 12:49 PM
To: Rodgers, William (EEO) <William.Rodgers@vw.com>
Subject: RE: 2017 Audi Q7 Certificate Request

The GHG did finally show up in Verify. Not looking too good. I talked with Rob French and the requirements say VW should have a plan for recovering from debits after 3 years (sorry quickly paraphrasing here) . In other words we need to talk about 2020 and any additional credits anticipated. Perhaps at the Pre-Cert mtg.

I also have questions regarding the Pre-cert but they can wait for the actual mtg.

Meanwhile I think I have all the req'd documentation to approve a 2017 cert.

-Jim

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Thursday, December 03, 2015 11:26 AM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: 2017 Audi Q7 Certificate Request

Here you go.

Verify is s_l_o_w today so it might not be registering yet.

Bill

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, December 03, 2015 11:22 AM
To: Rodgers, William (EEO) <William.Rodgers@vw.com>
Subject: RE: 2017 Audi Q7 Certificate Request

I have the PRecert doc but I don't see the GHG doc. Just the place holder from a week ago. Is it listed under 2017?

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Thursday, December 03, 2015 10:26 AM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: 2017 Audi Q7 Certificate Request

Hello Jim,

The pending 2017 GHG pre-model year report and Certification preview documents have been uploaded to Verify. This should be the last of the pending information you need to

continue processing the certificate request for 2017 test group HVGAT03.0AUT by the end of

business today as discussed. Please let us know if further information is required.

Regards,

Bill Rodgers

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. (248) 754-4219

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc:
From: Ex. 7
Sent: Thur 12/3/2015 7:19:45 PM
Subject: RE: 2017 Audi Q7 Certificate Request

Jim,

We appreciate your efforts. Thanks.

Regards,

Ex. 7

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. Ex. 7

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, December 03, 2015 2:19 PM
To: Ex. 7
Subject: RE: 2017 Audi Q7 Certificate Request

CoC has been signed and issued.

From: Ex. 7

Sent: Thursday, December 03, 2015 12:55 PM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: 2017 Audi Q7 Certificate Request

Thanks. Please let me know when the Certificate is signed.

I'll alert the troops about the other topics.

Ex. 7

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, December 03, 2015 12:49 PM
To: Ex. 7
Subject: RE: 2017 Audi Q7 Certificate Request

The GHG did finally show up in Verify. Not looking too good. I talked with Rob French and the requirements say VW should have a plan for recovering from debits after 3 years (sorry quickly paraphrasing here) . In other words we need to talk about 2020 and any additional credits anticipated. Perhaps at the Pre-Cert mtg.

I also have questions regarding the Pre-cert but they can wait for the actual mtg.

Meanwhile I think I have all the req'd documentation to approve a 2017 cert.

-Jim

From: Ex. 7
Sent: Thursday, December 03, 2015 11:26 AM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: 2017 Audi Q7 Certificate Request

Here you go.

Verify is s_l_o_w today so it might not be registering yet.

Ex. 7

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Thursday, December 03, 2015 11:22 AM
To: Ex. 7
Subject: RE: 2017 Audi Q7 Certificate Request

I have the PRecert doc but I don't see the GHG doc. Just the place holder from a week ago. Is it listed under 2017?

From: Ex. 7
Sent: Thursday, December 03, 2015 10:26 AM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: 2017 Audi Q7 Certificate Request

Hello Jim,

The pending 2017 GHG pre-model year report and Certification preview documents have been uploaded to Verify. This should be the last of the pending information you need to

continue processing the certificate request for 2017 test group HVGAT03.0AUT by the end of business today as discussed. Please let us know if further information is required.

Regards,

Ex. 7

Emissions Certification Engineer

Volkswagen Group

3800 Hamlin Rd

Auburn Hills, MI 48326

p. **Ex. 7**

IUVP Waiver Requests: Objectives, Considerations, and Information Needs (rev 5)

Section 86.1845-04 (b) (3) says that approval for IUVP waivers:

"... will be based on a review of the procurement efforts made by the manufacturer to determine if all reasonable steps have been taken to procure the required test group size."

EPA policy includes the following guidelines for IUVP waiver decisions. EPA's objectives include:

1. Staying within our regulatory authority.
2. Equitably grant and deny waivers among the manufacturers.
3. Maximize IUVP test rates.

These three objectives require flexibility due to the many factors that deserve being considered for deciding on waiver requests.

The purpose of this document is to inform IUVP waiver requestors of the information EPA needs to make a decision

- EPA is becoming aware that there is a significant disparity in incentives. Some manufacturers are offering incentives in excess of $1,000 while others offer incentives as low as $150.

  While there are legitimate reasons for varying levels of incentives, there appears to be an increasing disparity among manufacturers as to the level of incentives and efforts made to procure some vehicles that are difficult to obtain. Some manufacturers are taking extreme measures to procure vehicles while others appear to make a minimal effort and quickly request a waiver. This is unfair to those manufacturers that are making real efforts to procure vehicles and it limits the number of vehicles tested and the valuable data provided to the IUVP program.

  Please provide EPA with the incentives offered.

- High sales test groups are generally expected to be easier to recruit than low sales test groups.

  Please provide the sales statistics.

- The emissions levels of vehicles in the test group are considered in whether a waiver is appropriate or not.

  Please provide the emissions results with the standards.

Also, when there are difficulties recruiting vehicles, EPA sometimes will grant prior approval for the following:

- Recruiting vehicles outside the mileage window.

- Recruiting from a rental agency such as Hertz, Avis, etc.

- As a last resort, randomly selecting among company-owned vehicles.

Because we are receiving several IUVP waiver requests per week, EPA can provide faster and more equitable decisions if waiver requestors concisely present relevant information.

The list below includes the type of information needed, though the type of waiver request may not justify all of the information listed below, and other requests may be enhanced by including information that is not listed. Also, precise numbers often are not necessary if the precise number is more difficult to attain (i.e. less than 8,000 sales instead of 6,342 sales). Please keep in mind that pertinent information will lead to faster waiver decisions.

- Total U.S. sales, including sales by vehicle model.
- Sales within a 100 mile radius of the emissions laboratory and the radius actually used.
- The remaining number needed to complete the requirement.
- Emissions results and standards for already tested vehicles in the test group.
- Mailing Campaigns:
  - Number of mailing campaigns.
  - Number of months, after the end of production, that each mailing campaign began.
  - Number of letters mailed in each campaign.
  - Incentives offered in each of the mailings.

- Pertinent statistics on the results of each of the mailing campaign, such as:
  - Number of owners willing to participate.
  - Number of owners not willing to participate.

    - Reasons for not participating.
    - Number of vehicles rejected.
    - Reason for each rejection.
- Were the loaner vehicles desirable substitutes for target vehicle, for example, but not limited to:
    - Vehicle types: such as were vans made available to van owners?
    - Were the MSRPs at least as high and as well appointed as the target vehicle.
- Procurement area (high altitude, California, 49 State, 50 State)
- Mileage Type (low, high, 75% of full useful life)

Clearly stating the type of waiver being requested also helps. Examples include:

- Waiver from any additional testing.
- Move the vehicle recruiting from high altitude to low altitude.
- Move the vehicle recruiting from Federal to California.
- Mileage waiver, etc.

Providing such information, that is pertinent to your waiver request, will facilitate fast decisions.

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Allen, Gregory (EEO)[Gregory.Allen@vw.com]; Giles, Michael (EEO)[michael.giles@vw.com]
From: Haynes, Ben
Sent: Thur 12/3/2015 8:43:43 PM
Subject: RE: Audi Q7 - HAUT-Q7A

Bill,

I have put a trickle charger on it.

Ben Haynes

Scheduler

Vehicle testing Center

Environmental Protection Agency

Serviced by Serior Service America

734-214-4261

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Thursday, December 03, 2015 10:33 AM
To: Haynes, Ben <haynes.ben@epa.gov>
Cc: Snyder, Jim <Snyder.Jim@epa.gov>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>; Giles, Michael (EEO) <michael.giles@vw.com>
Subject: Audi Q7 - HAUT-Q7A

Hello Ben,

Due to the recent test delay can you please arrange to have a battery charger put on the Audi Q7

EDV while awaiting next week's rescheduled test?

Regards,

Bill Rodgers

EEO

To: Kaul, Meetu[Kaul.Meetu@epa.gov]
Cc: Nam, Ed[nam.ed@epa.gov]; Engel, Bethany (ENRD)[Bethany.Engel@usdoj.gov]; Orehowsky, Gregory[Orehowsky.Gregory@epa.gov]; Warila, James[Warila.James@epa.gov]; Iddings, Brianna[Iddings.Brianna@epa.gov]
From: Glaser, Danica (ENRD)
Sent: Thur 12/3/2015 8:45:29 PM
Subject: Re: Gathering VW data

Sure thing.

Sent from my iPhone

On Dec 3, 2015, at 3:44 PM, Kaul, Meetu <Kaul.Meetu@epa.gov> wrote:

> Thanks, can you include myself and Brianna Iddings and Greg Orehowsky for that training please?
>
> Thank you!

Ms.Meetu Kaul, Attorney-Advisor

Air Enforcement Division
United States Environmental Protection Agency
Direct: 202-564-5472
Email: kaul.meetu@epa.gov

From: Glaser, Danica (ENRD) [mailto:Danica.Glaser@usdoj.gov]
Sent: Thursday, December 03, 2015 3:42 PM
To: Nam, Ed <nam.ed@epa.gov>
Cc: Kaul, Meetu <Kaul.Meetu@epa.gov>; Engel, Bethany (ENRD) <Bethany.Engel@usdoj.gov>; Orehowsky, Gregory <Orehowsky.Gregory@epa.gov>; Warila, James <Warila.James@epa.gov>
Subject: Re: Gathering VW data

Thanks Ed. We'll get you and James into the database and schedule a training promptly.

Sent from my iPhone

On Dec 3, 2015, at 12:57 PM, Nam, Ed <nam.ed@epa.gov> wrote:

Hi Danica,

The people who may need access to the database right now are just me and James Warila (cc'ed). I have not used relativity before but I believe it was recently installed on my computer. I'm not sure about Jim.

If there is online training, we can take a look.

Thanks

-Ed

From: Glaser, Danica (ENRD) [mailto:Danica.Glaser@usdoj.gov]
Sent: Thursday, December 03, 2015 12:45 PM
To: Kaul, Meetu; Nam, Ed
Cc: Engel, Bethany (ENRD); Orehowsky, Gregory
Subject: RE: Gathering VW data

Hi Ed,

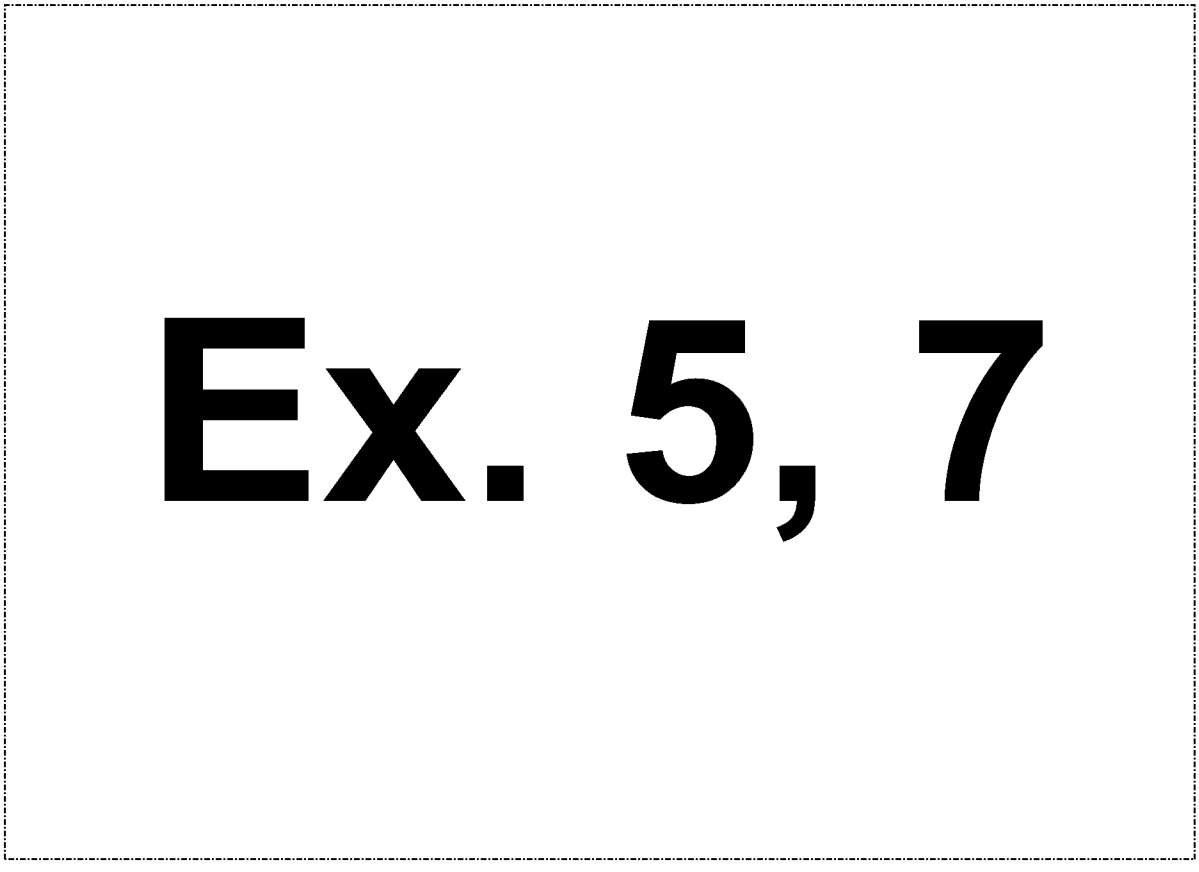
Apologies for the delay in following up on this, but I'll be happy to get you into our document database. Please send me a list of names and email addresses for the folks on your team who will need access and I can get it started right away. It would also be helpful to know if you and your team have used the Relativity system to review documents in the past so we can set up appropriate training.

Regards,

Danica

From: Kaul, Meetu [mailto:Kaul.Meetu@epa.gov]
Sent: Monday, November 30, 2015 10:22 PM
To: Nam, Ed <nam.ed@epa.gov>
Cc: Engel, Bethany (ENRD) <BEngel@ENRD.USDOJ.GOV>; Glaser, Danica (ENRD) <DGlaser@ENRD.USDOJ.GOV>; Orehowsky, Gregory <Orehowsky.Gregory@epa.gov>
Subject: Gathering VW data

Hi Ed,



Thanks very much, all.

-Meetu

Ms.Meetu Kaul, Attorney-Advisor

Air Enforcement Division
United States Environmental Protection Agency
Direct: 202-564-5472
Email: kaul.meetu@epa.gov

To: Pidgeon, Bill[pidgeon.bill@epa.gov]
Cc: Ex. 7 Snyder, Jim[Snyder.Jim@epa.gov];
Ex. 7 @vw.com]
From: Glas, Tobias
Sent: Thur 12/3/2015 9:33:32 PM
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Bill,

Sorry for all the confusion. I used the guidelines you sent to create a waver but obviously we will have to do better on the information we put into our waver.

We will create a draft for a standard waver form with the required information and send it to you for approval. This is just a general waver form to make sure we list all the information you'll need.

When EPA is happy with the kind of information we list in our waver form we will create specific wavers for the test groups we couldn't find the cars we were supposed to find.

Please let me know if that is acceptable.

Best regards

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Pidgeon, Bill [mailto:pidgeon.bill@epa.gov]
Sent: Thursday, December 03, 2015 1:17 PM
To: Glas, Tobias <Tobias.Glas@vw.com>
Cc: Ex. 7 Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Tobias,

"How many Test Group XYZ vehicles are registered within a hundred mile radius of your test lab?" is a standard question John O'Cain and I ask. In my experience, VW is the only manufacturer that has not been able to answer the question. Sending letters within 25 miles of the lab is far below the norm for VW's competitors, but this varies with circumstances. Low budget vehicles with 105,000 miles on them may be easily procured by letters within 25 miles of the lab, but waivers are not requested for such vehicles. The radius should increase as the difficulty increases. If a test group only has five registered vehicles within a 100 mile radius of the lab, and the incentive was generous, and loaner vehicles were at least as well appointed as the owner's vehicles, and all five refused to participate, it could be very easy for EPA to grant a waiver quickly.

On the other hand, exchanging piece-meal emails to get the information necessary to maintain a level playing field among the manufacturers, really slows things down. It is much more complicated to piece together multiple emails to construct a conclusion. When manufacturers construct a logical summary of relevant information supporting that a waiver is justified, EPA can very quickly respond quickly.

Information that may help includes providing the vehicle models in each test group to help determine whether the incentive is appropriate. Owners of economy cars are often willing to accept considerably lower incentives than owners of high priced luxury vehicles, and similar logic applies to the loaner vehicles being offered. If you send the retail prices along with the models, it saves us from looking it up, so we can respond even faster. But we can find the prices. We don't have the resources to determine the number of vehicles within a 100 mile radius of the test lab, and some of the other relevant statistics.

I'm not sure what else we can do to help you build a case to earn a waiver. I have sent you the attached document in the past (2x if I remember correctly), and I've contacted you in the past about the difficulty in making a waiver decision without the information needed.

On 11/17/2015, EPA granted a waiver for TG AVWXV02.5257 to move procurement and testing to low altitude, to relieve the high altitude procurement burden. But I don't have enough information to either deny or grant waivers for the other five vehicles/test groups listed in the table below, from your 11/17/2015 email waiver request.

Test Group	Stat$	# of Return Cards	# of First Mailing	# of Second Mailing	# of Third Mailing	# of Fourth Mailing	Required	Highest Mileage return cards	
AVWXT[illegible]64		10	29	N/A	N/A	90K	83,274 & 79,000	Letters sent within 25mi	
AVWXW[illegible]14		10	39	N/A	N/A	90K	70,933 & 68,000	Letters sent within 25mi	
AVWXV[illegible]13		10	10	25	50	105K	90,000 & 82,254	Letters sent within 25mi	
AADXV[illegible]20		20	20	71		105K	101240 &	Letters sent within 25mi	

						69,006	
AVWXV02.5256	10	20			90K	81,054 & 75,356	Letters sent within 25mi
AVWXV02.5256A5	10	20			105K	89029 & 49,199	Letters sent within 25mi
AVWXV02.5257	15	15	N/A	N/A	50K	44,000 & 0	Letters sent within 25mi

Please call me if you think that will help. The "Alliance of Automobile Manufacturers" may be a good contact for determining "How many Test Group XYZ vehicles are registered within a hundred mile radius of your test lab."

Thanks,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Tuesday, November 17, 2015 3:41 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Bill,

Here is a table that shows you our procurement data.

We don't have a number how many cars are registered in a 100 mile radius and I don't think we have a way to get that number.

For the last test group there are 23 cars in all of Colorado, so we sent a few customers two letters.

Test Group	State	# of Return Cards	# of First Mailing	# of Second Mailing	# of Third Mailing	# of Fourth Mailing	Required	Highest Mileage return cards	
AVWXT	[illegible]	64	10	29	N/A	N/A	90K	83,274 & 79,000	Letters sent within 25mi
AVWXV	[illegible]	14	10	39	N/A	N/A	90K	70,933 & 68,000	Letters sent within 25mi
AVWXV	[illegible]	13	10	10	25	50	105K	90,000 & 82,254	Letters sent within 25mi
AADXV	[illegible]	20	20	20	71		105K	101240 & 69,006	Letters sent within 25mi
AVWXW	[illegible]	56	10	20			90K	81,054 & 75,356	Letters sent within 25mi
AVWXV	[illegible]	A5	10	20			105K	89029 & 49,199	Letters sent within 25mi
AVWXV	[illegible]	72	15	15	N/A	N/A	50K	44,000 & 0	Letters sent within 25mi

Let me know if you need anything else.

Best regards

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Pidgeon, Bill [mailto:pidgeon.bill@epa.gov]
Sent: Thursday, November 12, 2015 5:04 PM
To: Glas, Tobias <Tobias.Glas@vw.com>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Tobias,

I have similar questions to the question in my earlier email today:

1. What was the distance radius from your test lab for the mailings?

2. How many vehicles with this test group is registered within a 100 mile radius or altitude above 4,000 feet?

3. For the vehicles with return cards, please report the mileage of the highest two vehicles.

Thanks,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Tuesday, November 10, 2015 10:23 AM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015

Hi Bill, hi Jim,

Here is one more waver for the High Altitude testing, please let me know if these wavers are acceptable and we will continue with the testing.

Best regards

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Glas, Tobias
Sent: Friday, October 30, 2015 4:43 PM
To: 'Pidgeon, Bill' <pidgeon.bill@epa.gov>; 'Snyder, Jim' <Snyder.Jim@epa.gov>
Subject: IUVP Waver CY 2015

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

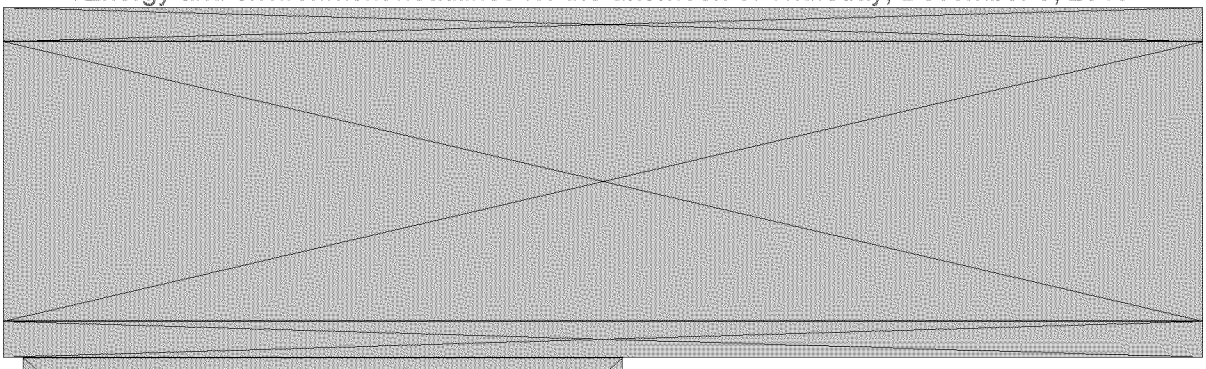
Fax: (248) 754-4207

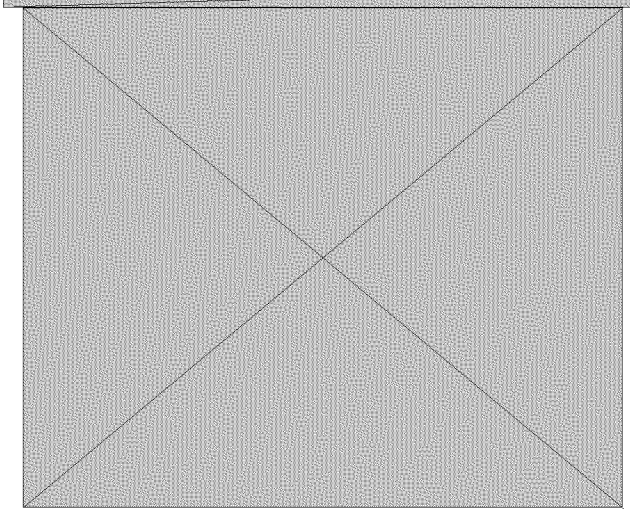
E-Mail: Tobias.Glas@vw.com

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: EnergyGuardian
Sent: Thur 12/3/2015 10:29:01 PM
Subject: Murkowski: Senate to move on own energy bill, but sees compromise with House

Advertise | Contact

Energy and environment headlines for the afternoon of Thursday, December 3, 2015





Murkowski: Senate to move on own energy bill, but sees compromise with House

By Kevin Rogers

The Senate doesn't plan to act on a freshly passed House energy reform bill and will instead focus on its own bill, Energy and Natural Resources Committee Chairman Sen. Lisa Murkowski said Thursday, but she expressed hope that the chambers could hash out a compromise bill in conference.

The Alaska Republican's remarks came shortly before the House approved the North

American Energy Security and Infrastructure Act of 2015. The bill passed on a mainly party-line vote of 249-174, well short of the 290 votes needed to override the veto threatened by the White House.

"I like the Senate bill. I think the House has been working hard, and we appreciate that, but absolutely there's room to meld the two together when we get to that point in time," Murkowski said at an event hosted by The Hill. "I'm just pleased we're kind of tracking one another as two bodies moving forward, on perhaps a little different take on the issues, but we're teeing things up so that the time comes we can move them all together."

The Senate bill, a compromise she struck with ranking member Sen. Maria Cantwell, D-Wash., advanced out of committee in July on an 18-4 vote. Murkowski said she hoped to get the legislation to the Senate floor early next year.

"We're ready to go, and it's got strong bipartisan support," Murkowski said. "I think that's what we're looking for to lead on some of these issues where you have that support, where you've demonstrated the ability to figure out where that common ground is."

The House measure was originally billed as a bipartisan effort to update the nation's energy policies, but most Democrats abandoned it after accusing Republicans of adding a number of policies too favorable to fossil fuels. Democrats also criticized its lack of provisions supporting renewable energy and combating climate change.

"H.R. 8 has one central theme binding its titles — an unerring devotion to the energy of the past," Energy and Commerce ranking member Rep. Frank Pallone, D-N.J., said of the bill during debate. "It's the Republican Party's 19th-century vision for the future of U.S. energy policy in the 21st century."

But Chairman Rep. Fred Upton, R-Mich., chief author of the bill, said it was an necessary update to reflect the growth in U.S. oil and natural gas production.

"Today the House put the scarcity mindset in the rear-view mirror and said yes to energy and yes to jobs," he said in a statement following the vote.

The House bill focused on streamlining permitting and siting for natural gas pipelines, expediting liquefied natural gas exports, boosting grid cybersecurity, and scaling back some Energy Department efficiency programs.

It also picked up amendments to lift the Commerce Department ban on crude oil exports, and to speed up the permit review process for pipelines and transmission projects that cross national borders.

The Senate bill also seeks to expedite LNG exports and enhance grid cybersecurity, but it goes further in promoting renewable energy and energy efficiency, updates the Strategic Petroleum Reserve, and reauthorizes — while reforming — the Land and Water Conservation Fund, while leaving more divisive issues off the table.

Murkowski and Cantwell, shepherding the bill through committee over the summer, successfully blocked "poison pill" amendments they said would have threatened its bipartisan support. They said they would strive to keep the bill bipartisan on the floor by discouraging other messaging amendments.

Murkowski said striking that balance meant taking some of her own energy priorities off the table.

"This bill is not Lisa Murkowski's perfect bill," she said. "But I knew that there were certain things that were not going to pass muster in that open process. So we sat back and said we're going to do that at another time and another place, which we will."

To accommodate Republican priorities, Murkowski developed a separate bill to lift the ban on crude exports, reform revenue sharing for energy production, and expand offshore drilling, while Cantwell and other Democrats have introduced a bill focused on combating climate change and supporting renewable energy development.

If a bill succeeds in winning approval in both houses, it would be the first major overhaul of the nation's energy policy since 2007.

Quick Links

Ex-coal CEO Blankenship convicted of misdemeanor conspiracy, plans to appeal

House overwhelmingly backs 5-year transportation bill

Groups appeal suspension of federal oil, gas drilling rules

Black lung data elusive as new coal dust rules take effect

NRG Energy CEO Crane resigns, company names COO new leader

VW lawyer: Consolidate lawsuits against carmaker in Michigan

US-led coalition target IS oil facilities in eastern Syria

France's Total renews Cyprus offshore gas search deal

Turkey may speed up building pipeline for Azerbaijani gas

Riders biggest obstacle to spending bill: Mikulski

Court OKs Energy Future bankruptcy plan

Lenders, bondholders to take over as Vantage files for bankruptcy

Transmission line concerns prompt Arkansas senators to put hold on DOE nominee

Oil 3 percent higher as dollar drops, traders position for OPEC

Royalty transparency group says Exxon withheld tax data

GSA pullback a blow to opponents of Exelon-Pepco merger

Fire at Texas natgas plant leaves 2 injured

Duke Renewables to build its first Oklahoma wind farm

Full storage tanks push hike in oil tanker rates

Upcoming Events

Ex-coal CEO Blankenship convicted of misdemeanor conspiracy, plans to appeal

By Jonathan Matisse and John Raby

CHARLESTON, W.Va. (AP) — Former Massey Energy CEO Don Blankenship was convicted Thursday of a misdemeanor count connected to a deadly coal mine explosion and acquitted of more serious charges.

A federal jury in West Virginia convicted Blankenship of conspiring to willfully violate mine safety standards. The misdemeanor charge carries up to one year in prison. Jurors did not find Blankenship guilty of a more serious conspiracy charge included in the same count that could have netted five years in prison. He was also acquitted of making false statements and securities fraud.

U.S. Secretary of Labor Thomas Perez said Blankenship's conviction sends a message that "no mine operator is above the law."

Perez made the statement in a news release Thursday after the verdict was announced in Blankenship's criminal trial in Charleston. Perez said there "must be accountability when people lose their lives because of the neglect of their employer."

More

House overwhelmingly backs 5-year transportation bill

By Joan Lowy

WASHINGTON (AP) — The House on Thursday overwhelmingly approved a 5-year, $305 billion bill that boosts highway and transit spending and assures states that federal help will be available for major projects. Senate approval was expected to follow later in the day.

The bill, approved by a 359-65 vote, doesn't include as much money or last quite as long as many lawmakers and the Obama administration would have liked. Nor does it resolve how to pay for transportation programs in the long term.

Despite that, the 1,300-page bill was hailed by industry and public officials as a major accomplishment that will halt the cycle of last-minute, short-term fixes that have kept the federal Highway Trust Fund teetering on the edge of insolvency for much of the past eight years.

Republicans leaders can point to the bill's passage as evidence of their ability to govern, and President Barack Obama can claim to have made progress on addressing the nation's aging and congested infrastructure, a major goal since the early days of his administration. Lawmakers in both parties effusively praised the bill as a model of bipartisan cooperation that didn't give everyone everything they wanted, but overall is an important step forward.

More

Groups appeal suspension of federal oil, gas drilling rules

By Mead Gruver

CHEYENNE, Wyo. (AP) — Environmental groups have appealed a judge's decision to suspend new rules for oil and gas drilling on federal land across the U.S. pending the outcome of a legal challenge to those rules.

The rules should be allowed to take effect to protect land, water and wildlife from practices including hydraulic fracturing, the Sierra Club and others argue in court documents.

On Sept. 30, U.S. District Judge Scott Skavdahl in Wyoming disagreed and blocked the rules from taking effect while the lawsuit contesting them moves ahead.

The environmental groups, which have sided with the federal government in the case, appealed Skavdahl's decision Nov. 27 to the 10th U.S. Circuit Court of Appeals. The case itself remains before Skavdahl in Casper.

More

Black lung data elusive as new coal dust rules take effect

By Dylan Lovan

LOUISVILLE, Ky. (AP) — Alarmed that black lung disease routinely goes unreported decades after it was discovered among miners, federal mine safety officials are touting new regulations that will step up monitoring for the coal dust that causes the deadly disease.

Beginning Feb. 1, the Mine Safety and Health Administration will require coal operators to increase the number of air samples taken in underground mines. The agency also will require miners working in the dustiest underground conditions to wear personal devices that give real time readings on air quality.

The government's top mine safety official, Joe Main, said pneumoconiosis, which kills about 1,000 coal miners a year, is likely afflicting far more miners than the data collected by his agency shows. From October 2010 through the end of September, mine operators reported 701 cases of black lung, but in a four-year span from 2010 to 2014, 3,675 miners were awarded black lung benefits, according to MSHA.

"It drives home the point we really need to do more to end this disease," Main, an assistant Labor secretary who runs MSHA, told The Associated Press.

More

NRG Energy CEO Crane resigns, company names COO new leader

By The Associated Press

NRG Energy shares rose Thursday after the power company announced the resignation of long-time CEO David Crane and named a replacement.

The company said Crane stepped down immediately, and he will be replaced by Executive Vice President and Chief Operating Officer Mauricio Gutierrez. Crane had served as CEO since 2003, a year before Gutierrez joined the Princeton, New Jersey-based company.

The company offered no reason in a brief statement announcing Crane's resignation.

Shares of NRG Energy fell to a 10-year low after the company said Tuesday that it agreed to sell power plants in Pennsylvania and New Jersey. Crane said then in a statement from the company that it was creating value for shareholders by streamlining its fleet of generating stations. He said the moves were part of an "ongoing and deliberate strategy of portfolio optimization."

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

VW lawyer: Consolidate lawsuits against carmaker in Michigan

By Cain Burdeau

NEW ORLEANS (AP) — A Volkswagen lawyer on Thursday said the company would like hundreds of federal civil lawsuits filed against the carmaker over its emissions cheating scandal to be consolidated in Michigan.

Volkswagen's attorneys were among hundreds of lawyers at a hearing in federal court in New Orleans to look at consolidating more than 460 lawsuits against the German carmaker.

The five judges of the Judicial Panel on Multidistrict Litigation heard from the string of lawyers making their cases for consolidation in the federal districts of their liking. The panel — which happened to be meeting in New Orleans — did not rule Thursday on where the lawsuits should be consolidated.

Volkswagen lawyer Jeffrey L. Chase asked the panel to choose Michigan, where VW is working with the U.S. Environmental Protection Agency's branch there on its investigation into the emissions cheating scandal.

More

US-led coalition target IS oil facilities in eastern Syria

Trouble seeing this email? Click here.

By Danica Kirka and Jim Heintz

LONDON (AP) — As British jets opened airstrikes against the Islamic State group in Syria and Germany prepared to send troops and aircraft to the region, Russia's president called on the world Thursday to brandish "one powerful fist" in the fight against terrorism.

Yet even as international efforts to defeat the extremists grew, animosity between Russia and Turkey only intensified.

Hours after Britain's Parliament authorized military action in Syria, its Tornado warplanes struck oil fields in eastern Syria that help finance IS. "This strikes a very real blow at the oil and the revenue on which the Daesh terrorists depend," Defense Secretary Michael Fallon told the BBC, using the Arabic acronym for IS.

Both the U.S.-led coalition and Russian warplanes have struck the extremists' oil facilities and Russia has drawn heated international attention to the issue by accusing Turkish authorities of profiting from oil trade with IS — allegations Turkish President Recep Tayyip Erdogan has strongly denied.

More

France's Total renews Cyprus offshore gas search deal

NICOSIA, Cyprus (AP) — Cyprus says French energy company Total has renewed its license to search for oil and gas in waters off the eastern Mediterranean island nation's southern coast for another two years.

Deputy government spokesman Victoras Papadopoulos says the government approved the renewal agreement on Thursday.

Papadopoulos said under the terms of the deal, Total's search area — or block — will be smaller. He didn't specify how much area Total cedes back to the government.

Total went ahead with the deal despite disappointing results from an initial round of exploratory drilling.

More

Turkey may speed up building pipeline for Azerbaijani gas

Trouble seeing this email? Click here.

By The Associated Press

BAKU, Azerbaijan (AP) — Turkey and Azerbaijan say they may speed up building a new natural gas pipeline, a statement that comes amid Turkey's bitter rift with Russia.

Turkish Prime Minister Ahmet Davutoglu said Thursday after talks in Baku with Azerbaijan's President Ilham Aliyev that the TANAP gas project could be completed before its original target, 2018. Aliyev said it would also serve to export Azerbaijan's gas further on to Europe.

The announcement came hours after Russia said it halted talks on building a prospective pipeline to Turkey amid tensions over the downing of a Russian warplane.

The TANAP pipeline is intended to carry oil from Azerbaijan's Caspian Sea fields to Turkey. It is expected to have a capacity of 16 billion cubic meters of gas a year and cost about $10 billion.

Riders biggest obstacle to spending bill: Mikulski

Negotiations over the omnibus spending bill necessary to avoid a government shutdown will have to navigate a forest of riders that Sen. Barbara Mikulski, D-Md., sees as the "biggest challenge," E&E reports.

More

Court OKs Energy Future bankruptcy plan

The plan for Energy Future Holdings to emerge from Chapter 11 bankruptcy—which involves the company splitting in two and offloading around $30 billion in debt—has won approval from U.S. Bankruptcy Court in Delaware, Bloomberg reports.

More

Lenders, bondholders to take over as Vantage files for bankruptcy

A deal offshore rig operator Vantage Drilling reached with lenders and bondholders calls for them to take over the business in exchange for $1.15 billion in debt, according to a filing in U.S. Bankruptcy Court in Delaware, The Wall Street Journal reports.

More

Transmission line concerns prompt Arkansas senators to put hold on DOE nominee

Because of concerns about the Plains & Eastern Clean Line Transmission Project—which Sens. John Boozman and Tom Cotton say the Department of Energy has failed to address—the Arkansas Republicans say they will put a hold on the confirmation of Victoria

Wassmer to become DOE's Undersecretary for Management and Performance, The Associated Press reports.

More

Oil 3 percent higher as dollar drops, traders position for OPEC

A fall in the dollar and continued speculation that OPEC might agree to production cuts when it meets Friday helped boost oil prices Thursday. Light, sweet crude for January delivery gained 2.9 percent—$1.14—to settle at $41.08 a barrel on the Nymex, while in London, Brent jumped $1.35, or 3.2 percent, to $43.84, The Wall Street Journal reports.

More

Royalty transparency group says Exxon withheld tax data

Organizers of the Extractive Industries Transparency Initiative said Wednesday that Exxon Mobil—which sits on the group's board—was among several major energy companies that failed to share their U.S. tax data, Reuters reports.

More

GSA pullback a blow to opponents of Exelon-Pepco merger

The General Services Administration—the biggest purchaser of electricity in the nation's capital—decided not to participate in this week's D.C. Public Service Commission hearings on the proposed Exelon-Pepco merger, a lack of involvement that alarmed opponents of the companies' plans, The Washington Post reports.

More

Fire at Texas natgas plant leaves 2 injured

Anadarko Petroleum says two of its workers at a natural gas processing plant in West Texas suffered minor injuries when a fire broke out Thursday morning, The Associated Press reports.

More

Duke Renewables to build its first Oklahoma wind farm

The 200-megawatt wind farm Duke Energy Renewables will build for Springfield, Missouri's City Utilities will be located in Oklahoma—Duke's first wind project in the state, the Charlotte Business Journal reports.

More

Full storage tanks push hike in oil tanker rates

Oil tankers sailing from Saudi Arabia to Japan are charging $111,359 dollars a day—the highest rate in seven years—because demand for bookings is high and ships have to spend lots of time waiting to find landward storage tanks that aren't full, Bloomberg reports.

More

Upcoming Events

- Dec. 3, Washington: The House set to hold a final vote on the North American Energy Security and Infrastructure Act of 2015. 12:00 pm , U.S. Capitol.
- Dec. 3, Washington: The Senate Energy and Natural Resources Committee to hold a hearing on potential improvements to the Alaska National Interest Lands Conservation Act of 1980. Alaska Gov. Bill Walker to testify. 10:00 am , 366 Dirksen.
- Dec. 3, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on the Nuclear Waste Fund. David Bearden, environmental policy specialist for the Congressional Research Service; Kim Cawley, Chief of Natural and Physical Resources Cost Estimates Unit of the Congressional Budget Office; and National Association of Regulatory Utility Commissioners Vice President Travis Kavulla to testify. 10:00 am , 1100 Longworth
- Dec. 3, Washington: The House Science Subcommittee on Energy to hold a hearing on the Nuclear Energy Innovation Capabilities Act. Energy Department Acting Assistant Secretary for Nuclear Energy John Kotek to testify. 10:00 am , 2318 Rayburn.
- Dec. 3, Washington: Senate Energy and Natural Resources Chairman Lisa Murkowski, R-Alaska, and Sen. Martin Heinrich, D-N.M., to speak at an event hosted by The Hill to discuss the future of microgrid technology. 8:30 am , The Newseum.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

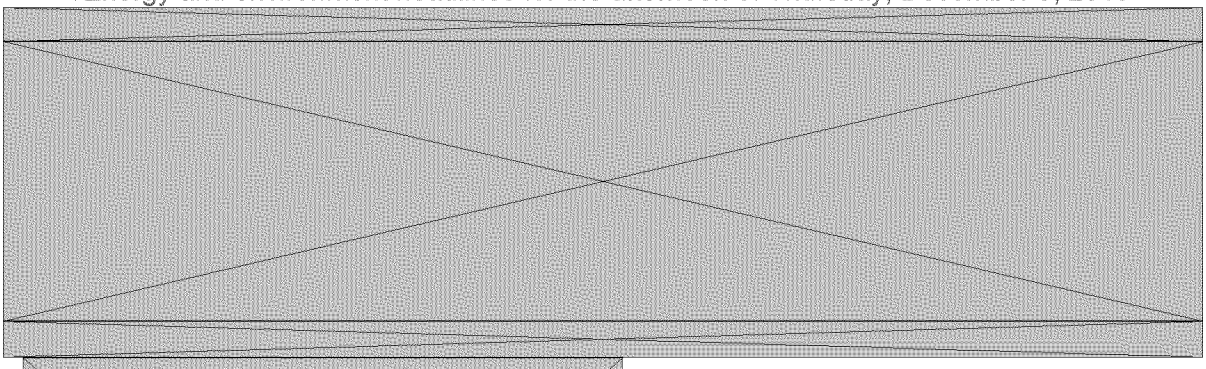
This email was sent to wehrly.linc@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

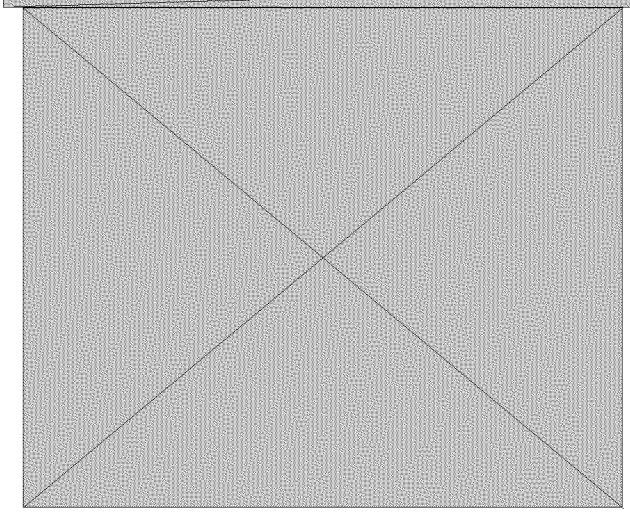
© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Bunker, Byron[bunker.byron@epa.gov]
From: EnergyGuardian
Sent: Thur 12/3/2015 10:29:01 PM
Subject: Murkowski: Senate to move on own energy bill, but sees compromise with House

Advertise | Contact

Energy and environment headlines for the afternoon of Thursday, December 3, 2015





Murkowski: Senate to move on own energy bill, but sees compromise with House

By Kevin Rogers

The Senate doesn't plan to act on a freshly passed House energy reform bill and will instead focus on its own bill, Energy and Natural Resources Committee Chairman Sen. Lisa Murkowski said Thursday, but she expressed hope that the chambers could hash out a compromise bill in conference.

The Alaska Republican's remarks came shortly before the House approved the North

American Energy Security and Infrastructure Act of 2015. The bill passed on a mainly party-line vote of 249-174, well short of the 290 votes needed to override the veto threatened by the White House.

"I like the Senate bill. I think the House has been working hard, and we appreciate that, but absolutely there's room to meld the two together when we get to that point in time," Murkowski said at an event hosted by The Hill. "I'm just pleased we're kind of tracking one another as two bodies moving forward, on perhaps a little different take on the issues, but we're teeing things up so that the time comes we can move them all together."

The Senate bill, a compromise she struck with ranking member Sen. Maria Cantwell, D-Wash., advanced out of committee in July on an 18-4 vote. Murkowski said she hoped to get the legislation to the Senate floor early next year.

"We're ready to go, and it's got strong bipartisan support," Murkowski said. "I think that's what we're looking for to lead on some of these issues where you have that support, where you've demonstrated the ability to figure out where that common ground is."

The House measure was originally billed as a bipartisan effort to update the nation's energy policies, but most Democrats abandoned it after accusing Republicans of adding a number of policies too favorable to fossil fuels. Democrats also criticized its lack of provisions supporting renewable energy and combating climate change.

"H.R. 8 has one central theme binding its titles — an unerring devotion to the energy of the past," Energy and Commerce ranking member Rep. Frank Pallone, D-N.J., said of the bill during debate. "It's the Republican Party's 19th-century vision for the future of U.S. energy policy in the 21st century."

But Chairman Rep. Fred Upton, R-Mich., chief author of the bill, said it was an necessary update to reflect the growth in U.S. oil and natural gas production.

"Today the House put the scarcity mindset in the rear-view mirror and said yes to energy and yes to jobs," he said in a statement following the vote.

The House bill focused on streamlining permitting and siting for natural gas pipelines, expediting liquefied natural gas exports, boosting grid cybersecurity, and scaling back some Energy Department efficiency programs.

It also picked up amendments to lift the Commerce Department ban on crude oil exports, and to speed up the permit review process for pipelines and transmission projects that cross national borders.

The Senate bill also seeks to expedite LNG exports and enhance grid cybersecurity, but it goes further in promoting renewable energy and energy efficiency, updates the Strategic Petroleum Reserve, and reauthorizes — while reforming — the Land and Water Conservation Fund, while leaving more divisive issues off the table.

Murkowski and Cantwell, shepherding the bill through committee over the summer, successfully blocked "poison pill" amendments they said would have threatened its bipartisan support. They said they would strive to keep the bill bipartisan on the floor by discouraging other messaging amendments.

Murkowski said striking that balance meant taking some of her own energy priorities off the table.

"This bill is not Lisa Murkowski's perfect bill," she said. "But I knew that there were certain things that were not going to pass muster in that open process. So we sat back and said we're going to do that at another time and another place, which we will."

To accommodate Republican priorities, Murkowski developed a separate bill to lift the ban on crude exports, reform revenue sharing for energy production, and expand offshore drilling, while Cantwell and other Democrats have introduced a bill focused on combating climate change and supporting renewable energy development.

If a bill succeeds in winning approval in both houses, it would be the first major overhaul of the nation's energy policy since 2007.

Quick Links

Ex-coal CEO Blankenship convicted of misdemeanor conspiracy, plans to appeal

House overwhelmingly backs 5-year transportation bill

Groups appeal suspension of federal oil, gas drilling rules

Black lung data elusive as new coal dust rules take effect

NRG Energy CEO Crane resigns, company names COO new leader

VW lawyer: Consolidate lawsuits against carmaker in Michigan

US-led coalition target IS oil facilities in eastern Syria

France's Total renews Cyprus offshore gas search deal

Turkey may speed up building pipeline for Azerbaijani gas

Riders biggest obstacle to spending bill: Mikulski

Court OKs Energy Future bankruptcy plan

Lenders, bondholders to take over as Vantage files for bankruptcy

Transmission line concerns prompt Arkansas senators to put hold on DOE nominee

Oil 3 percent higher as dollar drops, traders position for OPEC

Royalty transparency group says Exxon withheld tax data

GSA pullback a blow to opponents of Exelon-Pepco merger

Fire at Texas natgas plant leaves 2 injured

Duke Renewables to build its first Oklahoma wind farm

Full storage tanks push hike in oil tanker rates

Upcoming Events

Ex-coal CEO Blankenship convicted of misdemeanor conspiracy, plans to appeal

By Jonathan Matisse and John Raby

CHARLESTON, W.Va. (AP) — Former Massey Energy CEO Don Blankenship was convicted Thursday of a misdemeanor count connected to a deadly coal mine explosion and acquitted of more serious charges.

A federal jury in West Virginia convicted Blankenship of conspiring to willfully violate mine safety standards. The misdemeanor charge carries up to one year in prison. Jurors did not find Blankenship guilty of a more serious conspiracy charge included in the same count that could have netted five years in prison. He was also acquitted of making false statements and securities fraud.

U.S. Secretary of Labor Thomas Perez said Blankenship's conviction sends a message that "no mine operator is above the law."

Perez made the statement in a news release Thursday after the verdict was announced in Blankenship's criminal trial in Charleston. Perez said there "must be accountability when people lose their lives because of the neglect of their employer."

More

House overwhelmingly backs 5-year transportation bill

By Joan Lowy

WASHINGTON (AP) — The House on Thursday overwhelmingly approved a 5-year, $305 billion bill that boosts highway and transit spending and assures states that federal help will be available for major projects. Senate approval was expected to follow later in the day.

The bill, approved by a 359-65 vote, doesn't include as much money or last quite as long as many lawmakers and the Obama administration would have liked. Nor does it resolve how to pay for transportation programs in the long term.

Despite that, the 1,300-page bill was hailed by industry and public officials as a major accomplishment that will halt the cycle of last-minute, short-term fixes that have kept the federal Highway Trust Fund teetering on the edge of insolvency for much of the past eight years.

Republicans leaders can point to the bill's passage as evidence of their ability to govern, and President Barack Obama can claim to have made progress on addressing the nation's aging and congested infrastructure, a major goal since the early days of his administration. Lawmakers in both parties effusively praised the bill as a model of bipartisan cooperation that didn't give everyone everything they wanted, but overall is an important step forward.

More

Groups appeal suspension of federal oil, gas drilling rules

By Mead Gruver

CHEYENNE, Wyo. (AP) — Environmental groups have appealed a judge's decision to suspend new rules for oil and gas drilling on federal land across the U.S. pending the outcome of a legal challenge to those rules.

The rules should be allowed to take effect to protect land, water and wildlife from practices including hydraulic fracturing, the Sierra Club and others argue in court documents.

On Sept. 30, U.S. District Judge Scott Skavdahl in Wyoming disagreed and blocked the rules from taking effect while the lawsuit contesting them moves ahead.

The environmental groups, which have sided with the federal government in the case, appealed Skavdahl's decision Nov. 27 to the 10th U.S. Circuit Court of Appeals. The case itself remains before Skavdahl in Casper.

More

Black lung data elusive as new coal dust rules take effect

By Dylan Lovan

LOUISVILLE, Ky. (AP) — Alarmed that black lung disease routinely goes unreported decades after it was discovered among miners, federal mine safety officials are touting new regulations that will step up monitoring for the coal dust that causes the deadly disease.

Beginning Feb. 1, the Mine Safety and Health Administration will require coal operators to increase the number of air samples taken in underground mines. The agency also will require miners working in the dustiest underground conditions to wear personal devices that give real time readings on air quality.

The government's top mine safety official, Joe Main, said pneumoconiosis, which kills about 1,000 coal miners a year, is likely afflicting far more miners than the data collected by his agency shows. From October 2010 through the end of September, mine operators reported 701 cases of black lung, but in a four-year span from 2010 to 2014, 3,675 miners were awarded black lung benefits, according to MSHA.

"It drives home the point we really need to do more to end this disease," Main, an assistant Labor secretary who runs MSHA, told The Associated Press.

More

NRG Energy CEO Crane resigns, company names COO new leader

By The Associated Press

NRG Energy shares rose Thursday after the power company announced the resignation of long-time CEO David Crane and named a replacement.

The company said Crane stepped down immediately, and he will be replaced by Executive Vice President and Chief Operating Officer Mauricio Gutierrez. Crane had served as CEO since 2003, a year before Gutierrez joined the Princeton, New Jersey-based company.

The company offered no reason in a brief statement announcing Crane's resignation.

Shares of NRG Energy fell to a 10-year low after the company said Tuesday that it agreed to sell power plants in Pennsylvania and New Jersey. Crane said then in a statement from the company that it was creating value for shareholders by streamlining its fleet of generating stations. He said the moves were part of an "ongoing and deliberate strategy of portfolio optimization."

More

A message from the American Petroleum Institute

America is leading the world in oil & natural gas production. Americans are voting to keep it going. They know we can produce, refine and supply more domestic oil & natural gas. More abundant energy means more affordable energy. That's why, this election, so many Americans are becoming energy voters.

Learn more at Vote4Energy.org

VW lawyer: Consolidate lawsuits against carmaker in Michigan

By Cain Burdeau

NEW ORLEANS (AP) — A Volkswagen lawyer on Thursday said the company would like hundreds of federal civil lawsuits filed against the carmaker over its emissions cheating scandal to be consolidated in Michigan.

Volkswagen's attorneys were among hundreds of lawyers at a hearing in federal court in New Orleans to look at consolidating more than 460 lawsuits against the German carmaker.

The five judges of the Judicial Panel on Multidistrict Litigation heard from the string of lawyers making their cases for consolidation in the federal districts of their liking. The panel — which happened to be meeting in New Orleans — did not rule Thursday on where the lawsuits should be consolidated.

Volkswagen lawyer Jeffrey L. Chase asked the panel to choose Michigan, where VW is working with the U.S. Environmental Protection Agency's branch there on its investigation into the emissions cheating scandal.

More

US-led coalition target IS oil facilities in eastern Syria

Trouble seeing this email? Click here.

By Danica Kirka and Jim Heintz

LONDON (AP) — As British jets opened airstrikes against the Islamic State group in Syria and Germany prepared to send troops and aircraft to the region, Russia's president called on the world Thursday to brandish "one powerful fist" in the fight against terrorism.

Yet even as international efforts to defeat the extremists grew, animosity between Russia and Turkey only intensified.

Hours after Britain's Parliament authorized military action in Syria, its Tornado warplanes struck oil fields in eastern Syria that help finance IS. "This strikes a very real blow at the oil and the revenue on which the Daesh terrorists depend," Defense Secretary Michael Fallon told the BBC, using the Arabic acronym for IS.

Both the U.S.-led coalition and Russian warplanes have struck the extremists' oil facilities and Russia has drawn heated international attention to the issue by accusing Turkish authorities of profiting from oil trade with IS — allegations Turkish President Recep Tayyip Erdogan has strongly denied.

More

France's Total renews Cyprus offshore gas search deal

NICOSIA, Cyprus (AP) — Cyprus says French energy company Total has renewed its license to search for oil and gas in waters off the eastern Mediterranean island nation's southern coast for another two years.

Deputy government spokesman Victoras Papadopoulos says the government approved the renewal agreement on Thursday.

Papadopoulos said under the terms of the deal, Total's search area — or block — will be smaller. He didn't specify how much area Total cedes back to the government.

Total went ahead with the deal despite disappointing results from an initial round of exploratory drilling.

More

Turkey may speed up building pipeline for Azerbaijani gas

Trouble seeing this email? Click here.

By The Associated Press

BAKU, Azerbaijan (AP) — Turkey and Azerbaijan say they may speed up building a new natural gas pipeline, a statement that comes amid Turkey's bitter rift with Russia.

Turkish Prime Minister Ahmet Davutoglu said Thursday after talks in Baku with Azerbaijan's President Ilham Aliyev that the TANAP gas project could be completed before its original target, 2018. Aliyev said it would also serve to export Azerbaijan's gas further on to Europe.

The announcement came hours after Russia said it halted talks on building a prospective pipeline to Turkey amid tensions over the downing of a Russian warplane.

The TANAP pipeline is intended to carry oil from Azerbaijan's Caspian Sea fields to Turkey. It is expected to have a capacity of 16 billion cubic meters of gas a year and cost about $10 billion.

Riders biggest obstacle to spending bill: Mikulski

Negotiations over the omnibus spending bill necessary to avoid a government shutdown will have to navigate a forest of riders that Sen. Barbara Mikulski, D-Md., sees as the "biggest challenge," E&E reports.

More

Court OKs Energy Future bankruptcy plan

The plan for Energy Future Holdings to emerge from Chapter 11 bankruptcy—which involves the company splitting in two and offloading around $30 billion in debt—has won approval from U.S. Bankruptcy Court in Delaware, Bloomberg reports.

More

Lenders, bondholders to take over as Vantage files for bankruptcy

A deal offshore rig operator Vantage Drilling reached with lenders and bondholders calls for them to take over the business in exchange for $1.15 billion in debt, according to a filing in U.S. Bankruptcy Court in Delaware, The Wall Street Journal reports.

More

Transmission line concerns prompt Arkansas senators to put hold on DOE nominee

Because of concerns about the Plains & Eastern Clean Line Transmission Project—which Sens. John Boozman and Tom Cotton say the Department of Energy has failed to address—the Arkansas Republicans say they will put a hold on the confirmation of Victoria

Wassmer to become DOE's Undersecretary for Management and Performance, The Associated Press reports.

More

Oil 3 percent higher as dollar drops, traders position for OPEC

A fall in the dollar and continued speculation that OPEC might agree to production cuts when it meets Friday helped boost oil prices Thursday. Light, sweet crude for January delivery gained 2.9 percent—$1.14—to settle at $41.08 a barrel on the Nymex, while in London, Brent jumped $1.35, or 3.2 percent, to $43.84, The Wall Street Journal reports.

More

Royalty transparency group says Exxon withheld tax data

Organizers of the Extractive Industries Transparency Initiative said Wednesday that Exxon Mobil—which sits on the group's board—was among several major energy companies that failed to share their U.S. tax data, Reuters reports.

More

GSA pullback a blow to opponents of Exelon-Pepco merger

The General Services Administration—the biggest purchaser of electricity in the nation's capital—decided not to participate in this week's D.C. Public Service Commission hearings on the proposed Exelon-Pepco merger, a lack of involvement that alarmed opponents of the companies' plans, The Washington Post reports.

More

Fire at Texas natgas plant leaves 2 injured

Anadarko Petroleum says two of its workers at a natural gas processing plant in West Texas suffered minor injuries when a fire broke out Thursday morning, The Associated Press reports.

More

Duke Renewables to build its first Oklahoma wind farm

The 200-megawatt wind farm Duke Energy Renewables will build for Springfield, Missouri's City Utilities will be located in Oklahoma—Duke's first wind project in the state, the Charlotte Business Journal reports.

More

Full storage tanks push hike in oil tanker rates

Oil tankers sailing from Saudi Arabia to Japan are charging $111,359 dollars a day—the highest rate in seven years—because demand for bookings is high and ships have to spend lots of time waiting to find landward storage tanks that aren't full, Bloomberg reports.

More

Upcoming Events

- Dec. 3, Washington: The House set to hold a final vote on the North American Energy Security and Infrastructure Act of 2015. 12:00 pm , U.S. Capitol.
- Dec. 3, Washington: The Senate Energy and Natural Resources Committee to hold a hearing on potential improvements to the Alaska National Interest Lands Conservation Act of 1980. Alaska Gov. Bill Walker to testify. 10:00 am , 366 Dirksen.
- Dec. 3, Washington: The House Energy and Commerce Subcommittee on Environment and the Economy to hold a hearing on the Nuclear Waste Fund. David Bearden, environmental policy specialist for the Congressional Research Service; Kim Cawley, Chief of Natural and Physical Resources Cost Estimates Unit of the Congressional Budget Office; and National Association of Regulatory Utility Commissioners Vice President Travis Kavulla to testify. 10:00 am , 1100 Longworth
- Dec. 3, Washington: The House Science Subcommittee on Energy to hold a hearing on the Nuclear Energy Innovation Capabilities Act. Energy Department Acting Assistant Secretary for Nuclear Energy John Kotek to testify. 10:00 am , 2318 Rayburn.
- Dec. 3, Washington: Senate Energy and Natural Resources Chairman Lisa Murkowski, R-Alaska, and Sen. Martin Heinrich, D-N.M., to speak at an event hosted by The Hill to discuss the future of microgrid technology. 8:30 am , The Newseum.

Trouble seeing this email? Click here.

To ensure you receive uninterrupted delivery, please add the address energy@email.energyguardian.net to your email address book.

This email was sent to bunker.byron@epa.gov by energy@washingtonguardian.net
To unsubscribe from this newsletter please Click Here

© 2015, Packard Media Group LLC, all rights reserved | P.O. Box 9977 | McLean, VA 22102
Privacy Policy

To: Glas, Tobias[Tobias.Glas@vw.com]
Cc: Ex. 7 ; Snyder, Jim[Snyder.Jim@epa.gov]; Ex. 7 @vw.com]
From: Pidgeon, Bill
Sent: Fri 12/4/2015 2:38:31 PM
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Tobias,

Thanks for the quick reply. A standard waiver form may be the most efficient in the long run, but may result in providing more information than needed in some cases. For example, a waiver request for the 75 percent FUL vehicle with 104,000 miles, has a much lower threshold of information needed compared to a high mileage vehicle with 30,000 miles from a high sales test group that already has a failing vehicle. The potential environmental impact is considered and will include requests for emissions data, in some cases. But we don't need emissions data in most cases.

So, it's your call and I'm happy to provide feedback on a standard waiver form. It's a matter of getting the information needed for the majority of waiver decisions, and not being frustrated when we ask for additional information for those infrequent needs.

So, what I'm trying to say is that we don't want to overburden manufacturers. A standard waiver form that is sufficient for most waiver requests is adequate, and I'm happy to ask for more information for special circumstances. But if you want to build an all-encompassing form that provides all the information we could ever need to make a waiver decision, that's even better for me, but not expected. I don't mind asking for more information, as long as I don't have ask for the basic information each time.

Thanks,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Thursday, December 03, 2015 4:34 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>
Cc: Ex. 7 Snyder, Jim <Snyder.Jim@epa.gov>; Ex. 7 Ex. 7 @vw.com>

Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Bill,

Sorry for all the confusion. I used the guidelines you sent to create a waver but obviously we will have to do better on the information we put into our waver.

We will create a draft for a standard waver form with the required information and send it to you for approval. This is just a general waver form to make sure we list all the information you'll need.

When EPA is happy with the kind of information we list in our waver form we will create specific wavers for the test groups we couldn't find the cars we were supposed to find.

Please let me know if that is acceptable.

Best regards

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Pidgeon, Bill [mailto:pidgeon.bill@epa.gov]
Sent: Thursday, December 03, 2015 1:17 PM
To: Glas, Tobias <Tobias.Glas@vw.com>
Cc: Ex. 7 Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Tobias,

"How many Test Group XYZ vehicles are registered within a hundred mile radius of your test lab?" is a standard question Ex. 7 and I ask. In my experience, VW is the only manufacturer that has not been able to answer the question. Sending letters within 25 miles of the lab is far below the norm for VW's competitors, but this varies with circumstances. Low budget vehicles with 105,000 miles on them may be easily procured by letters within 25 miles of the lab, but waivers are not requested for such vehicles. The radius should increase as the difficulty increases. If a test group only has five registered vehicles within a 100 mile radius of the lab, and the incentive was generous, and loaner vehicles were at least as well appointed as the owner's vehicles, and all five refused to participate, it could be very easy for EPA to grant a waiver quickly.

On the other hand, exchanging piece-meal emails to get the information necessary to maintain a level playing field among the manufacturers, really slows things down. It is much more complicated to piece together multiple emails to construct a conclusion. When manufacturers construct a logical summary of relevant information supporting that a waiver is justified, EPA can very quickly respond quickly.

Information that may help includes providing the vehicle models in each test group to help determine whether the incentive is appropriate. Owners of economy cars are often willing to accept considerably lower incentives than owners of high priced luxury vehicles, and similar logic applies to the loaner vehicles being offered. If you send the retail prices along with the models, it saves us from looking it up, so we can respond even faster. But we can find the prices. We don't have the resources to determine the number of vehicles within a 100 mile radius of the test lab, and some of the other relevant statistics.

I'm not sure what else we can do to help you build a case to earn a waiver. I have sent you the attached document in the past (2x if I remember correctly), and I've contacted you in the past about the difficulty in making a waiver decision without the information needed.

On 11/17/2015, EPA granted a waiver for TG AVWXV02.5257 to move procurement and testing to low altitude, to relieve the high altitude procurement burden. But I don't have enough information to either deny or grant waivers for the other five vehicles/test groups listed in the table below, from your 11/17/2015 email waiver request.

Test Group	Stat$	# of Return Cards	# of First Mailing	# of Second Mailing	# of Third Mailing	# of Fourth Mailing	Required Mileage	Highest mileage return cards	
AVWXT		764	10	29	N/A	N/A	90K	83,274 & 79,000	Letters sent within 25mi
AVWXV		314	10	39	N/A	N/A	90K	70,933 & 68,000	Letters sent within 25mi
AVWXV		713	10	10	25	50	105K	90,000 & 82,254	Letters sent within 25mi
AADXV		20	20	20	71		105K	101240 & 69,006	Letters sent within 25mi
AVWXV		056	10	20			90K	81,054	Letters sent within

						& 75,356	25mi
AVWXV02.5259A5	10	20			105K	89029 & 49,199	Letters sent within 25mi
AVWXV02.5260572	15	15	N/A	N/A	50K	44,000 & 0	Letters sent within 25mi

Please call me if you think that will help. The "Alliance of Automobile Manufacturers" may be a good contact for determining "How many Test Group XYZ vehicles are registered within a hundred mile radius of your test lab."

Thanks,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Tuesday, November 17, 2015 3:41 PM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Bill,

Here is a table that shows you our procurement data.

We don't have a number how many cars are registered in a 100 mile radius and I don't think we have a way to get that number.

For the last test group there are 23 cars in all of Colorado, so we sent a few customers two letters.

Test Group	Stat$	# of Return Cards	# of First Mailing	# of Second Mailing	# of Third Mailing	# of Fourth Mailing	Required	Highest Mileage return cards	
AVWXT	T01$250764	10	29	N/A	N/A	90K	83,274 & 79,000	Letters sent within 25mi	
AVWXW	W01$250314	10	39	N/A	N/A	90K	70,933 & 68,000	Letters sent within 25mi	
AVWXV	V02$250713	10	10	25	50	105K	90,000 & 82,254	Letters sent within 25mi	
AADXV	V02$250A20	20	20	71		105K	101240 & 69,006	Letters sent within 25mi	
AVWXW	W01$250356	10	20			90K	81,054 & 75,356	Letters sent within 25mi	
AVWXV	V02$250A5	10	20			105K	89029 & 49,199	Letters sent within 25mi	
AVWXV	V02$250672	15	15	N/A	N/A	50K	44,000 & 0	Letters sent within 25mi	

Let me know if you need anything else.

Best regards

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Pidgeon, Bill [mailto:pidgeon.bill@epa.gov]
Sent: Thursday, November 12, 2015 5:04 PM
To: Glas, Tobias <Tobias.Glas@vw.com>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015 - TG AVWXV02.5257

Hi Tobias,

I have similar questions to the question in my earlier email today:

1. What was the distance radius from your test lab for the mailings?

2. How many vehicles with this test group is registered within a 100 mile radius or altitude above 4,000 feet?

3. For the vehicles with return cards, please report the mileage of the highest two vehicles.

Thanks,

Bill

From: Glas, Tobias [mailto:Tobias.Glas@vw.com]
Sent: Tuesday, November 10, 2015 10:23 AM
To: Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>
Subject: RE: IUVP Waver CY 2015

Hi Bill, hi Jim,

Here is one more waver for the High Altitude testing, please let me know if these wavers are acceptable and we will continue with the testing.

Best regards

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

From: Glas, Tobias
Sent: Friday, October 30, 2015 4:43 PM
To: 'Pidgeon, Bill' <pidgeon.bill@epa.gov>; 'Snyder, Jim' <Snyder.Jim@epa.gov>
Subject: IUVP Waver CY 2015

Hi Bill, hi Jim,

Overall we got pretty good responses for our CY 2015 IUVP program, but it is always difficult to find cars over 90 K miles.

So here are 6 wavers in one document where we request to test cars with lower mileage.

We got responses for all test groups and have cars lined up for testing but they are under the 75% of full Useful life.

Maybe you can give me a heads up so we can proceed with our testing.

Thanks for your help and have a good weekend.

Tobias Glas

In-Use Emission Compliance Specialist

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Ex. 7 Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ex. 7
Ex. 7
From: Good, David
Sent: Fri 12/4/2015 9:08:22 PM
Subject: RE: MY2017 Volkswagen Group of America Certification Preview Information
VW 2017 Cert Preview-via VW email-12-3-2015.pdf

Ex. 7 & all,

Thanks for providing your certification preview letter, however it doesn't seem to cover the details of your Tier 3 phase-in plans. During the 2017 certification preview meeting, please provide an outline of your Tier 3 phase-in plan, including:

1. 2017 (or 2017-2020) fleet exhaust average LDV/LDT1 and LDT2 (NMOG + NOx) roll-out plan (including your phase-in plan, projected sales by test group, list of Interim & final Tier 3 test groups (including test fuel used for each test group), projected fleet average NMOG + NOx value, and the EPA requirement (the fleet average standard).

2. 2017 (or 2017-2020) Tier 3 SFTP compliance plan, e.g. FELs for 2017MY test groups, projected sales, projected fleet average NMOG+NOx value, EPA standard, etc;

3. 2017 (or 2017-2022) Tier 3 evap percent phase-in compliance plan (for whichever evap option you will comply with in 2017MY) and the EPA requirement;

4. 2017 (or 2017-2022) Tier 3 projected fleet average evap compliance emission value for each vehicle class (e.g. LDV/LDT1, LDT2, HLDT, HDV)---with projected sales and FEL for each Tier 3 evap family; (note that for evaporative compliance, the projected sales for 2017 is federal only but 2018-2022 is nationwide sales)

5. 2017 (or 2017-2021) PM phase-in plan; projected sales & EPA requirement for each year;

6. 2017 OBD .020 leak detection compliance information;

7. An outline of which 1066 test procedures you will use in 2017MY (including any early voluntary procedures) ;

8. An estimate of the number of your test vehicles which will be tested using a road-speed fan;

9. An list any projected 2015/2016 early Tier2/Tier3 exhaust credits which you will accumulate; ref. 86.1811-17(b)(10 and (b)(11);

10. An outline of how you intend to comply with the Tier 3 lean-best torque/fuel enrichment requirements outlined in 86.1844-01(d)(11)(iii) which refer to 86.1811-17(d).

11. Any other Tier 3 questions you have or issues you would like to discuss.

Call me at 734-214-4450 if you have any questions.

From: Ex. 7
Sent: Thursday, December 03, 2015 10:14 AM
To: Snyder, Jim; Good, David
Cc: Ex. 7
Ex. 7
Subject: MY2017 Volkswagen Group of America Certification Preview Information

Hello Mr. Snyder / Mr. Good,

Please see the attachment in regards to the MY2017 Volkswagen Group of America Certification Preview Information.

The attachment has also been uploaded to the Verify system under the VGA manufacturer code.

File Name: CBI_HVGA_COMMON_LTR_CPP_R00

If you have any questions/concerns please let me know.

We will be contacting you soon to schedule a face-to-face meeting to discuss the document, as well as provide some further supporting information.

Thank You and Best Regards,

Ex. 7

[redacted]

Ex. 7

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Giles, Michael (EEO)
Sent: Fri 12/4/2015 9:47:03 PM
Subject: Assigned N2O / Methane DF's

Hello Jim,

Can you advise on the values we should use for assigned N2O / methane deterioration factors?

I did not find values for these in the last guidance document discussing assigned DF's.

Thanks,

Mike

Michael Giles

Certification Engineer

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4229

Fax: 248 754 4207

mailto: Michael.Giles@VW.com

To: Bill Rodgers (william.Rodgers@vw.com)[william.Rodgers@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]; Bochenek, David[bochenek.david@epa.gov]
From: Mazaitis, Vincent
Sent: Mon 12/7/2015 1:33:35 PM
Subject: HAUT-Q7A

Good morning Bill,

The Subject vehicle is to perform a Road Load Derivation and prep today. It will test tomorrow, 12/8/15.

If you wish to observe the start, please be here at 7:00 am. I'll contact you if there is a change.

Thanks Bill,

Vince Mazaitis

To: Chapman, Apple[Chapman.Apple@epa.gov]
From: Brooks, Phillip
Sent: Tue 12/8/2015 7:16:47 PM
Subject: Fwd: Air & Radiation Law News for December 8, 2015

Ex. 5, 7

Sent from my iPhone

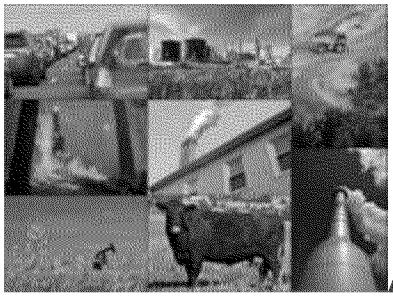
Begin forwarded message:

From: "Giles-AA, Cynthia" <Giles-AA.Cynthia@epa.gov>
Date: December 8, 2015 at 1:02:06 PM EST
To: "Brooks, Phillip" <Brooks.Phillip@epa.gov>, "Shinkman, Susan" <Shinkman.Susan@epa.gov>
Cc: "Starfield, Lawrence" <Starfield.Lawrence@epa.gov>, "Wilson, Shari" <Wilson.Shari@epa.gov>
Subject: FW: Air & Radiation Law News for December 8, 2015

Ex. 5, 7

From: Turley, Jennifer
Sent: Tuesday, December 08, 2015 11:33 AM
To: Allnutt, David <Allnutt.David@epa.gov>; Anderson, Lea <anderson.lea@epa.gov>; Anderson, Steve <Anderson.Steve@epa.gov>; Aranda, Amber <aranda.amber@epa.gov>; Averback, Jonathan <Averback.Jonathan@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Bianco, Karen <Bianco.Karen@epa.gov>; Bogoshian, Matthew <Bogoshian.Matt@epa.gov>; Branning, Amy <Branning.Amy@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Chapman, Apple <Chapman.Apple@epa.gov>; Choi, Jake <Choi.Jake@epa.gov>; Cozad, David <Cozad.David@epa.gov>; Crum, Lynda <Crum.Lynda@epa.gov>; Crystal, Roy <crystal.roy@epa.gov>; Davis, Julian <davis.julian@epa.gov>; Dickinson, David <Dickinson.David@epa.gov>; Dierker, Carl <Dierker.Carl@epa.gov>; Dolph, Becky <Dolph.Becky@epa.gov>; Doster, Brian <Doster.Brian@epa.gov>; Dubey, Susmita <dubey.susmita@epa.gov>; Dubois, Roland <Dubois.Roland@epa.gov>; Frey, Bert <frey.bertram@epa.gov>; Froikin, Sara <Froikin.Sara@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>; Graham, Cheryl <Graham.Cheryl@epa.gov>; Harrison, Ben <Harrison.Ben@epa.gov>; Hoffman, Howard <hoffman.howard@epa.gov>; Hogan, Stephanie <Hogan.Stephanie@epa.gov>; Holmes, Carol <Holmes.Carol@epa.gov>; Igoe, Sheila <Igoe.Sheila@epa.gov>; Jordan, Scott <Jordan.Scott@epa.gov>; Kaplan, Robert <kaplan.robert@epa.gov>; Kataoka, Mark <Kataoka.Mark@epa.gov>; Klepp, Robert <Klepp.Robert@epa.gov>; Knapp, Kristien

<Knapp.Kristien@epa.gov>; Lee, Michael <lee.michaelg@epa.gov>; Lovett, Lauren <Lovett.Lauren@epa.gov>; Mackey, Cyndy <Mackey.Cyndy@epa.gov>; Manners, Mary <manners.mary@epa.gov>; Marks, Matthew <Marks.Matthew@epa.gov>; Matthews, Julie <Matthews.Juliane@epa.gov>; McConkey, Diane <Mcconkey.Diane@epa.gov>; Mclean, Kevin <Mclean.Kevin@epa.gov>; Moore, Bruce <Moore.Bruce@epa.gov>; Morgan, Jeanette <Morgan.Jeanette@epa.gov>; Muller, Sheldon <Muller.Sheldon@epa.gov>; Niebling, William <Niebling.William@epa.gov>; Nguyen, Quoc <Nguyen.Quoc@epa.gov>; Adair, Jocelyn <Adair.Jocelyn@epa.gov>; Odendahl, Steve <Odendahl.Steve@epa.gov>; Okoye, Winifred <Okoye.Winifred@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Pastorkovich, Anne-Marie <Pastorkovich.Anne-Marie@epa.gov>; Roberts, Martha <Roberts.Martha@epa.gov>; Rodman, Sonja <Rodman.Sonja@epa.gov>; Rowland, John <Rowland.John@epa.gov>; Schaaf, Eric <Schaaf.Eric@epa.gov>; Schmidt, Lorie <Schmidt.Lorie@epa.gov>; Senn, John <Senn.John@epa.gov>; Shenkman, Ethan <Shenkman.Ethan@epa.gov>; Silverman, Steven <silverman.steven@epa.gov>; Smith, Kristi <Smith.Kristi@epa.gov>; Snyder, Doug <Snyder.Doug@epa.gov>; Srinivasan, Gautam <Srinivasan.Gautam@epa.gov>; Stahle, Susan <Stahle.Susan@epa.gov>; Starfield, Lawrence <Starfield.Lawrence@epa.gov>; Stern, Allyn <Stern.Allyn@epa.gov>; Tate, Ragan <Tate.Ragan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Tierney, Jan <tierney.jan@epa.gov>; Ting, Kaytrue <Ting.Kaytrue@epa.gov>; Tsirigotis, Peter <Tsirigotis.Peter@epa.gov>; Versace, Paul <Versace.Paul@epa.gov>; Vetter, Rick <Vetter.Rick@epa.gov>; Walker, Mike <Walker.Mike@epa.gov>; Ward, W. Robert <Ward.Robert@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>; Wilcox, Geoffrey <wilcox.geoffrey@epa.gov>; Williams, Brent <Williams.Brent@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Williamson, Timothy <Williamson.Tim@epa.gov>; Zenick, Elliott <Zenick.Elliott@epa.gov>; Wills, Jennifer <Wills.Jennifer@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Blake, Wendy <Blake.Wendy@epa.gov>; Schramm, Daniel <Schramm.Daniel@epa.gov>; Vergeront, Julie <Vergeront.Julie@epa.gov>; Tozzi, Lauren <Tozzi.Lauren@epa.gov>; Coursen, David <Coursen.David@epa.gov>; Pilchen, Zach <Pilchen.Zach@epa.gov>; Skinner-Thompson, Jonathan <Skinner-Thompson.Jonathan@epa.gov>; Vijayan, Abi <Vijayan.Abi@epa.gov>; Roder, Aileen <Roder.Aileen@epa.gov>; Walker, Denise <Walker.Denise@epa.gov>; Caballero, Kathryn <Caballero.Kathryn@epa.gov>; Thompson, Christopher <Thompson.Christopher@epa.gov>; Williams, Christopher <Williams.Christopher@epa.gov>; Matthew, Dayna <Matthew.Dayna@epa.gov>; Reid, Lauren <Reid.Lauren@epa.gov>; Hammons, Jeffrey <Hammons.Jeffrey@epa.gov>; Morris, Rachel <Morris.Rachel@epa.gov>; Nguyen, DucH <Nguyen.DucH@epa.gov>; Jordan, Deborah <Jordan.Deborah@epa.gov>; Charlton, Tom <Charlton.Tom@epa.gov>; Kulschinsky, Edward <Kulschinsky.Edward@epa.gov>; Portmess, Jessica <Portmess.Jessica@epa.gov>; Kaminer, Joan <Kaminer.Joan@epa.gov>; Kryman, Matthew <Kryman.Matthew@epa.gov>; Greenglass, Nora <Greenglass.Nora@epa.gov>; Spina, Providence <Spina.Providence@epa.gov>; Firestine, Natalie <firestine.natalie@epa.gov>; Bond, Alexander <Bond.Alexander@epa.gov>
Subject: Air & Radiation Law News for December 8, 2015



Air & Radiation Law News

for December 8, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

Beijing Issues First Red Alert for Severe Air Pollution

Beijing issued its most severe smog warning for Tuesday—the first time the municipal government has issued a so-called red pollution alert—after acrid-smelling haze returned to the Chinese capital. ...

Air Pollution

House Energy Bill Would Repeal EPA Wood Stove Standards

Energy legislation passed by the House includes language that would roll back the Environmental Protection Agency's updated emissions standards for new wood-burning heaters....

Air Pollution

N.Y. Proposes Emissions Limits for Backup Power Units

Emissions limits would be set for nitrogen oxides and particulate matter from diesel generators, gas-fired engines and other backup power sources under a proposed New York Department of Environmental Conservation rule....

Air Pollution

VW Seeks to Move Beyond Crisis Mode With Probe Results

Volkswagen AG will provide initial results of an internal investigation into emissions manipulation on Dec. 10, a sign that the automaker is coming to grips with the crisis after nearly three months....

Asbestos

Asbestos in Schools Law Needs Teeth, Senators Say

Children, teachers and others in schools remain at risk from asbestos nearly 30 years after Congress passed a law directing states to address the issue, two leading Democratic senators said in a report released Dec. 7. ...

Budget

Republicans Say More Time May Be Needed on Omnibus

House and Senate Republican leaders' plans to have a 12-bill omnibus through both chambers and on its way to the White House before a stopgap expires in a few days increasingly are in jeopardy amid an ongoing battle over the list of policy...

Climate Policy

Large Corporate Presence Seen at Paris Climate Talks

Among the dreadlocked protesters, Birkenstock-shod environmentalists and bleary-eyed negotiators gathering at the Paris climate summit, you'll find a less-expected cohort: besuited corporate types....

Climate Regulation

Concern Raised Over New Social Cost of Methane Figure

The Environmental Protection Agency's newly created social cost of methane figure has not been adequately reviewed and should not be used to justify regulating methane emissions from new oil and gas operations, industry groups said....

Elections

Sanders Climate Plan Uses Carbon Tax, No Nuclear

Sen. Bernie Sanders (I-Vt.) would push to implement a carbon tax to cut domestic greenhouse gas emissions if he is elected president, according to his climate plan released Dec. 7....

Energy

Former FERC Commissioner Joins Liquefied Natural Gas Ltd.

Former FERC Commissioner Philip Moeller has been appointed as a nonexecutive director of the Liquefied Natural Gas Ltd. board....

International Climate

All but 10 Nations Submit Pledges at Paris Climate Talks

The UN talks in Paris to rein in climate change drew unprecedented participation from world leaders, with only 10 nations deciding against issuing pledges to address greenhouse gases....

International Climate

Greenhouse Gas Pollution Seen Falling in 2015

Greenhouse gas pollution probably fell this year after slowing in 2014, the first decline during a period of strong economic growth and a boost for the effort by the United Nations to rein in climate change....

International Climate

OECD Report: Energy Emissions Remain Largely Untaxed

There are no effective taxes or other costs in place for most of the world's energy-related carbon dioxide emissions, the key source of global warming, and leaders of the world's biggest economies are unlikely to push to change that...

International Climate

Paris Climate Summit Switches to High-Level Talks

The Paris climate summit entered its second week Dec. 7 with the launch of the high-level segment of talks, where ministers from around the world will attempt to hammer out agreement on several major—and hundreds of minor—sticking...

International Climate

Rocky Road Ahead on Climate Finance at UN Talks in Paris

While nearly 200 nations still appear poised to conclude a Paris summit later this week with the first truly global climate change agreement, negotiators are struggling to nail down whether industrialized nations will agree to ramp up the...

International Climate

The Lawyers Who Trekked to Paris for Climate Change Talks

As political leaders converge in Paris this month to draft a global climate change pact, large U.S. law firms are also in the mix, hoping to influence the debate and drum up new business....

Natural Gas

Gas Leak Has Released Quarter of California's Emissions

Call it the invisible spill. You can't see it, but it's there—a steady stream of natural gas seeping out of the pipe casing in a well in Southern California that may spew as much greenhouse gas into the air as a half-million...

Renewable Energy

Clean Energy Patent Boom Unlikely to Attract Trolls

The U.S. is experiencing a boom in clean energy patents but, in interviews with Bloomberg BNA's Big Law Business, several experts didn't expect the spurt to increase frivolous patent litigation, as

has been the case in the tech industry....

Renewable Energy

EU to Look Into Possible Ethanol Price Rigging

The European Union's antitrust arm added to Abengoa SA's woes Dec. 7 by opening a formal probe into suspicions the company colluded with Alcogroup and Lantmaennen to rig ethanol benchmarks published by Platts....

Trade

EU May Renew Tariffs on Chinese Solar-Panel Makers

The European Union threatened to renew tariffs on solar panels from China, potentially rekindling what was the EU's biggest trade dispute of its kind....

Trade

EU to Promote Sustainability, Tackle Corruption Via Trade

The European Union's top trade official said the EU would seek to use trade deals as a means of promoting sustainable development, labor rights and good governance....

Inside EPA's **Risk Policy Report**, 12/08/2015

http://insideepa.com/newsletters/risk-policy-report

Latest News

EPA Advisors Suggest Need To Broaden NOx-SOx NAAQS Review Plan

EPA advisors are suggesting a need for the agency to broaden its draft plan for how to conduct a review of scientific data for a potential first-time joint nitrogen oxides (NOx) and sulfur oxides (SOx) national ambient air quality standard (NAAQS), including accounting for additional forms of nitrogen such as ammonia.

Boosting Pledges, McCarthy Says Utility Support Ensures ESPS Will 'Stick'

PARIS – EPA Administrator Gina McCarthy is highlighting the power sector's view that it can comply with the agency's landmark greenhouse gas rules for existing power plants as proof that the rule will "stick," while also seeking to reassure other countries at United Nations climate talks here that GOP attempts to block the rule ultimately will fail.

News Briefs

EPA Urged To Extend Climate ESPS FIP Comment Deadline

Utility groups and state regulators are asking EPA to extend the comment period for its proposed federal plan for implementing its greenhouse gas rule for existing power plants in noncompliant states, as well as the informal comment period for the agency's Clean Energy Incentive Program (CEIP), which they argue should also be housed under the regulatory docket.

EDF Methane Measurements Could Inform EPA Rules

A new Environmental Defense Fund (EDF) paper published Dec. 7 in the *Proceedings of the National Academy of Sciences* that reports findings from a series of methane measurement studies in Texas' Barnett Shale could inform EPA's pending first-time emissions standards for the oil and gas sector's methane releases.

Greenwire

AIR POLLUTION:

Conservative judge predicts court battle over EPA 'co-benefits'

Robin Bravender, E&E reporter

Published: Monday, December 7, 2015

As opponents sparred in court last week over the fate of a major U.S. EPA rule to slash mercury emissions, a federal judge forecast that the next big fight over the rule will center on how the agency measures so-called co-benefits.

The U.S. Court of Appeals for the District of Columbia Circuit is grappling with how to handle EPA's standards to cut power plants' emissions of mercury and other hazardous pollutants after the Supreme Court earlier this year ruled that the agency had failed to properly consider costs before it issued the rule.

During oral arguments before the appeals court Friday, Republican-appointed Judge Brett Kavanaugh pointed to concerns raised by Supreme Court Chief Justice John Roberts with EPA's

practice of counting health "co-benefits" in justifying the economic impacts of its clean air rules. Those are health benefits not directly attributable to reductions in mercury.

"He referred to that as an end-run and bootstrapping and disproportionate," Kavanaugh said of Roberts' comments. "I assume that's going to be the key battleground six months, a year from now, will be whether co-benefits are properly part of the analysis or not."

Kavanaugh and two of his Democratic-appointed colleagues are now weighing a request from industry and states to vacate EPA's rule while the agency brings it in line with the Supreme Court's ruling. But the three-judge panel on Friday appeared reluctant to gut the rule, in part because much of the industry has already made investments to comply with the standards and because EPA appears poised to reissue the same standards with revised considerations of costs (*Greenwire*, Dec. 4).

The agency has committed to fully addressing the high court's concerns by April 15, and EPA issued a proposed finding last month concluding that the benefits of its mercury standards justified the costs of the rule.

If the court agrees to keep the rule in place while EPA tweaks its finding, states and industry could return to court to challenge that finding. Kavanaugh and others have predicted that EPA's assessment of co-benefits will be a key part of their arguments.

"I think there is a pretty good chance that that will be front and center if there is a challenge" to EPA's finding that it is appropriate and necessary to regulate power plants' mercury emissions, said Jeff Holmstead, an industry attorney at Bracewell & Giuliani LLP who served as EPA's air chief during the George W. Bush administration. "A lot of people, including me, have been pretty critical of EPA relying on co-benefits to justify pretty much everything, including the Clean Power Plan."

The Clean Power Plan aims to slash greenhouse gas emissions from existing power plants. EPA has predicted the rule will lead to big cuts in soot and smog, curbing emissions of sulfur dioxide, nitrogen oxides and particulates along with reducing heat-trapping carbon dioxide. Industry contends that EPA's reliance on co-benefits double-counts health benefits for reductions of pollutants that aren't the regulation's focus.

Whether the co-benefits issue comes up in the mercury case or elsewhere, Holmstead said, "I think it will find its way into the courts."

EPA's analysis of the mercury rule found that it would cost industry $9.6 billion a year, while overall benefits would tally as much as $90 billion annually. Of those total benefits, up to $6 million would come from reduced mercury pollution. Most of the rest of the monetary benefits would stem from reductions in particulate matter, a pollutant that is not a target of the mercury rule.

During oral arguments in March, Roberts grilled the Obama administration's solicitor general, Donald Verrilli, about the analysis, suggesting EPA was using the mercury rule to get reductions in particulate matter that it wouldn't be able to otherwise under the Clean Air Act.

"It's a good thing if your regulation also benefits in other ways," Roberts said. "But when it's such a disproportion, you begin to wonder whether it's an illegitimate way of avoiding the different -- quite different limitations on EPA that apply in the criteria program."

Earthjustice attorney Jim Pew said EPA "doesn't have to consider benefits at all to satisfy the Supreme Court decision," and said industry challenges to the agency's calculations of co-benefits are "extraordinarily disingenuous."

John Walke, an attorney at the Natural Resources Defense Council, said Kavanaugh's comments Friday "could be him signaling reservations about EPA's co-benefits." But more likely, he said, it "reflects that industry has been raising that issue from day one."

Kavanaugh was the lone judge to dissent in the appeals court's divided ruling last year that upheld EPA's mercury rule before the high court shot it down.

But while Kavanaugh "has shown himself skeptical of EPA's position in this rulemaking and other rulemakings," Walke said, his "remarks from the bench won't influence what industry will do at all because they have already been doing what he is forecasting."

PARIS TALKS:

U.S., E.U. press other wealthy countries to pay their share

Lisa Friedman, E&E reporter

Published: Monday, December 7, 2015

LE BOURGET, France -- Should Qatar, the richest country in the world, help poorer nations deal with climate change? What about Singapore, the third-richest, where the gross domestic product per capita is five times higher than in Bulgaria? Or Saudi Arabia, where the average household income is higher than that of Italy, Spain and the Czech Republic?

The United States, the European Union and a growing number of vulnerable countries say yes. They are working to design language in a new climate agreement here that would upend the current structure that demands only the industrialized countries as designed in 1992 pay up.

The move is coming under fierce attack by the Group of 77 (G-77), which represents developing countries. U.S. Special Envoy for Climate Change Todd Stern today argued, though, that the poorest and most threatened by climate change should welcome the efforts.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"I think countries like the islands and the least developed countries are enthusiastically supportive. I'm not entirely sure what they do or they don't say in the councils of the G-77," he said. "What we're talking about here is to create a larger pool of funds."

At the moment, the debate is down to a battle of words. Europe wants language in a burgeoning deal to call for all countries "in a position to do so" to deliver money. Another wording option -- reportedly preferred by China -- is to ask that countries "willing to do so" write the checks.

Europeans, meanwhile argued the phrase "willing" is too wishy-washy. "Come on, seriously," one

negotiator said. "Countries like Singapore and South Korea and Bahrain? They're richer than us. How come they can't contribute?"

The answer -- like so many things in these negotiations -- lies in the age-old divisions between rich and poor nations, and the fraught nature of trying to shift those roles. Even some very poor countries like Sudan say they recognize that more countries might deliver more money in a new system but continue to argue to protect the wealthier nations in their bloc.

"Let first those who are committed, let them stick to their promises. If they are not giving, how do you expect others to give?" said Muawia Shaddad, a professor at the University of Khartoum and a member of the Pan African Climate Justice Alliance.

Ambassador Joyce Mxakato-Diseko, a South African diplomat who is chairing the G-77, complained last week that there are no criteria for countries "in a position to do so" and accused wealthy nations of trying to wriggle out of their 2009 pledge to mobilize $100 billion annually by 2020.

Saudi Arabian Minister of Petroleum Ali bin Ibrahim Al-Naimi holds a meeting on the sidelines of U.N. climate talks. His country is being asked to shoulder a greater share of the burden of helping poorer nations grapple with climate change. Photo by Lisa Friedman.

"In my family, I tell my children, 'You will clean your room.' I do not say that someone will clean the room. I say, 'You, John, will clean the room.' I say, 'You, Grace, will do the dishes.' There is no someone 'in a position to do so' will wipe the floor," Diseko said. "I need accountability, I really do need accountability. I need to know above all that the floor has been cleaned."

Meanwhile, activists who work on finance issues say they are largely in favor of efforts to expand the base of donors -- though many of them called for some set of criteria to delineate what countries do and don't have the capacity to deliver. Stern today said that's unlikely to happen.

"We think that the principle that is driving this agreement, I hope in a direction that will be successful in the end, is the notion that countries are in many respects nationally determining," he said. "The world buy-in ... is based on the notion that countries are able to make their own decisions, and I think we're going to stick with that," he said.

On the one hand, putting such language in the agreement would reflect a reality that's already happening. China has pledged $3.1 billion, more than the United States, to poor nations through a South-South Cooperation Fund, while developing countries ranging from Indonesia to Mongolia

have put money toward the Green Climate Fund.

Heather Coleman of Oxfam America said making it official in legal text is "important to send a signal that countries will continue to provide finance." At the same time, she noted, many nations are fearful that allowing language in a legal text will obligate them to deliver.

"There are some developing countries that definitely need to pony up," she said. "It's clear that countries like Singapore, countries like Qatar should be on the hook."

Meanwhile, she said, "A country like India should not be obligated to put forward finance but certainly should be encouraged to do something."

Developing nations are asking the United States and other wealthy countries to commit that a pledge to mobilize $100 billion annually by 2020 will materialize and expand, but complain that's being held hostage to a desire to break down barriers in the years afterward.

Stern described it as "all part of a package" but said he is confident countries will find common language. "We are open to various formulations," he said.

APPROPRIATIONS:

Jewell says Interior stands firm against omnibus riders

Phil Taylor, E&E reporter

Published: Monday, December 7, 2015

LAS VEGAS -- Interior Secretary Sally Jewell said Friday that her department is opposing all policy riders under consideration for a government spending bill that could undermine the Obama administration's lands, energy and wildlife policies, though she conceded that the negotiations are largely above her pay grade.

But Jewell said her Capitol Hill allies are playing a stout defense and that she believes the White House will reject one particular rider by Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska) to permit a road through the Izembek National Wildlife Refuge in Alaska.

"You can't start negotiating your own execution," Jewell said at the Western Governors' Association's winter meeting here last weekend, when asked about the administration's willingness to concede on some policy measures in order to pass a long-term spending measure.

Government funding authority ends Friday, but congressional aides have offered no signs of a breakthrough on either the spending measure or another must-pass bill to extend tax provisions (*E&E Daily*, Dec. 7).

"There are a lot of riders that would undo very, very important work that's been done over the years, including the work we've done on the sage grouse here, riders that would undo many years of work on stream protection in the context of mining," Jewell said. "We oppose those, and I think you'll see us staying together on that."

Yet Jewell also said she plays a relatively minor role in the spending bill negotiations between the White House and Senate and House leaders. Talks also involve non-Interior policy issues like U.S. EPA limits on global warming emissions and the ban on exporting crude oil, as well as non-

environmental issues including Syrian refugees.

Jewell said candidly that she "won't be party" to the highest-level discussions. "No one's calling me and saying, 'Could you give on this or could you give on that?'" Jewell said. "We have a clear focus that we don't want any of them."

Previously proposed environmental policy riders would affect Interior's protection of imperiled wildlife, including sage grouse and gray wolves, its regulation of oil and gas drilling, and its protection of streams from coal mining waste, as well as the president's ability to set aside Interior lands for permanent protection.

Murkowski last summer included a rider in the Senate's fiscal 2016 spending bill for Interior and EPA that would approve construction of a gravel road through Izembek, which she and other Alaska officials contend is critical to the safety of residents in King Cove who lack reliable access to medical care.

Jewell rejected the road and an associated land swap offer nearly two years ago in a move that infuriated Alaskans. She said the White House understands the importance of Izembek to migratory birds and a host of other wildlife.

"There's reasons that we the taxpayer have paid almost $54 million to not build this road, and the White House is well aware of that," Jewell said. "So I believe they'll stand firm with us on that."

But the road is a top priority for Murkowski, who chairs the Appropriations Committee panel that funds Interior. "I want to figure out a way to find safe passage for the people of King Cove, and I'm going to figure it out one way or another," she said last week when asked about the rider's inclusion in an omnibus.

Environmental groups are resolutely opposed to the road. "The rider would ensure irreparable damage to an internationally treasured landscape and set a precedent that would jeopardize wildlife refuge and wilderness protections on public lands across the country," said a memo released this morning by Defenders of Wildlife.

Other environmental riders believed to be on the negotiating table would block U.S. pledges to the Green Climate Fund and target the Clean Water Act jurisdiction rule, the stream protection rule, the White House's National Environmental Policy Act climate guidance, the social cost of carbon metric, Interior's proposal to overhaul public coal valuation, the new updated ozone standard, and the coal ash disposal rule.

Aides for House and Senate spending panels said this morning that negotiations continued through the weekend. One said an agreement is likely sometime this week.

However, it's unclear whether both sides will have language ready by today, as House Appropriations Committee Chairman Hal Rogers (R-Ky.) had hoped.

Reporters Corbin Hiar and Manuel Quiñones contributed.

COAL:

Dems call for tougher penalties in wake of Blankenship verdict

Manuel Quiñones, E&E reporter

Published: Monday, December 7, 2015

Congressional Democrats are calling for tougher penalties for violations of federal mine safety laws in the wake of former Massey Energy Co. CEO Don Blankenship's conviction in a safety case.

A federal jury last week found Blankenship guilty of conspiring to violate mine safety standards. The misdemeanor carries up to one year in prison (*E&ENews PM*, Dec. 3).

Even though prosecutors and groups welcomed the verdict as "unprecedented," Democratic lawmakers say it's further evidence of the need for a new mine safety law.

"I am troubled that criminal behavior involving a conspiracy to commit willful violations of mandatory mine safety and health standards can only result in a mere misdemeanor penalty that cannot exceed one year in prison even when a mine operator recklessly exposes a miner to significant risk of serious injury, serious illness or death," said Virginia Rep. Bobby Scott, top Democrat on the House Education and the Workforce Committee.

Investigations into the 2010 explosion at Massey's Upper Big Branch mine in West Virginia accused Blankenship of being more focused on profits than on safety.

"A misdemeanor sanction is a woefully insufficient deterrent for criminal conduct for an operator who repeatedly puts production ahead of safety requirements," Scott said Friday.

Democratic legislation, H.R. 1926, would impose a felony penalty, up to five years in prison and up to $1 million in fines for operators that jeopardize the lives of workers.

Mining companies and many of their allies on Capitol Hill, particularly on the Republican side, have rejected the need for new legislation. Rather, they say regulators should better use the tools already at their disposal.

The National Mining Association has also been touting its own mine safety initiative and is calling on regulators to take a more cooperative approach to enforcement.

CAMPAIGN 2016:

Sanders climate plan seeks drastic emissions reductions

Jennifer Yachnin, E&E reporter

Published: Monday, December 7, 2015

Vermont Sen. Bernie Sanders (I) today unveiled an aggressive climate change platform, vowing to enact a carbon tax in an effort to reduce greenhouse gas emissions by 80 percent by 2050, as well as pledging to "ban fossil fuels lobbyists from working in the White House" if elected.

In an expansive proposal posted to his campaign website, Sanders -- who is competing for the Democratic presidential nomination against former Secretary of State Hillary Clinton and former Maryland Gov. Martin O'Malley -- echoed his prior criticisms of the fossil fuel industry, as well as his desire to make significant federal investments in both energy efficiency and renewable resources including wind and solar power.

"Right now, we have an energy policy that is rigged to boost the profits of big oil companies like Exxon, BP, and Shell at the expense of average Americans. CEO's are raking in record profits while climate change ravages our planet and our people -- all because the wealthiest industry in the history of our planet has bribed politicians into complacency in the face of climate changes," Sanders said in a statement. "Enough is enough. It's time for a political revolution that takes on the fossil fuel billionaires, accelerates our transition to clean energy, and finally puts people before the profits of polluters."

In his plan, Sanders called for a carbon tax, an idea that has gained little traction in a Republican-controlled Congress, in an effort to cut pollution by 40 percent by 2030 and by more than 80 percent by 2050.

"Bernie will tax polluters causing the climate crisis, and return billions of dollars to working families to ensure the fossil fuel companies don't subject us to unfair rate hikes," Sanders' website states. "The carbon tax will also protect those most impacted by the transformation of our energy system and protect the most vulnerable communities in the country suffering the ravages of climate change."

A Sanders administration would also look to rein in tax benefits to the fossil fuel industry, as well as banning any oil or gas lobbyists from holding future jobs in the White House.

"Massive lobbying and unlimited Super PAC donations by the fossil fuel industry gives these profitable companies disproportionate influence on our elected leader. This practice is business as usual in Washington and it is not acceptable," Sanders said. The senator's plan also cites his support for efforts to undo recent Supreme Court decisions that gave rise to significant spending by third-party groups, as well as supporting public financing of federal elections.

Sanders likewise echoed his support for a federal investigation into whether Exxon Mobil Corp. misled the public about climate change for almost four decades, vowing to "bring climate deniers to justice so we can aggressively tackle climate change."

The senator called for a Justice Department inquiry following reports from *InsideClimate News* and a collaboration between the *Los Angeles Times* and the Columbia University Graduate School of Journalism that found Exxon discovered the threat of climate change almost 40 years ago but paid millions of dollars to keep the issue out of the public eye (*ClimateWire*, Oct. 28). Exxon has since pushed back on the validity of the reporting.

"It is an embarrassment that Republican politicians, with few exceptions, refuse to even recognize the reality of climate change, let alone are prepared to do anything about it," Sanders said.

Moratorium on nuclear

In addition, Sanders' plan focuses on making new investments in solar and wind power energy production. He said the administration would create 10 million new energy-related jobs by establishing a "100 percent clean energy system."

His proposal would also seek to curtail the use of nuclear energy, and includes a moratorium on nuclear power plant license renewals in the United States.

"Bernie believes that solar, wind, geothermal power, and energy efficiency are proven and more cost-effective than nuclear plants -- even without tax incentives -- and that the toxic waste byproducts of nuclear plants are not worth the risks of the technology's benefit," Sanders' website states.

The senator similarly vowed to ban offshore drilling, drilling in the Arctic Ocean and mountaintop coal mining.

Sanders also pledged to seek an increase in fuel economy standards, boosting requirements to 65 mpg by 2025, an increase over the current goal of 54.5 mpg by that time.

The proposals garnered immediate praise from environmentalists, including those at the Sierra Club and NextGen Climate, who have yet to endorse in the Democratic primary.

"We commend Senator Sanders for proposing this ambitious energy plan. These proposals are rooted in a clear recognition of the fact that the top priorities for a responsible energy policy are cutting dangerous carbon pollution as fast as possible, and providing even further momentum for the booming clean energy economy," Sierra Club Executive Director Michael Brune said in a statement. "We can't afford to wait a minute longer to tackle the climate crisis, or to ensure that all American families have clean air to [breathe] and clean water to drink."

But American Petroleum Institute spokesman Reid Porter dismissed Sanders' plan in a statement to *Greenwire*, asserting the senator's proposals are peppered with "false choices."

"The United States is the global leader in oil and natural gas production. We are creating millions of jobs, generating billions in revenue for the government, and we are leading the world in reducing carbon emissions. We are second to no one. Denial of this reality is preposterous, and it does a disservice to our nation's pursuit of long-term energy security and to the thousands of families who rely on affordable and reliable energy," Porter said. "It's not a matter of whether we need oil and natural gas to fuel our economy, but where will we get it. We will either continue to rely on energy from less stable parts of the world or we can focus on the developing America's abundant resources right here at home."

POLITICS:

Obama's Cabinet orchestrates sales pitch for Clean Power Plan

Jean Chemnick and Joel Kirkland, E&E reporters

Published: Monday, December 7, 2015

LE BOURGET, France -- President Obama's top advisers have arrived in force here today to begin a final push toward a global climate accord, vowing that U.S. carbon reductions are here to stay.

U.S. EPA Administrator Gina McCarthy, Energy Secretary Ernest Moniz and Secretary of State John Kerry are among the administration officials who have joined 40,000 national delegates, global warming activists and journalists gathering in this Paris suburb. Agriculture Secretary Tom Vilsack and Interior Secretary Sally Jewell participated in the first week of the U.N. summit but have since departed.

The administration's collective task is to convince a skeptical world that Obama's Climate Action Plan will survive his presidency, and it has them singing from the same hymnal.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

In an interview with *Greenwire*, McCarthy said interagency cooperation was strong in the run-up to the conference because securing an agreement is such a vital part of Obama's legacy.

"It has been incredibly seamless in terms of both planning for this event and working it through," she said. "We have coordinated doing energy Cabinet meetings totally focused across the administration on Paris."

Agencies have held a morning phone call in the lead-up to the conference to make sure they're all on the same page, and the White House has been offering guidance. "Our communications people talk to each other," McCarthy said.

McCarthy and Moniz took the same United Airlines flight Friday night, as did White House Council on Environmental Quality chief Christy Goldfuss. After landing at Charles de Gaulle Airport on Saturday morning, they made their first appearances jointly later that day, where the Cabinet members pledged the United States would make good on its commitments to cut greenhouse gas emissions.

McCarthy and Moniz told their international audience that federal carbon regulations are legally enforceable, even if Congress isn't happy with the policy and a hostile Republican president is elected in 2016.

"We have political realities in terms of how we can move forward," Moniz said today. "The president made clear -- and I think it's very important -- that ultimately we do eventually have [to have] legislation that provides an economywide approach. But in the meantime, we will emphasize executive authorities that already exist for meeting our ambitious targets."

EPA's Clean Power Plan rule to cut emissions across the electricity sector is a core policy component supporting the U.S. commitment ahead of the Paris talks to reduce emissions at least 26 percent below 2005 levels by 2025. The U.N. climate summit, led by France, is pressing for an agreement by the end of this week.

"This rule is going to stand the test of time," McCarthy said, referring to the Clean Power Plan regulations. "This rule, despite what one might read, is being actively engaged in by every state in the United States."

McCarthy and her air policy chief, Janet McCabe, who is also in Paris, have been the administration's top salespeople on climate rules for the past two years, after Obama directed the agency to get moving on power-sector regulations. As the talks enter their critical second week, McCarthy said one of her roles will be to meet with delegations and answer questions about her agency's flagship climate policy.

The power-sector regulation faces stiff opposition from Republican-led states in the South and other coal-dependent states. There are court challenges and vows to overturn the rule from nearly every candidate for the Republican presidential nomination.

But McCarthy, McCabe, White House senior climate and energy adviser Brian Deese, Senate Democrats and even some friendly electric utilities are trying to beat back any narrative that the United States might ultimately default on its climate commitments, walking away from a Paris deal as it did from the Kyoto Protocol.

McCarthy has been meeting with counterparts from other countries since the Clean Power Plan was first proposed in 2014, and many of the heads of delegation here in Le Bourget are now acquaintances.

"We have had a steady stream of countries coming in asking to understand it, is it going to last, what are all these lawsuits, what is Congress doing?" she said. She said the international community generally accepts that the rule is likely to withstand the coming challenges.

"EPA is recognized for its technological expertise in this area, as well as how well we do defending the Clean Air act and our actions," she said.

The White House has engaged extensively with China and India, the world's first- and fourth-largest carbon emitters, in hopes of paving the way for a climate deal. For that, it had to convince leaders of both countries that the U.S. economy will adopt carbon controls.

It's trying to shift discussions to the U.S. priorities for a final agreement, including establishing a five-year review period and an accountability system for checking nations' progress on cutting emissions.

Taking the stage in a grand hall inside the 19th-century Petit Palais art museum, before loud applause from global warming activists, Kerry hammered home the U.S. position that both industrialized and rich developing nations such as China and South Korea are equally responsible for slashing greenhouse gas emissions.

"We feel very strongly in the United States that in 2015, it is time to get rid of this rigid differentiation between developed and developing," Kerry said.

"It does no good to come to Paris and have a great big meeting and get out of here and say 'there are a lot of goals' if they're not being implemented and you're not moving down the road."

Kerry spoke about the need for the largest-emitting nations to play an active role in cutting emissions. The issue about "differentiation" is a critical paradigm shift for the U.N.-sponsored talks. China, India, Brazil and other big developing countries for the past two decades have insisted on being treated differently. That was put into place in the 1990s as the path forward.

Also today, former California Gov. Arnold Schwarzenegger (R) made a rousing speech before the plenary of international delegates. Meanwhile, back in a decked-out museum in central Paris, California's current governor, Jerry Brown (D), and energy-sector CEOs rallied activists.

'U.S. has taken clear action'

Any hope of Congress forging a political consensus around carbon came to a screeching halt after Obama returned from the last major U.N. climate summit in 2009. In 2010, the Senate let a House-passed carbon cap-and-trade bill die.

That history -- and the long memories of delegates who recall Senate Republicans' refusal to ratify the Kyoto accord in 1997 -- is some of the context around the administration's presence here.

"The U.S. has taken clear action," said McCabe, EPA's assistant administrator for air and radiation. "It's important that people see the United States has done that."

In a panel discussion sponsored by the Edison Electric Institute, PG&E Corp. CEO Anthony Earley said cutting U.S. emissions will rely on electric utilities and states driving toward the Clean Power Plan's target: cutting power emissions 32 percent below 2005 levels by 2030.

"From a deployment standpoint, we've shown that utilities are really the perfect organizations to leverage the scale we have in accelerating the transformation of the system."

And Earley leaned on the notion that utilities -- under some pressure from rooftop solar companies and other distributed generators -- are still the backbone of the system, warning that policymakers shouldn't "take it for granted."

The cost of implementing changes is "manageable," he asserted.

Multiple threads of discussion around deployment of energy technology are going on across Paris. And leaders here say "signals" are needed for the private sector to start spending billions on energy technology needed by India and other large developing countries.

Microsoft co-founder Bill Gates partnered with Moniz and the White House on a public-private partnership deal designed to raise billions of dollars through 2020. It would couple billions of dollars in investment from the wealthiest people in the world with a doubling of research and development spending by 20 nations. Under the plan, U.S. R&D spending on cleaner forms of energy technology would go from about $2 billion to $5 billion.

On a separate track is a call for $100 billion in financing for poor and developing countries to deploy new technology and protect themselves from the worst effects of global warming.

As this is happening, the small cadre of U.S. utility officials -- mostly sustainability officers -- is talking about Clean Power Plan implementation.

In California, deploying massive amounts of solar and wind power could eventually require a regional Western market, Earley told *Greenwire*.

"We need to create regional electricity markets," he said. "The hallmark of renewables is that they're unpredictable; we don't control them. If you have a regional market, we'll be better able to trade this clean energy."

NOTEBOOK:

Mayors wine, dine with movie stars

Lisa Friedman, Jean Chemnick and Katie Howell, E&E reporters

Published: Monday, December 7, 2015

LE BOURGET, France -- As haggard negotiators struggle to eke out a climate deal in the industrial northern suburbs of Paris, 450 mayors from around the world have been wining and dining with movie stars and ambassadors across the capital city and patting themselves on the back for doing more than the most progressive national governments could hope to achieve.

The U.S. Conference of Mayors, which sent a delegation to Paris for the climate summit, today unveiled a new report that touts the efforts of U.S. mayors as leaders on climate over the last 10 years.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"USA mayors and others throughout the world continue to lead and show that local climate action is meaningful and making a difference in curbing harmful carbon emissions," Baltimore Mayor Stephanie Rawlings-Blake, who is also president of the group, said at an event today at the residence of U.S. Ambassador to France Jane Hartley. "A number of my mayoral colleagues are already in their second decade of climate leadership. This serves as a reminder that a big part of our success in protecting our planet will turn on how well we support and accelerate local level climate action throughout the world."

The mayors on Friday met at Paris' opulent Hôtel de Ville, where they sipped fine French wine, heard from movie stars Leonardo DiCaprio and Robert Redford, and adopted the Paris City Hall Declaration, which restates local efforts to fight climate change and calls for national negotiators at the climate summit to do the same.

"Mayors are a powerful group. You are the catalysts. Be bold, be courageous -- the world is watching you," DiCaprio told the mayors Friday, according to the London *Guardian*.

Inslee, Brown knock 'knucklehead' Republicans

Governors, too, are touting their efforts to take subnational action on climate change. Govs. Jerry Brown of California and Jay Inslee of Washington, both Democrats, have advanced statewide emissions-reduction policies. And they took aim at Republicans for their continued opposition to climate action and science.

"America is really divided," Brown told an international audience in Paris this weekend. But he said that brokering an agreement would help underline how out of step U.S. Republicans are.

"Signing a good agreement will help us overcome what I call the mindless opposition, because there are a lot of people here who are not on the left who will be signing this agreement," Brown said. "And I think that idea will get through to these knuckleheads."

Inslee, who served in the House before becoming Washington's governor, said that pricing carbon would help facilitate "the green energy transition."

"On the West Coast, we live on innovation, it's our stock and trade," Inslee said. "It's what we sell as intellectual capital."

Washington state also has "knuckleheads," he said, like the state legislators who blocked his proposal to tax carbon. He now plans to use existing legal authority to cap emissions.

The two governors shared the stage with the mayors of Oakland, Calif., and Vancouver, Wash., and the environment minister of British Columbia.

China will honor its financial pledge

China will make good on its financial commitment on climate change, even if the United States doesn't, the Chinese head of delegation Su Wei told E&E.

China's head of delegation, Su Wei (left) speaking through an interpreter at the U.N. climate conference. Photo by Lisa Friedman.

Asked to comment on the U.S. Congress' insistence that the $3 billion pledge over four years that President Obama made to the Green Climate Fund will never see the light of day, Su said it would be "most unfortunate" if the money were blocked.

"It would not be positive to the atmosphere in Paris, and every leader is determined to make Paris a successful conference," he said. "The financial issue is one of the key issues that needs to be settled here in Paris.

"Having said that, China's contribution to the South-South Cooperation Fund is not dependent on what developed country parties make," he said. No matter what happens, that $3.1 billion pledge "would remain as it is now."

Inside the E.U.'s secret meeting room

Isaac Valero-Ladron, a senior adviser to the European Union's energy commissioner, gave E&E a sneak peak at the bloc's coordination room over the weekend to offer a sense of how challenging it is to develop a common position.

E.U. negotiators meet daily in this conference room to hash out agreements. Photo by Lisa Friedman.

Each morning, lead negotiators from the 28 member nations meet in the vast conference room in the European pavilion for an hour and a half, often going paragraph by paragraph through the text.

That's only the beginning of several such meetings throughout the day. What solar-loving Germany can live with on calls for decarbonization, or a 1.5-degree temperature-rise goal, for example, might be very different than that of coal-hungry Poland.

"We are not a country. We are 28 countries," Valero-Ladron said.

Overflow delegates bring flair to drab meeting rooms

Dark suits are de rigueur at the conference complex where negotiations are underway, but every now and then a splash of color can be seen -- typically around the Brazil delegation's headquarters.

Brazilian activist Jose de Lima Kaxinawa, a member of a tribe that lives in the Amazon rainforest of Brazil and Peru, is one of hundreds of "party overflow members" at the climate talks.

Brazil applies a unique open-door policy that allows anyone to join the government's delegation to the talks if they pay their own way. The nation has 800 delegates -- by far the largest number of overflow members, who wear purple stickers that indicate they can be asked to leave meetings when there isn't enough room.

The United States and China also have large representations, but they don't dress as vibrantly.

De Lima Kaxinawa has been wearing a flashy orange, yellow and red headdress and a colorful robe, according to Reuters.

Other Brazilian campaigners wear traditional dress or casual clothes. Francinara Soares Martins had on bone earrings and brightly colored feathers yesterday while handing out deforestation posters.

"We are very inclusive," Luiz Alberto Figueiredo Machado, a former Brazilian foreign minister, told Reuters of the overflow member policy.

Perhaps they should have taken the Chunnel

Green groups are blasting British leaders and negotiators for flying to the Paris negotiations.

Friends of the Earth called out Prime Minister David Cameron and International Development Secretary Justine Greening and her team for flying to the COP 21 talks last week.

The return flight from London's Heathrow airport to Paris' Charles de Gaulle emits 122 kilograms of carbon dioxide per person, according to Eurostar. By comparison, a train trip would emit 10.9 kilograms per person, Eurostar said.

"It's perfectly easy to understand that many people will find British ministers flying to a climate conference to be hypocritical," said Craig Bennett of Friends of the Earth, according to the London *Guardian*.

Pope prays for the negotiations

Pope Francis yesterday prayed for the success of the Paris negotiations.

"For the sake of the common home we share and for future generations, every efforts should be made in Paris to mitigate the impact of climate change and, at the same time, to tackle poverty and to let human dignity flourish," Francis said from the Vatican, according to Vatican radio and reported by *USA Today*.

NEGOTIATIONS:

Russia won't block a climate deal -- Putin

Published: Monday, December 7, 2015

Russian President Vladimir Putin has signaled that his negotiators will not block an agreement backed by other major countries at the U.N. climate change conference underway in Paris.

Though Russia has been a major player in global climate talks since 1992, Putin has not put much priority on environmental initiatives and has expressed skepticism about climate change (*ClimateWire*, Aug. 25, 2010).

According to Paris conference participants, however, Putin had assured German Chancellor Angela Merkel that he would not sink a deal. Russia has met with criticism for submitting an emissions goal that it has essentially already met, requiring few changes to its economy (*ClimateWire*, April 6).

Russia also stands to gain from any shift to cleaner-burning natural gas, as it has some of the largest reserves in the world (Harvey/Taylor, London *Guardian*, Dec. 7). **-- BTP**

PEOPLE:

France's top climate diplomat wears host hat, too

Published: Monday, December 7, 2015

France's top climate change negotiator must not only help work out a deal in her country's interests at the climate change conference currently underway outside of Paris, but also play the role of organized host to 196 delegations and a bevy of other attendees.

From installing lighting in each workspace that is soft and comforting to ensuring that the conference's cuisine befits France's culinary reputation to acting as a mediator between disagreeing sides over a deal, Laurence Tubiana has had a lot on her mind these past 18 months.

"This is an incredibly hard job, and she doesn't come to the job as a deeply seasoned professional diplomat," U.S. senior climate envoy Todd Stern said of Tubiana. "But using her think tank background, and the signature French Embassy events -- it all affects the larger buy-in to Paris."

Tubiana has indeed drawn on France's elegant embassies worldwide to host events and dinners with key political and business leaders and journalists to make sure everyone is on the same page (*ClimateWire*, Dec. 7). She has worked to avoid a repeat of the 2009 climate conference in Copenhagen, Denmark, where many blamed the Danish government's poor organization and lack of openness for helping sink the talks.

"Climate change is about ecosystems," Tubiana said. "Climate change negotiations are about ego-systems" (Coral Davenport, *New York Times*, Dec. 6). **-- BTP**

ENERGY EFFICIENCY:

Nations, Ikea plan looks to screw in 10B LED bulbs

Published: Monday, December 7, 2015

As a way to ratchet down the 5 percent of global emissions caused by lighting, governments such as China, India and the United States and large companies such as Ikea have pledged to fit 10 billion ultra-efficient lightbulbs worldwide.

India and China have said they will increase production and sale of light-emitting diodes, or LEDs, and Ikea, the Swedish furniture multinational, said it will stock its shelves with more energy-efficient bulbs to sell to its customers.

Pollution emitted from lighting sources makes up 15 percent of the world's electricity consumption. An overnight transition to LED lights could save approximately 735 million metric tons of emissions, or enough to displace around 250 coal-fired power plants.

"If we have 20 years of the global carbon budget left, we need to create products that are fantastically energy-efficient and roll them out to scale very fast," said Steve Howard, Ikea's chief sustainability officer (Arthur Neslen, London *Guardian*, Dec. 7). **-- AK**

SUPREME COURT:

Justices reject challenge to Colo. renewable standard

Robin Bravender, E&E reporter

Published: Monday, December 7, 2015

The Supreme Court today refused to hear an appeal in a case challenging Colorado's renewable energy standard.

In a short order issued this morning, the high court rejected a request by the anti-regulatory nonprofit Energy & Environment Legal Institute challenging Colorado's requirement that 20 percent of all electricity sold in the state come from renewable sources.

Lawyers for the nonprofit argued that the standard illegally regulated economic activity beyond the state line, and they asked the justices to take on the issue after a three-judge panel on the Denver-based 10th U.S. Circuit Court of Appeals unanimously upheld the standard earlier this year (*Greenwire*, Oct. 16).

David Schnare, an attorney representing the Energy & Environment Legal Institute in the case, said today that petitioners may ask the justices to reconsider their refusal to hear an appeal in the case, *Energy & Environment Legal Institute v. Joshua Epel*. Schnare said he believes the ruling from the 10th Circuit conflicts with another ruling from the San Francisco-based 9th U.S. Circuit Court of Appeals in the case *Sam Francis Foundation v. Christies Inc.*, regarding whether a California law regulating art sales violates the dormant Commerce Clause, which bars states from discriminating against interstate commerce.

"The major reason that they take these kinds of cases is to cure circuit splits," Schnare said.

Michael Freeman, a Colorado-based attorney at Earthjustice representing environmentalists in the case, said today that the "argument that there's a flaw in the 10th Circuit ruling is meritless." He added, "the courts have consistently rejected the theory" asserted by the Energy & Environment Legal Institute "that incidental impacts on commerce" somehow violate the dormant Commerce Clause.

No word on high-stakes water cases

Supreme Court watchers were waiting for news today about whether the justices would agree to hear pending wetlands cases, but the court has punted on making that decision.

The justices are weighing whether to hear two cases regarding whether courts can review federal regulators' determinations about which areas are subject to Clean Water Act protections. The Obama administration and property rights advocates have asked the high court to weigh in on the issue after lower courts have offered conflicting opinions. Many court watchers predict that the justices will agree to hear at least one of the cases (*Greenwire*, Oct. 30).

The justices are now expected to consider whether to take the cases, *U.S. Army Corps of Engineers v. Hawkes Co. Inc.* and *Kent Recycling Services LLC v. U.S. Army Corps of Engineers*, at their conference this Friday and may announce their decision later this week or early next week.

SCIENCE:

Climate change may not have driven Vikings from Greenland

Published: Monday, December 7, 2015

For nearly five centuries, thousands of Vikings eked out a living on Greenland's harsh shores before unexpectedly departing in the mid-15th century. Until now, their disappearance has often been

explained as a result of changing climate, but new research is raising doubts on that theory.

Norse settlement of Greenland occurred soon after the start of the "Medieval Warm Period," a 300-year period of more temperate climates in most parts of the world that was followed by the "Little Ice Age," which made weather harsher. A study published last week in *Science Advances* asserts that the changing climate was not likely a big factor in the Vikings' retreat from Greenland, since the region's glaciers appear to have been nearly as large during the Medieval Warm Period as they were during the Little Ice Age.

"This study suggests that while the Vikings may have left Iceland when it was relatively warm, they arrived in the Baffin Bay region, and it was relatively cool," said lead author Nicolás Young, a professor at Columbia University's Lamont-Doherty Earth Observatory. "So for their initial settlement, and the first few centuries when they were there, they persisted and thrived somewhat during a relatively cool climate. And so it's sort of a stretch to say that a cool climate is what drove them out of the region, when they demonstrated that they could be somewhat successful during a cool climate."

The scientists were able to measure the extent of the glaciers over time from their impressions left in the earth and could date the soil and rocks left behind as they retreated.

"There's certainly strong evidence in Europe that that was a real thing," said Young of the Medieval Warm Period. "But it's certainly not a global event; it was patchy, with quite a bit of variability" (Chris Mooney, *Washington Post*, Dec. 4). **-- BTP**

BUSINESS:

Food giants have bigger carbon footprint than some countries

Published: Monday, December 7, 2015

Global food production companies such as Cargill Inc., Tyson Foods Inc. and Yara International ASA have larger carbon footprints than many countries, including the Netherlands, Vietnam or Colombia, a new analysis shows.

The realization from Global Justice Now highlights the role the agri-food sector plays in climate change, which contributes as much as 29 percent of global emissions, although the industry has received far less attention than the energy industry in the past.

Moreover, the amount of emissions that agriculture businesses report is said to be only a fraction of actual pollutants the companies release, resulting in millions of metric tons of pollution that has been kept from the public.

According to Global Justice Now's new findings, U.S. animal feed manufacturer Cargill, for example, reports annual emissions of 15 million metric tons, but if it included growing feed crops, the number would spike to some 145 million metric tons.

Tyson, the largest beef producer in the United States, says it emits 5 million metric tons but does not include keeping livestock in that number, which would increase the amount to 34 million metric tons. Yara, one of the world's largest fertilizer producers, emits nearly 12.5 million metric tons but does not take into account its use of fertilizers, boosting that number to 75 million metric tons.

"They shouldn't be able to indulge themselves in the fiction that they are not culpable for these

indirect climate impacts," said Alex Scrivener, policy officer at Global Justice Now and co-author of the analysis (Tom Levitt, London *Guardian*, Dec. 7). **-- AK**

FEDERAL AGENCIES:

Government power consumption hits new low

Hannah Hess, E&E reporter

Published: Monday, December 7, 2015

The U.S. government, one of the largest energy consumers in the world, cut its fuel use to the lowest levels in the past 40 years, according to an U.S. Energy Information Administration analysis released today.

The decline indicates progress on President Obama's plan to reduce the greenhouse gas emissions of federal agencies and make federal buildings more efficient, EIA noted, with a decline in jet fuel consumption by the Defense Department accounting for the biggest change (*Greenwire*, Nov. 23, 2015).

As part of the plan, the White House aims to reduce per-mile greenhouse gas emissions from agency fleet vehicles by 30 percent over the next decade. Over the previous five fiscal years, greenhouse gas emissions from the federal fleet have fallen by a total of 3 percent, EIA said.

Data from the Department of Energy's Federal Energy Management Program show energy usage in fiscal 2014 -- 0.94 quadrillion British thermal units -- declined to the lowest level since the government started monitoring consumption in 1975. Energy bills totaled $23.1 billion, falling from $24 billion in 2013 (*Greenwire*, Feb. 4).

Vehicles and equipment energy usage accounted for 61 percent of all federal energy consumed, with the remainder consumed by facilities. Energy consumption by DOD made up 78 percent of total federal energy use.

Among the White House's targets is an increase in alternative-vehicle fuels in the federal fleet. Since fiscal 2010, the number of traditional gasoline-powered vehicles owned by government agencies has declined 10 percent, EIA said.

AIR POLLUTION:

Health groups press EPA for new methane emissions limits

Sean Reilly, E&E reporter

Published: Monday, December 7, 2015

U.S. EPA should forge ahead with new emissions limits for methane and volatile organic compounds (VOCs) from existing oil and natural gas operations, similar to what it is already proposing for new sources, more than 600 nurses, doctors and other health care professionals said in a letter Friday.

"We need comprehensive rules that cover existing oil and gas wells and infrastructure to reduce

methane emissions and the impact on climate," the signers told EPA Administrator Gina McCarthy. "We unite in urging EPA to move quickly to address emissions from existing sources as well."

The letter, released late Friday by the American Lung Association, fell on the final day for public comments on EPA's draft regulations to limit methane and VOC releases from new and modified oil and gas operations. Among other features, the draft, unveiled in mid-August, would require the industry to find and repair leaks and limit emissions from equipment used at natural gas transmission compressor stations (*Greenwire*, Aug. 18).

In a news release today, the Interstate Natural Gas Association of America, which represents the pipeline industry, expressed particular concern with that facet of the proposed regulations, warning that they could lead to increased methane emissions because operators would often have to "blow down" pipelines or compressors to make repairs. The news release followed some 80 pages of comments filed by the association Friday.

The oil and gas sector is the nation's largest industrial source of methane, a greenhouse gas that EPA ranks as 25 times more potent than carbon dioxide in its global warming potential. In September, the top lawyer for the agency's Office of Air and Radiation said it will become clear within the next few years whether the proposed methane rules should be broadened to cover existing facilities (*Greenwire*, Sept. 29).

CHINA:

Beijing issues 1st 'red alert' on smog

Published: Monday, December 7, 2015

Beijing officials issued the city's first-ever "red alert" over smog levels, prompting schools to close and construction to cease in the capital city.

Pollution levels in Beijing are currently lower than last week when an "orange alert" was issued, but that ranking has since been bumped in status because of projected increases in particulate matter in the coming days.

An air pollution monitor operated by the U.S. Embassy in Beijing reported that the levels of particulate matter (PM2.5) are 10 times above recommended limits. China's CCTV news channel reported that some parts of Beijing have a visibility of 660 feet.

The smog is a result of coal-powered plants and heating systems, vehicle emissions and dust from construction sites, which are lingering in the city because of humidity and a lack of wind.

The red alert has never been used before and will last until at least noon local time Thursday, when a cold front is expected to disperse the smog (BBC News, Dec. 7). **-- AK**

CLEAN POWER PLAN:

NARUC's Kavulla says federal compliance plan not acceptable to states

Published: Monday, December 7, 2015

How are legal challenges to the Clean Power Plan affecting regulators' ability to effectively plan for the future under the rule? During today's OnPoint, Travis Kavulla, president of the National Association of Regulatory Utility Commissioners and a member of the Montana Public Service Commission, discusses how his state is working toward compliance, while concurrently legally challenging the rule. He also explains why the Clean Energy Incentive Program is not being prominently considered in compliance discussions in his state.

Click here to watch today's OnPoint.

POWER PLAN HUB:

McCarthy takes power plant rule road show to Paris

Emily Holden and Rod Kuckro, E&E reporters

Published: December 7, 2015

U.S. EPA chief Gina McCarthy takes her campaign for the Clean Power Plan to Paris this week, promoting the agency's ability to achieve greenhouse gas reductions through the rule in speeches and panel discussions at the U.N. climate conference.

This weekend, McCarthy was scheduled to deliver the keynote address in a side event co-hosted by the Edison Electric Institute about charting a low-carbon course for the U.S. power sector.

POWER PLAYS

Each Monday, **Power Plays** previews upcoming moves on the way to Clean Power Plan compliance and recaps the week's developments.

Planned speakers included executives from electric utilities Pacific Gas and Electric Co. and PNM Resources Inc., as well as the president of the Center for Climate and Energy Solutions and the executive vice president of EEI.

Today, McCarthy speaks about the Clean Power Plan alongside European Commission Environmental Commissioner Miguel Arias Cañete, and tomorrow she will discuss EPA's role in delivering on President Obama's overall climate plan.

On Wednesday, EEI and the International Emissions Trading Association co-sponsor an event to highlight how utilities might use carbon trading markets to meet CPP targets.

Officials from PG&E, Calpine Corp. and Berkshire Hathaway will participate, and EPA air chief Janet McCabe will speak.

Also Wednesday, Standard & Poor's in Paris will release a report on tools the investment community can use to manage climate risk.

On Thursday, McCarthy will speak at a side event to outline how policies in the administration's Climate Action Plan will put the country on target for 2025 greenhouse gas emissions goals.

Most of the events McCarthy attends will be live-streamed. Keep an eye out for news from E&E reporters Lisa Friedman, Jean Chemnick and Joel Kirkland, all of whom are reporting from Paris.

In the United States today, EPA general counsel Avi Garbow will keynote a conference in Las Vegas on the legal implications of new power industry regulations, particularly the Clean Power Plan. *EnergyWire*'s Ellen M. Gilmer will be reporting.

On Thursday evening, the South Carolina Department of Health and Environmental Control will host in Columbia what is billed as a public engagement session on the state energy plan and EPA's Clean Power Plan.

In other news, Colorado released a schedule of upcoming meetings on the rule. Two meetings in January will focus on the Clean Energy Incentive Program. One in February in Denver will explore compliance options, and another in March will focus on demand growth cost and reliability. The state's Air Pollution Control Division also released a summary of public comments received so far and a plan development timeline.

The Kansas Corporation Commission began soliciting public comments on the CPP last week. Read more on that below.

In case you missed it:

- Pennsylvania environment chief John Quigley aims to be among first states to comply with Clean Power Plan (*ClimateWire*, Dec. 4).
- Kansas utility regulators ordered a probe of the rule and will examine options to redispatch power (*EnergyWire*, Dec. 4).
- EPA warned a federal court against granting a stay of the greenhouse gas rules and argued industry and opposing states face no irreparable harm (*E&ENews PM*, Dec. 3).
- Missouri's air regulator is nearly certain the state will favor a mass-based compliance strategy preferred by state's electric generators (*EnergyWire*, Dec. 3).
- FERC's Tony Clark says some states will be challenged to build new pipelines and transmission lines in time to comply with Clean Power Plan (*Greenwire*, Dec. 1).
- Experts say accurate estimates of Clean Power Plan costs won't be possible for years (*EnergyWire*, Nov. 30).

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Tue., December 8, 2015

READ FULL EDITION

1. SCIENCE:

Emissions of methane from the oil and gas industry vastly exceed federal government estimates, according to a

Bad news for the climate as methane leaks far surpass previous estimates

definitive study published yesterday. The study finds that daily leaks of the potent greenhouse gas from oil and gas wells in Texas' Barnett Shale matched the annual emissions of 8,000 cars.

2.NEGOTIATIONS:

Russia departs from its usual spoiler role at climate talks

LE BOURGET, France -- Everyone held their breath when Russia took the microphone. With a draft outcome of a new global climate change agreement on the table, ready to head to the world's ministers to make final high-level political decisions, the stakes Friday were high. If a country were to block it from moving forward, everything could crumble.

TODAY'S STORIES

3.NATIONS:

As China's economy cools, emissions are 'on track' to hold steady or decline

4.PUBLIC HEALTH:

Most groundwater arsenic in SE Asia coming from flooded wetlands -- study

5.REGULATION:

Clean Power Plan could muddle sound economics with politics -- state regulatory chief

6.FINANCE:

Green banks form network to underwrite global clean energy

7.POLICY:

Sanders launches climate push in Senate

8.ADVOCACY:

Climate skeptics offer 'cinematic proof' that warming is a sham

9.FOSSIL FUELS:

Czech Republic joins other countries in turning to coal

10.HEALTH:

Small islands face severe disease risks from climate change -- experts

11.RESOURCES:

10 African nations back massive reforestation plan

12.INNOVATION:

Australia launches $1B initiative to find 'technological breakthroughs'

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Tue., December 8, 2015

READ FULL EDITION

1.CLEAN POWER PLAN:

EPA lawyer looks to sway an apprehensive power industry

LAS VEGAS -- On a mission to build bridges with the power industry, U.S. EPA's top lawyer came out swinging yesterday against the politicization of the agency's latest environmental rules.

TOP STORIES

2.PARIS TALKS:
SolarCity CEO on changing the globe's incentive 'to pollute'

3.REGULATION:
Clean Power Plan could muddle sound economics with politics -- state regulatory chief

4.ENFORCEMENT:
Well near explosion has been leaking gas for years -- attorney

ELECTRICITY

5.RENEWABLES:
'Real numbers' holding up Ga. push for value of solar

6.NUCLEAR:
Toshiba reveals hits to Westinghouse finances

OIL AND GAS

7.METHANE:
New global studies meant to complement EDF emissions project

8.EMISSIONS:
EDF reconciles dueling methods for methane estimates

9.PEOPLE:
Alumnus of closing energy law behemoth joins Pittsburgh firm

10.PUBLIC HEALTH:
Colo. program now collecting oil and gas health concerns

11.RAIL:
N.D. training safety inspectors for pilot program

12.SHALE:
Colo. basin giving profits amid low oil prices

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Good, David[good.david@epa.gov]
From: Thomas, Richard (EEO)
Sent: Tue 12/8/2015 7:41:22 PM
Subject: first 2017 Fuel Economy Label

Hi Dave;

When you get a chance and can run your label audit for our first 2017 label VGA Verify index # 001 and send it on to me I would appreciate it. This is the 2017 Audi Q7 test group HVGAT03.0AUT.

Bes regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Quast, Sylvia[Quast.Sylvia@epa.gov]
From: Brooks, Phillip
Sent: Wed 12/9/2015 1:57:03 AM
Subject: Re: Air & Radiation Law News for December 8, 2015

Ex. 5, 7

Sent from my iPhone

On Dec 8, 2015, at 8:35 PM, Quast, Sylvia <Quast.Sylvia@epa.gov> wrote:

Ex. 5, 7

From: Brooks, Phillip
Sent: Tuesday, December 08, 2015 5:09 PM
To: Quast, Sylvia
Subject: Fwd: Air & Radiation Law News for December 8, 2015

Ex. 5, 7

Sent from my iPhone

Begin forwarded message:

From: "Giles-AA, Cynthia" <Giles-AA.Cynthia@epa.gov>
Date: December 8, 2015 at 1:02:06 PM EST
To: "Brooks, Phillip" <Brooks.Phillip@epa.gov>, "Shinkman, Susan" <Shinkman.Susan@epa.gov>
Cc: "Starfield, Lawrence" <Starfield.Lawrence@epa.gov>, "Wilson, Shari" <Wilson.Shari@epa.gov>
Subject: FW: Air & Radiation Law News for December 8, 2015

Ex. 5, 7

From: Turley, Jennifer
Sent: Tuesday, December 08, 2015 11:33 AM
To: Allnutt, David <Allnutt.David@epa.gov>; Anderson, Lea <anderson.lea@epa.gov>; Anderson, Steve <Anderson.Steve@epa.gov>; Aranda, Amber <aranda.amber@epa.gov>; Averback, Jonathan <Averback.Jonathan@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Bianco, Karen <Bianco.Karen@epa.gov>; Bogoshian, Matthew <Bogoshian.Matt@epa.gov>; Branning, Amy <Branning.Amy@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Chapman, Apple <Chapman.Apple@epa.gov>; Choi, Jake <Choi.Jake@epa.gov>; Cozad, David <Cozad.David@epa.gov>; Crum, Lynda <Crum.Lynda@epa.gov>; Crystal, Roy <crystal.roy@epa.gov>; Davis, Julian <davis.julian@epa.gov>; Dickinson, David <Dickinson.David@epa.gov>; Dierker, Carl <Dierker.Carl@epa.gov>; Dolph, Becky <Dolph.Becky@epa.gov>; Doster, Brian <Doster.Brian@epa.gov>; Dubey, Susmita <dubey.susmita@epa.gov>; Dubois, Roland <Dubois.Roland@epa.gov>; Frey, Bert <frey.bertram@epa.gov>; Froikin, Sara <Froikin.Sara@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>; Graham, Cheryl <Graham.Cheryl@epa.gov>; Harrison, Ben <Harrison.Ben@epa.gov>; Hoffman, Howard <hoffman.howard@epa.gov>; Hogan, Stephanie <Hogan.Stephanie@epa.gov>; Holmes, Carol <Holmes.Carol@epa.gov>; Igoe, Sheila <Igoe.Sheila@epa.gov>; Jordan, Scott <Jordan.Scott@epa.gov>; Kaplan, Robert <kaplan.robert@epa.gov>; Kataoka, Mark <Kataoka.Mark@epa.gov>; Klepp, Robert <Klepp.Robert@epa.gov>; Knapp, Kristien <Knapp.Kristien@epa.gov>; Lee, Michael <lee.michaelg@epa.gov>; Lovett, Lauren <Lovett.Lauren@epa.gov>; Mackey, Cyndy <Mackey.Cyndy@epa.gov>; Manners, Mary <manners.mary@epa.gov>; Marks, Matthew <Marks.Matthew@epa.gov>; Matthews, Julie <Matthews.Juliane@epa.gov>; McConkey, Diane <Mcconkey.Diane@epa.gov>; Mclean, Kevin <Mclean.Kevin@epa.gov>; Moore, Bruce <Moore.Bruce@epa.gov>; Morgan, Jeanette <Morgan.Jeanette@epa.gov>; Muller, Sheldon <Muller.Sheldon@epa.gov>; Niebling, William <Niebling.William@epa.gov>; Nguyen, Quoc <Nguyen.Quoc@epa.gov>; Adair, Jocelyn <Adair.Jocelyn@epa.gov>; Odendahl, Steve <Odendahl.Steve@epa.gov>; Okoye, Winifred <Okoye.Winifred@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Pastorkovich, Anne-Marie <Pastorkovich.Anne-Marie@epa.gov>; Roberts, Martha <Roberts.Martha@epa.gov>; Rodman, Sonja <Rodman.Sonja@epa.gov>; Rowland, John <Rowland.John@epa.gov>; Schaaf, Eric <Schaaf.Eric@epa.gov>; Schmidt, Lorie <Schmidt.Lorie@epa.gov>; Senn, John <Senn.John@epa.gov>; Shenkman, Ethan <Shenkman.Ethan@epa.gov>; Silverman, Steven <silverman.steven@epa.gov>; Smith, Kristi <Smith.Kristi@epa.gov>; Snyder, Doug <Snyder.Doug@epa.gov>; Srinivasan, Gautam <Srinivasan.Gautam@epa.gov>; Stahle, Susan <Stahle.Susan@epa.gov>; Starfield, Lawrence <Starfield.Lawrence@epa.gov>; Stern, Allyn <Stern.Allyn@epa.gov>; Tate, Ragan <Tate.Ragan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Tierney, Jan <tierney.jan@epa.gov>; Ting, Kaytrue <Ting.Kaytrue@epa.gov>; Tsirigotis, Peter <Tsirigotis.Peter@epa.gov>; Versace, Paul <Versace.Paul@epa.gov>; Vetter, Rick <Vetter.Rick@epa.gov>; Walker, Mike <Walker.Mike@epa.gov>; Ward, W. Robert <Ward.Robert@epa.gov>; Werner,

Jacqueline <Werner.Jacqueline@epa.gov>; Wilcox, Geoffrey <wilcox.geoffrey@epa.gov>; Williams, Brent <Williams.Brent@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Williamson, Timothy <Williamson.Tim@epa.gov>; Zenick, Elliott <Zenick.Elliott@epa.gov>; Wills, Jennifer <Wills.Jennifer@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Blake, Wendy <Blake.Wendy@epa.gov>; Schramm, Daniel <Schramm.Daniel@epa.gov>; Vergeront, Julie <Vergeront.Julie@epa.gov>; Tozzi, Lauren <Tozzi.Lauren@epa.gov>; Coursen, David <Coursen.David@epa.gov>; Pilchen, Zach <Pilchen.Zach@epa.gov>; Skinner-Thompson, Jonathan <Skinner-Thompson.Jonathan@epa.gov>; Vijayan, Abi <Vijayan.Abi@epa.gov>; Roder, Aileen <Roder.Aileen@epa.gov>; Walker, Denise <Walker.Denise@epa.gov>; Caballero, Kathryn <Caballero.Kathryn@epa.gov>; Thompson, Christopher <Thompson.Christopher@epa.gov>; Williams, Christopher <Williams.Christopher@epa.gov>; Matthew, Dayna <Matthew.Dayna@epa.gov>; Reid, Lauren <Reid.Lauren@epa.gov>; Hammons, Jeffrey <Hammons.Jeffrey@epa.gov>; Morris, Rachel <Morris.Rachel@epa.gov>; Nguyen, DucH <Nguyen.DucH@epa.gov>; Jordan, Deborah <Jordan.Deborah@epa.gov>; Charlton, Tom <Charlton.Tom@epa.gov>; Kulschinsky, Edward <Kulschinsky.Edward@epa.gov>; Portmess, Jessica <Portmess.Jessica@epa.gov>; Kaminer, Joan <Kaminer.Joan@epa.gov>; Kryman, Matthew <Kryman.Matthew@epa.gov>; Greenglass, Nora <Greenglass.Nora@epa.gov>; Spina, Providence <Spina.Providence@epa.gov>; Firestine, Natalie <firestine.natalie@epa.gov>; Bond, Alexander <Bond.Alexander@epa.gov>
Subject: Air & Radiation Law News for December 8, 2015

Air & Radiation Law News

for December 8, 2015

Bloomberg BNA

Air Pollution

Beijing Issues First Red Alert for Severe Air Pollution

Beijing issued its most severe smog warning for Tuesday—the first time the municipal government has issued a so-called red pollution alert—after acrid-smelling haze returned to the Chinese capital. ...

Air Pollution

House Energy Bill Would Repeal EPA Wood Stove Standards

Energy legislation passed by the House includes language that would roll back the Environmental Protection Agency's updated emissions standards for new wood-burning heaters....

Air Pollution

N.Y. Proposes Emissions Limits for Backup Power Units

Emissions limits would be set for nitrogen oxides and particulate matter from diesel generators, gas-fired engines and other backup power sources under a proposed New York Department of Environmental Conservation rule....

Air Pollution

VW Seeks to Move Beyond Crisis Mode With Probe Results

Volkswagen AG will provide initial results of an internal investigation into emissions manipulation on Dec. 10, a sign that the automaker is coming to grips with the crisis after nearly three months....

Asbestos

Asbestos in Schools Law Needs Teeth, Senators Say

Children, teachers and others in schools remain at risk from asbestos nearly 30 years after Congress passed a law directing states to address the issue, two leading Democratic senators said in a report released Dec. 7. ...

Budget

Republicans Say More Time May Be Needed on Omnibus

House and Senate Republican leaders' plans to have a 12-bill omnibus through both chambers and on its way to the White House before a stopgap expires in a few days increasingly are in jeopardy amid an ongoing battle over the list of policy...

Climate Policy

Large Corporate Presence Seen at Paris Climate Talks

Among the dreadlocked protesters, Birkenstock-shod environmentalists and bleary-eyed negotiators gathering at the Paris climate summit, you'll find a less-expected cohort: besuited corporate types....

Climate Regulation

Concern Raised Over New Social Cost of Methane Figure

The Environmental Protection Agency's newly created social cost of methane figure has not been adequately reviewed and should not be used to justify regulating methane emissions from new oil and gas operations, industry groups said....

Elections

Sanders Climate Plan Uses Carbon Tax, No Nuclear

Sen. Bernie Sanders (I-Vt.) would push to implement a carbon tax to cut domestic greenhouse gas emissions if he is elected president, according to his climate plan released Dec. 7....

Energy

Former FERC Commissioner Joins Liquefied Natural Gas Ltd.

Former FERC Commissioner Philip Moeller has been appointed as a nonexecutive director of the Liquefied Natural Gas Ltd. board....

International Climate

All but 10 Nations Submit Pledges at Paris Climate Talks

The UN talks in Paris to rein in climate change drew unprecedented participation from world leaders, with only 10 nations deciding against issuing pledges to address greenhouse gases....

International Climate

Greenhouse Gas Pollution Seen Falling in 2015

Greenhouse gas pollution probably fell this year after slowing in 2014, the first decline during a period of strong economic growth and a boost for the effort by the United Nations to rein in climate change....

International Climate

OECD Report: Energy Emissions Remain Largely Untaxed

There are no effective taxes or other costs in place for most of the world's energy-related carbon dioxide emissions, the key source of global warming, and leaders of the world's biggest economies are unlikely to push to change that...

International Climate

Paris Climate Summit Switches to High-Level Talks

The Paris climate summit entered its second week Dec. 7 with the launch of the high-level segment of talks, where ministers from around the world will attempt to hammer out agreement on several major—and hundreds of minor—sticking...

International Climate

Rocky Road Ahead on Climate Finance at UN Talks in Paris

While nearly 200 nations still appear poised to conclude a Paris summit later this week with the

first truly global climate change agreement, negotiators are struggling to nail down whether industrialized nations will agree to ramp up the...

International Climate

The Lawyers Who Trekked to Paris for Climate Change Talks

As political leaders converge in Paris this month to draft a global climate change pact, large U.S. law firms are also in the mix, hoping to influence the debate and drum up new business....

Natural Gas

Gas Leak Has Released Quarter of California's Emissions

Call it the invisible spill. You can't see it, but it's there—a steady stream of natural gas seeping out of the pipe casing in a well in Southern California that may spew as much greenhouse gas into the air as a half-million...

Renewable Energy

Clean Energy Patent Boom Unlikely to Attract Trolls

The U.S. is experiencing a boom in clean energy patents but, in interviews with Bloomberg BNA's Big Law Business, several experts didn't expect the spurt to increase frivolous patent litigation, as has been the case in the tech industry....

Renewable Energy

EU to Look Into Possible Ethanol Price Rigging

The European Union's antitrust arm added to Abengoa SA's woes Dec. 7 by opening a formal probe into suspicions the company colluded with Alcogroup and Lantmaennen to rig ethanol benchmarks published by Platts....

Trade

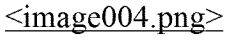
EU May Renew Tariffs on Chinese Solar-Panel Makers

The European Union threatened to renew tariffs on solar panels from China, potentially rekindling what was the EU's biggest trade dispute of its kind....

Trade

EU to Promote Sustainability, Tackle Corruption Via Trade

The European Union's top trade official said the EU would seek to use trade deals as a means of promoting sustainable development, labor rights and good governance....



Inside EPA's **Risk Policy Report**, 12/08/2015

http://insideepa.com/newsletters/risk-policy-report

Latest News

EPA Advisors Suggest Need To Broaden NOx-SOx NAAQS Review Plan

EPA advisors are suggesting a need for the agency to broaden its draft plan for how to conduct a review of scientific data for a potential first-time joint nitrogen oxides (NOx) and sulfur oxides (SOx) national ambient air quality standard (NAAQS), including accounting for additional forms of nitrogen such as ammonia.

Boosting Pledges, McCarthy Says Utility Support Ensures ESPS Will 'Stick'

PARIS – EPA Administrator Gina McCarthy is highlighting the power sector's view that it can comply with the agency's landmark greenhouse gas rules for existing power plants as proof that the rule will "stick," while also seeking to reassure other countries at United Nations climate talks here that GOP attempts to block the rule ultimately will fail.

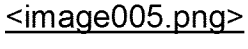
News Briefs

EPA Urged To Extend Climate ESPS FIP Comment Deadline

Utility groups and state regulators are asking EPA to extend the comment period for its proposed federal plan for implementing its greenhouse gas rule for existing power plants in noncompliant states, as well as the informal comment period for the agency's Clean Energy Incentive Program (CEIP), which they argue should also be housed under the regulatory docket.

EDF Methane Measurements Could Inform EPA Rules

A new Environmental Defense Fund (EDF) paper published Dec. 7 in the *Proceedings of the National Academy of Sciences* that reports findings from a series of methane measurement studies in Texas' Barnett Shale could inform EPA's pending first-time emissions standards for the oil and gas sector's methane releases.



AIR POLLUTION:

Conservative judge predicts court battle over EPA 'co-benefits'

Robin Bravender, E&E reporter

Published: Monday, December 7, 2015

As opponents sparred in court last week over the fate of a major U.S. EPA rule to slash mercury emissions, a federal judge forecast that the next big fight over the rule will center on how the agency measures so-called co-benefits.

The U.S. Court of Appeals for the District of Columbia Circuit is grappling with how to handle EPA's standards to cut power plants' emissions of mercury and other hazardous pollutants after the Supreme Court earlier this year ruled that the agency had failed to properly consider costs before it issued the rule.

During oral arguments before the appeals court Friday, Republican-appointed Judge Brett Kavanaugh pointed to concerns raised by Supreme Court Chief Justice John Roberts with EPA's practice of counting health "co-benefits" in justifying the economic impacts of its clean air rules. Those are health benefits not directly attributable to reductions in mercury.

"He referred to that as an end-run and bootstrapping and disproportionate," Kavanaugh said of Roberts' comments. "I assume that's going to be the key battleground six months, a year from now, will be whether co-benefits are properly part of the analysis or not."

Kavanaugh and two of his Democratic-appointed colleagues are now weighing a request from industry and states to vacate EPA's rule while the agency brings it in line with the Supreme Court's ruling. But the three-judge panel on Friday appeared reluctant to gut the rule, in part because much of the industry has already made investments to comply with the standards and because EPA appears poised to reissue the same standards with revised considerations of costs (*Greenwire*, Dec. 4).

The agency has committed to fully addressing the high court's concerns by April 15, and EPA issued a proposed finding last month concluding that the benefits of its mercury standards justified the costs of the rule.

If the court agrees to keep the rule in place while EPA tweaks its finding, states and industry could return to court to challenge that finding. Kavanaugh and others have predicted that EPA's assessment of co-benefits will be a key part of their arguments.

"I think there is a pretty good chance that that will be front and center if there is a challenge" to EPA's finding that it is appropriate and necessary to regulate power plants' mercury emissions, said Jeff Holmstead, an industry attorney at Bracewell & Giuliani LLP who served as EPA's air chief during the George W. Bush administration. "A lot of people, including me, have been

pretty critical of EPA relying on co-benefits to justify pretty much everything, including the Clean Power Plan."

The Clean Power Plan aims to slash greenhouse gas emissions from existing power plants. EPA has predicted the rule will lead to big cuts in soot and smog, curbing emissions of sulfur dioxide, nitrogen oxides and particulates along with reducing heat-trapping carbon dioxide. Industry contends that EPA's reliance on co-benefits double-counts health benefits for reductions of pollutants that aren't the regulation's focus.

Whether the co-benefits issue comes up in the mercury case or elsewhere, Holmstead said, "I think it will find its way into the courts."

EPA's analysis of the mercury rule found that it would cost industry $9.6 billion a year, while overall benefits would tally as much as $90 billion annually. Of those total benefits, up to $6 million would come from reduced mercury pollution. Most of the rest of the monetary benefits would stem from reductions in particulate matter, a pollutant that is not a target of the mercury rule.

During oral arguments in March, Roberts grilled the Obama administration's solicitor general, Donald Verrilli, about the analysis, suggesting EPA was using the mercury rule to get reductions in particulate matter that it wouldn't be able to otherwise under the Clean Air Act.

"It's a good thing if your regulation also benefits in other ways," Roberts said. "But when it's such a disproportion, you begin to wonder whether it's an illegitimate way of avoiding the different -- quite different limitations on EPA that apply in the criteria program."

Earthjustice attorney Jim Pew said EPA "doesn't have to consider benefits at all to satisfy the Supreme Court decision," and said industry challenges to the agency's calculations of co-benefits are "extraordinarily disingenuous."

John Walke, an attorney at the Natural Resources Defense Council, said Kavanaugh's comments Friday "could be him signaling reservations about EPA's co-benefits." But more likely, he said, it "reflects that industry has been raising that issue from day one."

Kavanaugh was the lone judge to dissent in the appeals court's divided ruling last year that upheld EPA's mercury rule before the high court shot it down.

But while Kavanaugh "has shown himself skeptical of EPA's position in this rulemaking and other rulemakings," Walke said, his "remarks from the bench won't influence what industry will do at all because they have already been doing what he is forecasting."

PARIS TALKS:

U.S., E.U. press other wealthy countries to pay their share

Lisa Friedman, E&E reporter

Published: Monday, December 7, 2015

LE BOURGET, France -- Should Qatar, the richest country in the world, help poorer nations deal with climate change? What about Singapore, the third-richest, where the gross domestic product per capita is five times higher than in Bulgaria? Or Saudi Arabia, where the average

household income is higher than that of Italy, Spain and the Czech Republic?

The United States, the European Union and a growing number of vulnerable countries say yes. They are working to design language in a new climate agreement here that would upend the current structure that demands only the industrialized countries as designed in 1992 pay up.

The move is coming under fierce attack by the Group of 77 (G-77), which represents developing countries. U.S. Special Envoy for Climate Change Todd Stern today argued, though, that the poorest and most threatened by climate change should welcome the efforts.

SPECIAL SERIES

<image006.jpg>

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"I think countries like the islands and the least developed countries are enthusiastically supportive. I'm not entirely sure what they do or they don't say in the councils of the G-77," he said. "What we're talking about here is to create a larger pool of funds."

At the moment, the debate is down to a battle of words. Europe wants language in a burgeoning deal to call for all countries "in a position to do so" to deliver money. Another wording option -- reportedly preferred by China -- is to ask that countries "willing to do so" write the checks.

Europeans, meanwhile argued the phrase "willing" is too wishy-washy. "Come on, seriously," one negotiator said. "Countries like Singapore and South Korea and Bahrain? They're richer than us. How come they can't contribute?"

The answer -- like so many things in these negotiations -- lies in the age-old divisions between rich and poor nations, and the fraught nature of trying to shift those roles. Even some very poor countries like Sudan say they recognize that more countries might deliver more money in a new system but continue to argue to protect the wealthier nations in their bloc.

"Let first those who are committed, let them stick to their promises. If they are not giving, how do you expect others to give?" said Muawia Shaddad, a professor at the University of Khartoum and a member of the Pan African Climate Justice Alliance.

Ambassador Joyce Mxakato-Diseko, a South African diplomat who is chairing the G-77, complained last week that there are no criteria for countries "in a position to do so" and accused wealthy nations of trying to wriggle out of their 2009 pledge to mobilize $100 billion annually by 2020.

<image007.jpg>

Saudi Arabian Minister of Petroleum Ali bin Ibrahim Al-Naimi holds a meeting on the sidelines of U.N. climate talks. His country is being asked to shoulder a greater share of the burden of helping poorer nations grapple with climate change. Photo by Lisa Friedman.

"In my family, I tell my children, 'You will clean your room.' I do not say that someone will clean the room. I say, 'You, John, will clean the room.' I say, 'You, Grace, will do the dishes.' There is

no someone 'in a position to do so' will wipe the floor," Diseko said. "I need accountability, I really do need accountability. I need to know above all that the floor has been cleaned."

Meanwhile, activists who work on finance issues say they are largely in favor of efforts to expand the base of donors -- though many of them called for some set of criteria to delineate what countries do and don't have the capacity to deliver. Stern today said that's unlikely to happen.

"We think that the principle that is driving this agreement, I hope in a direction that will be successful in the end, is the notion that countries are in many respects nationally determining," he said. "The world buy-in ... is based on the notion that countries are able to make their own decisions, and I think we're going to stick with that," he said.

On the one hand, putting such language in the agreement would reflect a reality that's already happening. China has pledged $3.1 billion, more than the United States, to poor nations through a South-South Cooperation Fund, while developing countries ranging from Indonesia to Mongolia have put money toward the Green Climate Fund.

Heather Coleman of Oxfam America said making it official in legal text is "important to send a signal that countries will continue to provide finance." At the same time, she noted, many nations are fearful that allowing language in a legal text will obligate them to deliver.

"There are some developing countries that definitely need to pony up," she said. "It's clear that countries like Singapore, countries like Qatar should be on the hook."

Meanwhile, she said, "A country like India should not be obligated to put forward finance but certainly should be encouraged to do something."

Developing nations are asking the United States and other wealthy countries to commit that a pledge to mobilize $100 billion annually by 2020 will materialize and expand, but complain that's being held hostage to a desire to break down barriers in the years afterward.

Stern described it as "all part of a package" but said he is confident countries will find common language. "We are open to various formulations," he said.

APPROPRIATIONS:

Jewell says Interior stands firm against omnibus riders

Phil Taylor, E&E reporter

Published: Monday, December 7, 2015

LAS VEGAS -- Interior Secretary Sally Jewell said Friday that her department is opposing all policy riders under consideration for a government spending bill that could undermine the Obama administration's lands, energy and wildlife policies, though she conceded that the negotiations are largely above her pay grade.

But Jewell said her Capitol Hill allies are playing a stout defense and that she believes the White House will reject one particular rider by Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska) to permit a road through the Izembek National Wildlife Refuge in Alaska.

"You can't start negotiating your own execution," Jewell said at the Western Governors' Association's winter meeting here last weekend, when asked about the administration's willingness to concede on some policy measures in order to pass a long-term spending measure.

Government funding authority ends Friday, but congressional aides have offered no signs of a breakthrough on either the spending measure or another must-pass bill to extend tax provisions (*E&E Daily*, Dec. 7).

"There are a lot of riders that would undo very, very important work that's been done over the years, including the work we've done on the sage grouse here, riders that would undo many years of work on stream protection in the context of mining," Jewell said. "We oppose those, and I think you'll see us staying together on that."

Yet Jewell also said she plays a relatively minor role in the spending bill negotiations between the White House and Senate and House leaders. Talks also involve non-Interior policy issues like U.S. EPA limits on global warming emissions and the ban on exporting crude oil, as well as non-environmental issues including Syrian refugees.

Jewell said candidly that she "won't be party" to the highest-level discussions. "No one's calling me and saying, 'Could you give on this or could you give on that?'" Jewell said. "We have a clear focus that we don't want any of them."

Previously proposed environmental policy riders would affect Interior's protection of imperiled wildlife, including sage grouse and gray wolves, its regulation of oil and gas drilling, and its protection of streams from coal mining waste, as well as the president's ability to set aside Interior lands for permanent protection.

Murkowski last summer included a rider in the Senate's fiscal 2016 spending bill for Interior and EPA that would approve construction of a gravel road through Izembek, which she and other Alaska officials contend is critical to the safety of residents in King Cove who lack reliable access to medical care.

Jewell rejected the road and an associated land swap offer nearly two years ago in a move that infuriated Alaskans. She said the White House understands the importance of Izembek to migratory birds and a host of other wildlife.

"There's reasons that we the taxpayer have paid almost $54 million to not build this road, and the White House is well aware of that," Jewell said. "So I believe they'll stand firm with us on that."

But the road is a top priority for Murkowski, who chairs the Appropriations Committee panel that funds Interior. "I want to figure out a way to find safe passage for the people of King Cove, and I'm going to figure it out one way or another," she said last week when asked about the rider's inclusion in an omnibus.

Environmental groups are resolutely opposed to the road. "The rider would ensure irreparable damage to an internationally treasured landscape and set a precedent that would jeopardize wildlife refuge and wilderness protections on public lands across the country," said a memo released this morning by Defenders of Wildlife.

Other environmental riders believed to be on the negotiating table would block U.S. pledges to

the Green Climate Fund and target the Clean Water Act jurisdiction rule, the stream protection rule, the White House's National Environmental Policy Act climate guidance, the social cost of carbon metric, Interior's proposal to overhaul public coal valuation, the new updated ozone standard, and the coal ash disposal rule.

Aides for House and Senate spending panels said this morning that negotiations continued through the weekend. One said an agreement is likely sometime this week.

However, it's unclear whether both sides will have language ready by today, as House Appropriations Committee Chairman Hal Rogers (R-Ky.) had hoped.

Reporters Corbin Hiar and Manuel Quiñones contributed.

COAL:

Dems call for tougher penalties in wake of Blankenship verdict

Manuel Quiñones, E&E reporter

Published: Monday, December 7, 2015

Congressional Democrats are calling for tougher penalties for violations of federal mine safety laws in the wake of former Massey Energy Co. CEO Don Blankenship's conviction in a safety case.

A federal jury last week found Blankenship guilty of conspiring to violate mine safety standards. The misdemeanor carries up to one year in prison (*E&ENews PM*, Dec. 3).

Even though prosecutors and groups welcomed the verdict as "unprecedented," Democratic lawmakers say it's further evidence of the need for a new mine safety law.

"I am troubled that criminal behavior involving a conspiracy to commit willful violations of mandatory mine safety and health standards can only result in a mere misdemeanor penalty that cannot exceed one year in prison even when a mine operator recklessly exposes a miner to significant risk of serious injury, serious illness or death," said Virginia Rep. Bobby Scott, top Democrat on the House Education and the Workforce Committee.

Investigations into the 2010 explosion at Massey's Upper Big Branch mine in West Virginia accused Blankenship of being more focused on profits than on safety.

"A misdemeanor sanction is a woefully insufficient deterrent for criminal conduct for an operator who repeatedly puts production ahead of safety requirements," Scott said Friday.

Democratic legislation, H.R. 1926, would impose a felony penalty, up to five years in prison and up to $1 million in fines for operators that jeopardize the lives of workers.

Mining companies and many of their allies on Capitol Hill, particularly on the Republican side, have rejected the need for new legislation. Rather, they say regulators should better use the tools already at their disposal.

The National Mining Association has also been touting its own mine safety initiative and is calling on regulators to take a more cooperative approach to enforcement.

CAMPAIGN 2016:

Sanders climate plan seeks drastic emissions reductions

Jennifer Yachnin, E&E reporter

Published: Monday, December 7, 2015

Vermont Sen. Bernie Sanders (I) today unveiled an aggressive climate change platform, vowing to enact a carbon tax in an effort to reduce greenhouse gas emissions by 80 percent by 2050, as well as pledging to "ban fossil fuels lobbyists from working in the White House" if elected.

In an expansive proposal posted to his campaign website, Sanders -- who is competing for the Democratic presidential nomination against former Secretary of State Hillary Clinton and former Maryland Gov. Martin O'Malley -- echoed his prior criticisms of the fossil fuel industry, as well as his desire to make significant federal investments in both energy efficiency and renewable resources including wind and solar power.

"Right now, we have an energy policy that is rigged to boost the profits of big oil companies like Exxon, BP, and Shell at the expense of average Americans. CEO's are raking in record profits while climate change ravages our planet and our people -- all because the wealthiest industry in the history of our planet has bribed politicians into complacency in the face of climate changes," Sanders said in a statement. "Enough is enough. It's time for a political revolution that takes on the fossil fuel billionaires, accelerates our transition to clean energy, and finally puts people before the profits of polluters."

In his plan, Sanders called for a carbon tax, an idea that has gained little traction in a Republican-controlled Congress, in an effort to cut pollution by 40 percent by 2030 and by more than 80 percent by 2050.

"Bernie will tax polluters causing the climate crisis, and return billions of dollars to working families to ensure the fossil fuel companies don't subject us to unfair rate hikes," Sanders' website states. "The carbon tax will also protect those most impacted by the transformation of our energy system and protect the most vulnerable communities in the country suffering the ravages of climate change."

A Sanders administration would also look to rein in tax benefits to the fossil fuel industry, as well as banning any oil or gas lobbyists from holding future jobs in the White House.

"Massive lobbying and unlimited Super PAC donations by the fossil fuel industry gives these profitable companies disproportionate influence on our elected leader. This practice is business as usual in Washington and it is not acceptable," Sanders said. The senator's plan also cites his support for efforts to undo recent Supreme Court decisions that gave rise to significant spending by third-party groups, as well as supporting public financing of federal elections.

Sanders likewise echoed his support for a federal investigation into whether Exxon Mobil Corp. misled the public about climate change for almost four decades, vowing to "bring climate deniers to justice so we can aggressively tackle climate change."

The senator called for a Justice Department inquiry following reports from *InsideClimate News* and a collaboration between the *Los Angeles Times* and the Columbia University Graduate School of Journalism that found Exxon discovered the threat of climate change almost 40 years ago but paid millions of dollars to keep the issue out of the public eye (*ClimateWire*, Oct. 28). Exxon has since pushed back on the validity of the reporting.

"It is an embarrassment that Republican politicians, with few exceptions, refuse to even recognize the reality of climate change, let alone are prepared to do anything about it," Sanders said.

Moratorium on nuclear

In addition, Sanders' plan focuses on making new investments in solar and wind power energy production. He said the administration would create 10 million new energy-related jobs by establishing a "100 percent clean energy system."

His proposal would also seek to curtail the use of nuclear energy, and includes a moratorium on nuclear power plant license renewals in the United States.

"Bernie believes that solar, wind, geothermal power, and energy efficiency are proven and more cost-effective than nuclear plants -- even without tax incentives -- and that the toxic waste byproducts of nuclear plants are not worth the risks of the technology's benefit," Sanders' website states.

The senator similarly vowed to ban offshore drilling, drilling in the Arctic Ocean and mountaintop coal mining.

Sanders also pledged to seek an increase in fuel economy standards, boosting requirements to 65 mpg by 2025, an increase over the current goal of 54.5 mpg by that time.

The proposals garnered immediate praise from environmentalists, including those at the Sierra Club and NextGen Climate, who have yet to endorse in the Democratic primary.

"We commend Senator Sanders for proposing this ambitious energy plan. These proposals are rooted in a clear recognition of the fact that the top priorities for a responsible energy policy are cutting dangerous carbon pollution as fast as possible, and providing even further momentum for the booming clean energy economy," Sierra Club Executive Director Michael Brune said in a statement. "We can't afford to wait a minute longer to tackle the climate crisis, or to ensure that all American families have clean air to [breathe] and clean water to drink."

But American Petroleum Institute spokesman Reid Porter dismissed Sanders' plan in a statement to *Greenwire*, asserting the senator's proposals are peppered with "false choices."

"The United States is the global leader in oil and natural gas production. We are creating millions of jobs, generating billions in revenue for the government, and we are leading the world in reducing carbon emissions. We are second to no one. Denial of this reality is preposterous, and it does a disservice to our nation's pursuit of long-term energy security and to the thousands of families who rely on affordable and reliable energy," Porter said. "It's not a matter of whether we need oil and natural gas to fuel our economy, but where will we get it. We will either continue to rely on energy from less stable parts of the world or we can focus on the developing America's abundant resources right here at home."

POLITICS:

Obama's Cabinet orchestrates sales pitch for Clean Power Plan

Jean Chemnick and Joel Kirkland, E&E reporters

Published: Monday, December 7, 2015

LE BOURGET, France -- President Obama's top advisers have arrived in force here today to begin a final push toward a global climate accord, vowing that U.S. carbon reductions are here to stay.

U.S. EPA Administrator Gina McCarthy, Energy Secretary Ernest Moniz and Secretary of State John Kerry are among the administration officials who have joined 40,000 national delegates, global warming activists and journalists gathering in this Paris suburb. Agriculture Secretary Tom Vilsack and Interior Secretary Sally Jewell participated in the first week of the U.N. summit but have since departed.

The administration's collective task is to convince a skeptical world that Obama's Climate Action Plan will survive his presidency, and it has them singing from the same hymnal.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

In an interview with *Greenwire*, McCarthy said interagency cooperation was strong in the run-up to the conference because securing an agreement is such a vital part of Obama's legacy.

"It has been incredibly seamless in terms of both planning for this event and working it through," she said. "We have coordinated doing energy Cabinet meetings totally focused across the administration on Paris."

Agencies have held a morning phone call in the lead-up to the conference to make sure they're all on the same page, and the White House has been offering guidance. "Our communications people talk to each other," McCarthy said.

McCarthy and Moniz took the same United Airlines flight Friday night, as did White House Council on Environmental Quality chief Christy Goldfuss. After landing at Charles de Gaulle Airport on Saturday morning, they made their first appearances jointly later that day, where the Cabinet members pledged the United States would make good on its commitments to cut greenhouse gas emissions.

McCarthy and Moniz told their international audience that federal carbon regulations are legally enforceable, even if Congress isn't happy with the policy and a hostile Republican president is elected in 2016.

"We have political realities in terms of how we can move forward," Moniz said today. "The

president made clear -- and I think it's very important -- that ultimately we do eventually have [to have] legislation that provides an economywide approach. But in the meantime, we will emphasize executive authorities that already exist for meeting our ambitious targets."

EPA's Clean Power Plan rule to cut emissions across the electricity sector is a core policy component supporting the U.S. commitment ahead of the Paris talks to reduce emissions at least 26 percent below 2005 levels by 2025. The U.N. climate summit, led by France, is pressing for an agreement by the end of this week.

"This rule is going to stand the test of time," McCarthy said, referring to the Clean Power Plan regulations. "This rule, despite what one might read, is being actively engaged in by every state in the United States."

McCarthy and her air policy chief, Janet McCabe, who is also in Paris, have been the administration's top salespeople on climate rules for the past two years, after Obama directed the agency to get moving on power-sector regulations. As the talks enter their critical second week, McCarthy said one of her roles will be to meet with delegations and answer questions about her agency's flagship climate policy.

The power-sector regulation faces stiff opposition from Republican-led states in the South and other coal-dependent states. There are court challenges and vows to overturn the rule from nearly every candidate for the Republican presidential nomination.

But McCarthy, McCabe, White House senior climate and energy adviser Brian Deese, Senate Democrats and even some friendly electric utilities are trying to beat back any narrative that the United States might ultimately default on its climate commitments, walking away from a Paris deal as it did from the Kyoto Protocol.

McCarthy has been meeting with counterparts from other countries since the Clean Power Plan was first proposed in 2014, and many of the heads of delegation here in Le Bourget are now acquaintances.

"We have had a steady stream of countries coming in asking to understand it, is it going to last, what are all these lawsuits, what is Congress doing?" she said. She said the international community generally accepts that the rule is likely to withstand the coming challenges.

"EPA is recognized for its technological expertise in this area, as well as how well we do defending the Clean Air act and our actions," she said.

The White House has engaged extensively with China and India, the world's first- and fourth-largest carbon emitters, in hopes of paving the way for a climate deal. For that, it had to convince leaders of both countries that the U.S. economy will adopt carbon controls.

It's trying to shift discussions to the U.S. priorities for a final agreement, including establishing a five-year review period and an accountability system for checking nations' progress on cutting emissions.

Taking the stage in a grand hall inside the 19th-century Petit Palais art museum, before loud applause from global warming activists, Kerry hammered home the U.S. position that both industrialized and rich developing nations such as China and South Korea are equally responsible for slashing greenhouse gas emissions.

"We feel very strongly in the United States that in 2015, it is time to get rid of this rigid differentiation between developed and developing," Kerry said.

"It does no good to come to Paris and have a great big meeting and get out of here and say 'there are a lot of goals' if they're not being implemented and you're not moving down the road."

Kerry spoke about the need for the largest-emitting nations to play an active role in cutting emissions. The issue about "differentiation" is a critical paradigm shift for the U.N.-sponsored talks. China, India, Brazil and other big developing countries for the past two decades have insisted on being treated differently. That was put into place in the 1990s as the path forward.

Also today, former California Gov. Arnold Schwarzenegger (R) made a rousing speech before the plenary of international delegates. Meanwhile, back in a decked-out museum in central Paris, California's current governor, Jerry Brown (D), and energy-sector CEOs rallied activists.

'U.S. has taken clear action'

Any hope of Congress forging a political consensus around carbon came to a screeching halt after Obama returned from the last major U.N. climate summit in 2009. In 2010, the Senate let a House-passed carbon cap-and-trade bill die.

That history -- and the long memories of delegates who recall Senate Republicans' refusal to ratify the Kyoto accord in 1997 -- is some of the context around the administration's presence here.

"The U.S. has taken clear action," said McCabe, EPA's assistant administrator for air and radiation. "It's important that people see the United States has done that."

In a panel discussion sponsored by the Edison Electric Institute, PG&E Corp. CEO Anthony Earley said cutting U.S. emissions will rely on electric utilities and states driving toward the Clean Power Plan's target: cutting power emissions 32 percent below 2005 levels by 2030.

"From a deployment standpoint, we've shown that utilities are really the perfect organizations to leverage the scale we have in accelerating the transformation of the system."

And Earley leaned on the notion that utilities -- under some pressure from rooftop solar companies and other distributed generators -- are still the backbone of the system, warning that policymakers shouldn't "take it for granted."

The cost of implementing changes is "manageable," he asserted.

Multiple threads of discussion around deployment of energy technology are going on across Paris. And leaders here say "signals" are needed for the private sector to start spending billions on energy technology needed by India and other large developing countries.

Microsoft co-founder Bill Gates partnered with Moniz and the White House on a public-private partnership deal designed to raise billions of dollars through 2020. It would couple billions of dollars in investment from the wealthiest people in the world with a doubling of research and development spending by 20 nations. Under the plan, U.S. R&D spending on cleaner forms of energy technology would go from about $2 billion to $5 billion.

On a separate track is a call for $100 billion in financing for poor and developing countries to deploy new technology and protect themselves from the worst effects of global warming.

As this is happening, the small cadre of U.S. utility officials -- mostly sustainability officers -- is talking about Clean Power Plan implementation.

In California, deploying massive amounts of solar and wind power could eventually require a regional Western market, Earley told *Greenwire*.

"We need to create regional electricity markets," he said. "The hallmark of renewables is that they're unpredictable; we don't control them. If you have a regional market, we'll be better able to trade this clean energy."

NOTEBOOK:

Mayors wine, dine with movie stars

Lisa Friedman, Jean Chemnick and Katie Howell, E&E reporters

Published: Monday, December 7, 2015

LE BOURGET, France -- As haggard negotiators struggle to eke out a climate deal in the industrial northern suburbs of Paris, 450 mayors from around the world have been wining and dining with movie stars and ambassadors across the capital city and patting themselves on the back for doing more than the most progressive national governments could hope to achieve.

The U.S. Conference of Mayors, which sent a delegation to Paris for the climate summit, today unveiled a new report that touts the efforts of U.S. mayors as leaders on climate over the last 10 years.

SPECIAL SERIES

<image006.jpg>

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"USA mayors and others throughout the world continue to lead and show that local climate action is meaningful and making a difference in curbing harmful carbon emissions," Baltimore Mayor Stephanie Rawlings-Blake, who is also president of the group, said at an event today at the residence of U.S. Ambassador to France Jane Hartley. "A number of my mayoral colleagues are already in their second decade of climate leadership. This serves as a reminder that a big part of our success in protecting our planet will turn on how well we support and accelerate local level climate action throughout the world."

The mayors on Friday met at Paris' opulent Hôtel de Ville, where they sipped fine French wine, heard from movie stars Leonardo DiCaprio and Robert Redford, and adopted the Paris City Hall Declaration, which restates local efforts to fight climate change and calls for national negotiators at the climate summit to do the same.

"Mayors are a powerful group. You are the catalysts. Be bold, be courageous -- the world is watching you," DiCaprio told the mayors Friday, according to the London *Guardian*.

Inslee, Brown knock 'knucklehead' Republicans

Governors, too, are touting their efforts to take subnational action on climate change. Govs. Jerry Brown of California and Jay Inslee of Washington, both Democrats, have advanced statewide emissions-reduction policies. And they took aim at Republicans for their continued opposition to climate action and science.

"America is really divided," Brown told an international audience in Paris this weekend. But he said that brokering an agreement would help underline how out of step U.S. Republicans are.

"Signing a good agreement will help us overcome what I call the mindless opposition, because there are a lot of people here who are not on the left who will be signing this agreement," Brown said. "And I think that idea will get through to these knuckleheads."

Inslee, who served in the House before becoming Washington's governor, said that pricing carbon would help facilitate "the green energy transition."

"On the West Coast, we live on innovation, it's our stock and trade," Inslee said. "It's what we sell as intellectual capital."

Washington state also has "knuckleheads," he said, like the state legislators who blocked his proposal to tax carbon. He now plans to use existing legal authority to cap emissions.

The two governors shared the stage with the mayors of Oakland, Calif., and Vancouver, Wash., and the environment minister of British Columbia.

China will honor its financial pledge

China will make good on its financial commitment on climate change, even if the United States doesn't, the Chinese head of delegation Su Wei told E&E.

<image008.jpg>

China's head of delegation, Su Wei (left) speaking through an interpreter at the U.N. climate conference. Photo by Lisa Friedman.

Asked to comment on the U.S. Congress' insistence that the $3 billion pledge over four years that President Obama made to the Green Climate Fund will never see the light of day, Su said it would be "most unfortunate" if the money were blocked.

"It would not be positive to the atmosphere in Paris, and every leader is determined to make Paris a successful conference," he said. "The financial issue is one of the key issues that needs to be settled here in Paris.

"Having said that, China's contribution to the South-South Cooperation Fund is not dependent on what developed country parties make," he said. No matter what happens, that $3.1 billion pledge "would remain as it is now."

Inside the E.U.'s secret meeting room

Isaac Valero-Ladron, a senior adviser to the European Union's energy commissioner, gave E&E a sneak peak at the bloc's coordination room over the weekend to offer a sense of how

challenging it is to develop a common position.

<image009.jpg>

E.U. negotiators meet daily in this conference room to hash out agreements. Photo by Lisa Friedman.

Each morning, lead negotiators from the 28 member nations meet in the vast conference room in the European pavilion for an hour and a half, often going paragraph by paragraph through the text.

That's only the beginning of several such meetings throughout the day. What solar-loving Germany can live with on calls for decarbonization, or a 1.5-degree temperature-rise goal, for example, might be very different than that of coal-hungry Poland.

"We are not a country. We are 28 countries," Valero-Ladron said.

Overflow delegates bring flair to drab meeting rooms

Dark suits are de rigueur at the conference complex where negotiations are underway, but every now and then a splash of color can be seen -- typically around the Brazil delegation's headquarters.

Brazilian activist Jose de Lima Kaxinawa, a member of a tribe that lives in the Amazon rainforest of Brazil and Peru, is one of hundreds of "party overflow members" at the climate talks.

Brazil applies a unique open-door policy that allows anyone to join the government's delegation to the talks if they pay their own way. The nation has 800 delegates -- by far the largest number of overflow members, who wear purple stickers that indicate they can be asked to leave meetings when there isn't enough room.

The United States and China also have large representations, but they don't dress as vibrantly.

De Lima Kaxinawa has been wearing a flashy orange, yellow and red headdress and a colorful robe, according to Reuters.

Other Brazilian campaigners wear traditional dress or casual clothes. Francinara Soares Martins had on bone earrings and brightly colored feathers yesterday while handing out deforestation posters.

"We are very inclusive," Luiz Alberto Figueiredo Machado, a former Brazilian foreign minister, told Reuters of the overflow member policy.

Perhaps they should have taken the Chunnel

Green groups are blasting British leaders and negotiators for flying to the Paris negotiations.

Friends of the Earth called out Prime Minister David Cameron and International Development Secretary Justine Greening and her team for flying to the COP 21 talks last week.

The return flight from London's Heathrow airport to Paris' Charles de Gaulle emits 122 kilograms of carbon dioxide per person, according to Eurostar. By comparison, a train trip

would emit 10.9 kilograms per person, Eurostar said.

"It's perfectly easy to understand that many people will find British ministers flying to a climate conference to be hypocritical," said Craig Bennett of Friends of the Earth, according to the London *Guardian*.

Pope prays for the negotiations

Pope Francis yesterday prayed for the success of the Paris negotiations.

"For the sake of the common home we share and for future generations, every efforts should be made in Paris to mitigate the impact of climate change and, at the same time, to tackle poverty and to let human dignity flourish," Francis said from the Vatican, according to Vatican radio and reported by *USA Today*.

NEGOTIATIONS:

Russia won't block a climate deal -- Putin

Published: Monday, December 7, 2015

Russian President Vladimir Putin has signaled that his negotiators will not block an agreement backed by other major countries at the U.N. climate change conference underway in Paris.

Though Russia has been a major player in global climate talks since 1992, Putin has not put much priority on environmental initiatives and has expressed skepticism about climate change (*ClimateWire*, Aug. 25, 2010).

According to Paris conference participants, however, Putin had assured German Chancellor Angela Merkel that he would not sink a deal. Russia has met with criticism for submitting an emissions goal that it has essentially already met, requiring few changes to its economy (*ClimateWire*, April 6).

Russia also stands to gain from any shift to cleaner-burning natural gas, as it has some of the largest reserves in the world (Harvey/Taylor, London *Guardian*, Dec. 7). **-- BTP**

PEOPLE:

France's top climate diplomat wears host hat, too

Published: Monday, December 7, 2015

France's top climate change negotiator must not only help work out a deal in her country's interests at the climate change conference currently underway outside of Paris, but also play the role of organized host to 196 delegations and a bevy of other attendees.

From installing lighting in each workspace that is soft and comforting to ensuring that the conference's cuisine befits France's culinary reputation to acting as a mediator between disagreeing sides over a deal, Laurence Tubiana has had a lot on her mind these past 18 months.

"This is an incredibly hard job, and she doesn't come to the job as a deeply seasoned professional diplomat," U.S. senior climate envoy Todd Stern said of Tubiana. "But using her think tank background, and the signature French Embassy events -- it all affects the larger buy-in to Paris."

Tubiana has indeed drawn on France's elegant embassies worldwide to host events and dinners with key political and business leaders and journalists to make sure everyone is on the same page (*ClimateWire*, Dec. 7). She has worked to avoid a repeat of the 2009 climate conference in Copenhagen, Denmark, where many blamed the Danish government's poor organization and lack of openness for helping sink the talks.

"Climate change is about ecosystems," Tubiana said. "Climate change negotiations are about ego-systems" (Coral Davenport, *New York Times*, Dec. 6). **-- BTP**

ENERGY EFFICIENCY:

Nations, Ikea plan looks to screw in 10B LED bulbs

Published: Monday, December 7, 2015

As a way to ratchet down the 5 percent of global emissions caused by lighting, governments such as China, India and the United States and large companies such as Ikea have pledged to fit 10 billion ultra-efficient lightbulbs worldwide.

India and China have said they will increase production and sale of light-emitting diodes, or LEDs, and Ikea, the Swedish furniture multinational, said it will stock its shelves with more energy-efficient bulbs to sell to its customers.

Pollution emitted from lighting sources makes up 15 percent of the world's electricity consumption. An overnight transition to LED lights could save approximately 735 million metric tons of emissions, or enough to displace around 250 coal-fired power plants.

"If we have 20 years of the global carbon budget left, we need to create products that are fantastically energy-efficient and roll them out to scale very fast," said Steve Howard, Ikea's chief sustainability officer (Arthur Neslen, London *Guardian*, Dec. 7). **-- AK**

SUPREME COURT:

Justices reject challenge to Colo. renewable standard

Robin Bravender, E&E reporter

Published: Monday, December 7, 2015

The Supreme Court today refused to hear an appeal in a case challenging Colorado's renewable energy standard.

In a short order issued this morning, the high court rejected a request by the anti-regulatory nonprofit Energy & Environment Legal Institute challenging Colorado's requirement that 20 percent of all electricity sold in the state come from renewable sources.

Lawyers for the nonprofit argued that the standard illegally regulated economic activity beyond the state line, and they asked the justices to take on the issue after a three-judge panel on the Denver-based 10th U.S. Circuit Court of Appeals unanimously upheld the standard earlier this year (*Greenwire*, Oct. 16).

David Schnare, an attorney representing the Energy & Environment Legal Institute in the case, said today that petitioners may ask the justices to reconsider their refusal to hear an appeal in the case, *Energy & Environment Legal Institute v. Joshua Epel*. Schnare said he believes the ruling from the 10th Circuit conflicts with another ruling from the San Francisco-based 9th U.S. Circuit Court of Appeals in the case *Sam Francis Foundation v. Christies Inc.*, regarding whether a California law regulating art sales violates the dormant Commerce Clause, which bars states from discriminating against interstate commerce.

"The major reason that they take these kinds of cases is to cure circuit splits," Schnare said.

Michael Freeman, a Colorado-based attorney at Earthjustice representing environmentalists in the case, said today that the "argument that there's a flaw in the 10th Circuit ruling is meritless." He added, "the courts have consistently rejected the theory" asserted by the Energy & Environment Legal Institute "that incidental impacts on commerce" somehow violate the dormant Commerce Clause.

No word on high-stakes water cases

Supreme Court watchers were waiting for news today about whether the justices would agree to hear pending wetlands cases, but the court has punted on making that decision.

The justices are weighing whether to hear two cases regarding whether courts can review federal regulators' determinations about which areas are subject to Clean Water Act protections. The Obama administration and property rights advocates have asked the high court to weigh in on the issue after lower courts have offered conflicting opinions. Many court watchers predict that the justices will agree to hear at least one of the cases (*Greenwire*, Oct. 30).

The justices are now expected to consider whether to take the cases, *U.S. Army Corps of Engineers v. Hawkes Co. Inc.* and *Kent Recycling Services LLC v. U.S. Army Corps of Engineers*, at their conference this Friday and may announce their decision later this week or early next week.

SCIENCE:

Climate change may not have driven Vikings from Greenland

Published: Monday, December 7, 2015

For nearly five centuries, thousands of Vikings eked out a living on Greenland's harsh shores before unexpectedly departing in the mid-15th century. Until now, their disappearance has often been explained as a result of changing climate, but new research is raising doubts on that theory.

Norse settlement of Greenland occurred soon after the start of the "Medieval Warm Period," a 300-year period of more temperate climates in most parts of the world that was followed by the "Little Ice Age," which made weather harsher. A study published last week in *Science*

Advances asserts that the changing climate was not likely a big factor in the Vikings' retreat from Greenland, since the region's glaciers appear to have been nearly as large during the Medieval Warm Period as they were during the Little Ice Age.

"This study suggests that while the Vikings may have left Iceland when it was relatively warm, they arrived in the Baffin Bay region, and it was relatively cool," said lead author Nicolás Young, a professor at Columbia University's Lamont-Doherty Earth Observatory. "So for their initial settlement, and the first few centuries when they were there, they persisted and thrived somewhat during a relatively cool climate. And so it's sort of a stretch to say that a cool climate is what drove them out of the region, when they demonstrated that they could be somewhat successful during a cool climate."

The scientists were able to measure the extent of the glaciers over time from their impressions left in the earth and could date the soil and rocks left behind as they retreated.

"There's certainly strong evidence in Europe that that was a real thing," said Young of the Medieval Warm Period. "But it's certainly not a global event; it was patchy, with quite a bit of variability" (Chris Mooney, *Washington Post*, Dec. 4). **-- BTP**

BUSINESS:

Food giants have bigger carbon footprint than some countries

Published: Monday, December 7, 2015

Global food production companies such as Cargill Inc., Tyson Foods Inc. and Yara International ASA have larger carbon footprints than many countries, including the Netherlands, Vietnam or Colombia, a new analysis shows.

The realization from Global Justice Now highlights the role the agri-food sector plays in climate change, which contributes as much as 29 percent of global emissions, although the industry has received far less attention than the energy industry in the past.

Moreover, the amount of emissions that agriculture businesses report is said to be only a fraction of actual pollutants the companies release, resulting in millions of metric tons of pollution that has been kept from the public.

According to Global Justice Now's new findings, U.S. animal feed manufacturer Cargill, for example, reports annual emissions of 15 million metric tons, but if it included growing feed crops, the number would spike to some 145 million metric tons.

Tyson, the largest beef producer in the United States, says it emits 5 million metric tons but does not include keeping livestock in that number, which would increase the amount to 34 million metric tons. Yara, one of the world's largest fertilizer producers, emits nearly 12.5 million metric tons but does not take into account its use of fertilizers, boosting that number to 75 million metric tons.

"They shouldn't be able to indulge themselves in the fiction that they are not culpable for these indirect climate impacts," said Alex Scrivener, policy officer at Global Justice Now and co-author of the analysis (Tom Levitt, London *Guardian*, Dec. 7). **-- AK**

FEDERAL AGENCIES:

Government power consumption hits new low

Hannah Hess, E&E reporter

Published: Monday, December 7, 2015

The U.S. government, one of the largest energy consumers in the world, cut its fuel use to the lowest levels in the past 40 years, according to an U.S. Energy Information Administration analysis released today.

The decline indicates progress on President Obama's plan to reduce the greenhouse gas emissions of federal agencies and make federal buildings more efficient, EIA noted, with a decline in jet fuel consumption by the Defense Department accounting for the biggest change (*Greenwire*, Nov. 23, 2015).

As part of the plan, the White House aims to reduce per-mile greenhouse gas emissions from agency fleet vehicles by 30 percent over the next decade. Over the previous five fiscal years, greenhouse gas emissions from the federal fleet have fallen by a total of 3 percent, EIA said.

Data from the Department of Energy's Federal Energy Management Program show energy usage in fiscal 2014 -- 0.94 quadrillion British thermal units -- declined to the lowest level since the government started monitoring consumption in 1975. Energy bills totaled $23.1 billion, falling from $24 billion in 2013 (*Greenwire*, Feb. 4).

Vehicles and equipment energy usage accounted for 61 percent of all federal energy consumed, with the remainder consumed by facilities. Energy consumption by DOD made up 78 percent of total federal energy use.

Among the White House's targets is an increase in alternative-vehicle fuels in the federal fleet. Since fiscal 2010, the number of traditional gasoline-powered vehicles owned by government agencies has declined 10 percent, EIA said.

AIR POLLUTION:

Health groups press EPA for new methane emissions limits

Sean Reilly, E&E reporter

Published: Monday, December 7, 2015

U.S. EPA should forge ahead with new emissions limits for methane and volatile organic compounds (VOCs) from existing oil and natural gas operations, similar to what it is already proposing for new sources, more than 600 nurses, doctors and other health care professionals said in a letter Friday.

"We need comprehensive rules that cover existing oil and gas wells and infrastructure to reduce methane emissions and the impact on climate," the signers told EPA Administrator Gina McCarthy. "We unite in urging EPA to move quickly to address emissions from existing sources as well."

The letter, released late Friday by the American Lung Association, fell on the final day for public comments on EPA's draft regulations to limit methane and VOC releases from new and modified oil and gas operations. Among other features, the draft, unveiled in mid-August, would require the industry to find and repair leaks and limit emissions from equipment used at natural gas transmission compressor stations (*Greenwire*, Aug. 18).

In a news release today, the Interstate Natural Gas Association of America, which represents the pipeline industry, expressed particular concern with that facet of the proposed regulations, warning that they could lead to increased methane emissions because operators would often have to "blow down" pipelines or compressors to make repairs. The news release followed some 80 pages of comments filed by the association Friday.

The oil and gas sector is the nation's largest industrial source of methane, a greenhouse gas that EPA ranks as 25 times more potent than carbon dioxide in its global warming potential. In September, the top lawyer for the agency's Office of Air and Radiation said it will become clear within the next few years whether the proposed methane rules should be broadened to cover existing facilities (*Greenwire*, Sept. 29).

CHINA:

Beijing issues 1st 'red alert' on smog

Published: Monday, December 7, 2015

Beijing officials issued the city's first-ever "red alert" over smog levels, prompting schools to close and construction to cease in the capital city.

Pollution levels in Beijing are currently lower than last week when an "orange alert" was issued, but that ranking has since been bumped in status because of projected increases in particulate matter in the coming days.

An air pollution monitor operated by the U.S. Embassy in Beijing reported that the levels of particulate matter (PM2.5) are 10 times above recommended limits. China's CCTV news channel reported that some parts of Beijing have a visibility of 660 feet.

The smog is a result of coal-powered plants and heating systems, vehicle emissions and dust from construction sites, which are lingering in the city because of humidity and a lack of wind.

The red alert has never been used before and will last until at least noon local time Thursday, when a cold front is expected to disperse the smog (BBC News, Dec. 7). **-- AK**

CLEAN POWER PLAN:

NARUC's Kavulla says federal compliance plan not acceptable to states

Published: Monday, December 7, 2015

How are legal challenges to the Clean Power Plan affecting regulators' ability to effectively plan for the future under the rule? During today's OnPoint, Travis Kavulla, president of the National Association of Regulatory Utility Commissioners and a member of the Montana Public

Service Commission, discusses how his state is working toward compliance, while concurrently legally challenging the rule. He also explains why the Clean Energy Incentive Program is not being prominently considered in compliance discussions in his state.

Click here to watch today's OnPoint.

POWER PLAN HUB:

McCarthy takes power plant rule road show to Paris

Emily Holden and Rod Kuckro, E&E reporters

Published: December 7, 2015

U.S. EPA chief Gina McCarthy takes her campaign for the Clean Power Plan to Paris this week, promoting the agency's ability to achieve greenhouse gas reductions through the rule in speeches and panel discussions at the U.N. climate conference.

This weekend, McCarthy was scheduled to deliver the keynote address in a side event co-hosted by the Edison Electric Institute about charting a low-carbon course for the U.S. power sector.

<image010.jpg>

Each Monday, **Power Plays** previews upcoming moves on the way to Clean Power Plan compliance and recaps the week's developments.

Planned speakers included executives from electric utilities Pacific Gas and Electric Co. and PNM Resources Inc., as well as the president of the Center for Climate and Energy Solutions and the executive vice president of EEI.

Today, McCarthy speaks about the Clean Power Plan alongside European Commission Environmental Commissioner Miguel Arias Cañete, and tomorrow she will discuss EPA's role in delivering on President Obama's overall climate plan.

On Wednesday, EEI and the International Emissions Trading Association co-sponsor an event to highlight how utilities might use carbon trading markets to meet CPP targets.

Officials from PG&E, Calpine Corp. and Berkshire Hathaway will participate, and EPA air chief Janet McCabe will speak.

Also Wednesday, Standard & Poor's in Paris will release a report on tools the investment community can use to manage climate risk.

On Thursday, McCarthy will speak at a side event to outline how policies in the administration's Climate Action Plan will put the country on target for 2025 greenhouse gas emissions goals.

Most of the events McCarthy attends will be live-streamed. Keep an eye out for news from E&E reporters Lisa Friedman, Jean Chemnick and Joel Kirkland, all of whom are reporting from Paris.

In the United States today, EPA general counsel Avi Garbow will keynote a conference in Las Vegas on the legal implications of new power industry regulations, particularly the Clean Power Plan. *EnergyWire*'s Ellen M. Gilmer will be reporting.

On Thursday evening, the South Carolina Department of Health and Environmental Control will host in Columbia what is billed as a public engagement session on the state energy plan and EPA's Clean Power Plan.

In other news, Colorado released a schedule of upcoming meetings on the rule. Two meetings in January will focus on the Clean Energy Incentive Program. One in February in Denver will explore compliance options, and another in March will focus on demand growth cost and reliability. The state's Air Pollution Control Division also released a summary of public comments received so far and a plan development timeline.

The Kansas Corporation Commission began soliciting public comments on the CPP last week. Read more on that below.

In case you missed it:

?□□□□□□□□ Pennsylvania environment chief John Quigley aims to be among first states to comply with Clean Power Plan (*ClimateWire*, Dec. 4).

?□□□□□□□□ Kansas utility regulators ordered a probe of the rule and will examine options to redispatch power (*EnergyWire*, Dec. 4).

?□□□□□□□□ EPA warned a federal court against granting a stay of the greenhouse gas rules and argued industry and opposing states face no irreparable harm (*E&ENews PM*, Dec. 3).

?□□□□□□□□ Missouri's air regulator is nearly certain the state will favor a mass-based compliance strategy preferred by state's electric generators (*EnergyWire*, Dec. 3).

?□□□□□□□□ FERC's Tony Clark says some states will be challenged to build new pipelines and transmission lines in time to comply with Clean Power Plan (*Greenwire*, Dec. 1).

?□□□□□□□□ Experts say accurate estimates of Clean Power Plan costs won't be possible for years (*EnergyWire*, Nov. 30).

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Tue., December 8, 2015

READ FULL EDITION

1.SCIENCE:

Bad news for the climate as methane leaks far surpass previous estimates

Emissions of methane from the oil and gas industry vastly exceed federal government estimates, according to a definitive study published yesterday. The study finds that daily leaks of the potent greenhouse gas from oil and gas wells in Texas' Barnett Shale matched the annual emissions of 8,000 cars.

2.NEGOTIATIONS:

Russia departs from its usual spoiler role at climate talks

LE BOURGET, France -- Everyone held their breath when Russia took the microphone. With a draft outcome of a new global climate change agreement on the table, ready to head to the world's ministers to make final high-level political decisions, the stakes Friday were high. If a country were to block it from moving forward, everything could crumble.

TODAY'S STORIES

3.NATIONS:

As China's economy cools, emissions are 'on track' to hold steady or decline

4.PUBLIC HEALTH:

Most groundwater arsenic in SE Asia coming from flooded wetlands -- study

5.REGULATION:

Clean Power Plan could muddle sound economics with politics -- state regulatory chief

6.FINANCE:

Green banks form network to underwrite global clean energy

7.POLICY:

Sanders launches climate push in Senate

8.ADVOCACY:

Climate skeptics offer 'cinematic proof' that warming is a sham

9.FOSSIL FUELS:

Czech Republic joins other countries in turning to coal

10.HEALTH:

Small islands face severe disease risks from climate change -- experts

11.RESOURCES:

10 African nations back massive reforestation plan

12.INNOVATION:

Australia launches $1B initiative to find 'technological breakthroughs'

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Tue., December 8, 2015

READ FULL EDITION

1.CLEAN POWER PLAN:

EPA lawyer looks to sway an apprehensive power industry

LAS VEGAS -- On a mission to build bridges with the power industry, U.S. EPA's top lawyer came out swinging yesterday against the politicization of the agency's latest environmental rules.

TOP STORIES

2.PARIS TALKS:

SolarCity CEO on changing the globe's incentive 'to pollute'

3.REGULATION:

Clean Power Plan could muddle sound economics with politics -- state regulatory chief

4.ENFORCEMENT:

Well near explosion has been leaking gas for years -- attorney

ELECTRICITY

5.RENEWABLES:

'Real numbers' holding up Ga. push for value of solar

6.NUCLEAR:

Toshiba reveals hits to Westinghouse finances

OIL AND GAS

7.METHANE:

New global studies meant to complement EDF emissions project

8.EMISSIONS:

EDF reconciles dueling methods for methane estimates

9.PEOPLE:

Alumnus of closing energy law behemoth joins Pittsburgh firm

10.PUBLIC HEALTH:

Colo. program now collecting oil and gas health concerns

11.RAIL:

N.D. training safety inspectors for pilot program

12.SHALE:

Colo. basin giving profits amid low oil prices

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

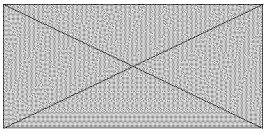
U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Bunker, Byron[bunker.byron@epa.gov]
From: Transportation Law360
Sent: Wed 12/9/2015 9:17:13 AM
Subject: 11th Circ. Sides With Insurer Over 'Employee' Coverage



TRANSPORTATION

Wednesday, December 9, 2015

TOP NEWS

11th Circ. Sides With Insurer Over 'Employee' Coverage

The Eleventh Circuit affirmed Tuesday that Progressive Mountain Insurance Co. doesn't have to defend a trucking company against an injured worker's claims because its policy excluded claims by "employees," even though the injured man was technically an independent contractor.

Transpo Project Process Reforms Underway, House Panel Told

Federal and state highway officials reassured House lawmakers on Tuesday that they're streamlining permitting processes and reducing bureaucratic redundancies to help get transportation projects off the ground quicker, saying they're making good on fulfilling their mandates under the last highway funding authorization law.

Volkswagen Emissions Fraud MDL Consolidated In California

The Judicial Panel on Multidistrict Litigation on Tuesday consolidated more than 500 suits accusing Volkswagen of cheating emissions standards, saying California federal court in San Francisco is the best venue given that nearly one-fifth of the suits were filed in the Golden State.

Lawmakers Nearing Deal On Customs Enforcement Bill

Congressional leaders on Monday said they are close to an agreement on a bill that will beef up trade enforcement at the nation's ports, signaling the end of months of intense debate between the House and the Senate over the legislation's provisions on duty evasion and currency manipulation.

Santa Monica Hit With Airport Landing Fees Class Action

The city of Santa Monica was hit with a putative class action in California state court Monday alleging it failed to give adequate public notice of newly adopted ordinances that allowed the city to impose "illegal" landing and fuel flowage fees at its municipal airport.

AVIATION

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple

US Drags China To WTO Over Aircraft Tax Exemptions

The Obama administration on Tuesday slapped China with a new World Trade Organization case, targeting a raft policies in Beijing that impose steep taxes on imported aircraft while exempting locally manufactured planes from the same measures.

5 Firms Take Lead In Airline Ticket Antitrust Row

A New York federal court Monday approved five firms as interim co-lead counsel for a proposed class of airline passengers accusing several ticket distribution companies of forming a cartel that led to higher ticket prices.

Deals Rumor Mill: Yahoo, Verizon, Airbus Group

Yahoo won't spin off its massive $30 billion stake in Alibaba Group Holding Ltd., Verizon may look into buying Yahoo's core business, and Airbus Group is seeking buyers for Vector Aerospace Corp.

AUTOMOTIVE

GM Told Other Switch Evidence OK In Ignition Bellwether

A New York federal judge on Monday said a driver could introduce evidence of ignition switches other than the type at issue in the bellwether trial in multidistrict litigation over General Motors' defective ignition switches, as the company has admitted elsewhere that some switches were identical.

NHTSA Ramps Up Probe Of Air Bag Problems In 630K Jeeps

The National Highway Traffic and Safety Administration has launched a deeper investigation into about 630,000 Jeep Wranglers over the possibility that an electrical problem can prevent driver's-side air bags from deploying on impact.

Ex-GM Franchisee Says Ally Unethically Shuttered Dealers

Ally Financial Inc. on Monday removed to North Carolina federal court a lawsuit brought by the owner of a defunct General Motors dealership who says the lending institution and automaker conspired to illegally and unscrupulously force his dealership and others located outside major metropolitan areas out of business.

DOT Proposes Update Of 5-Star Vehicle Safety Rating Tests

The U.S. Department of Transportation says it plans to update and add new testing requirements and protocols to the National Highway Traffic Safety Administration's 5-star safety rating system used to test the safety of new vehicles, according to a statement issued by the agency Tuesday.

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple Inc.

CIGNA Corporat

CSX Corporat

Canadian Pacific Railway Limited

PTAB Axes 'Identical' Bid To Review Car Camera Patent

The Patent Trial and Appeal Board refused French auto parts maker Valeo SA an inter partes review of a rear-view camera patent, saying Monday the board already took up the company's previous, nearly identical IPR request for the patent and deemed it valid.

RAIL

Norfolk Southern Snubs Revised Bid From Canadian Pacific

U.S. rail company Norfolk Southern Corp. on Tuesday rejected a revised takeover offer from hedge fund-backed Canadian Pacific Railway Ltd., saying the new bid is even worse than the original $28.4 billion proposal, which Norfolk shot down last week.

Rail Cos. Fight To Keep Expert In Play In Price-Fixing Row

Rail carriers involved in now-stalled multidistrict litigation over railroad fuel surcharges have blasted an attempt by the proposed class of rail shippers to exclude their expert, maintaining that the shippers' "sham" motion was not made in good faith, according to documents released Monday from a D.C. federal court.

Pa. Judge Sends Mitsubishi Rail Car Venture Fight To NY

A Pennsylvania federal judge backed Mitsubishi Electric Corp.'s bid to transfer a multimillion-dollar spat over a spoiled joint venture to New York on Tuesday, finding that train systems manufacturer Westcode Inc. was not the first to file suit.

LOGISTICS

FedEx Claims Deja Vu In Driver Classification Suit At DC Circ.

FedEx has told the D.C. Circuit that a case challenging the National Labor Relations Board's classification of delivery drivers as employees rather than as independent contractors is "indistinguishable" from a 2009 case in which the court ruled in FedEx's favor, arguing that precedent hasn't changed in the meantime.

FedEx Wants To Know Drug Shipping Grand Jury Instructions

FedEx Corp. told a California federal court Tuesday that it thinks the grand jury instructions in a criminal case accusing the company of colluding with illegal online pharmacies to deliver prescription drugs were erroneous and urged the court to disclose certain instructions despite prosecutors' protests.

Logistics Co. Can't Trim $3.7M Suit Over Cost Estimates

A Pennsylvania federal judge ruled Monday that a transportation logistics provider can't narrow a plastic container manufacturer's $3.7 million lawsuit accusing the company of misrepresenting the cost of contracted services, saying a pair of misrepresentation claims

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple Inc.

CIGNA Corporat

CSX Corporat

Canadian Pacific Railway Limited

are sufficiently distinct from the suit's contract claims to survive.

MARITIME

Fla. Canal Isn't Navigable Waterway, 11th Circ. Told

Florida's Miami-Dade County urged the Eleventh Circuit on Monday to affirm a lower court's dismissal of a negligence suit that sought to apply federal maritime law to a canal 7 miles inland, saying the trial judge correctly ruled the waterway is not navigable and she lacked jurisdiction.

W.Va. Restaurant Barge's Sinking Not Covered, Insurer Says

A Markel Corp. insurer asked a West Virginia federal court on Friday to let it off the hook from covering the cost of a waterfront restaurant that sunk into the Ohio river, saying the business that owned the barge wasn't the policyholder.

INFRASTRUCTURE

NH Gov. Raises Doubts Over $5B Kinder Morgan Pipeline

New Hampshire Gov. Maggie Hassan has urged the Federal Energy Regulatory Commission to either take steps to address the concerns of affected local communities or consider blocking Kinder Morgan's $5 billion Northeast Energy Direct natural gas pipeline project from moving forward.

Ex-Official Says La. Contract Relevant To Chicago Bribe Case

A former Chicago official accused of accepting bribes from a red-light camera vendor told a federal judge Tuesday that testimony about a contract in Louisiana with the same vendor should be allowed at his trial, saying allegations there raised questions about the motivations of company executives testifying for the government.

Caltrans Says Tribe's Bypass Suit Is Related To Enviro Case

The California Department of Transportation urged a federal judge Tuesday to hear a recent complaint brought by two Native American tribes challenging Caltrans' $300 million highway project after the judge handed the agency a win in an earlier suit by Northern California environmental groups, claiming conflicting rulings could result if the cases remain separate.

LEGAL INDUSTRY

5 Reasons You'll Never Make Equity Partner

Early in your legal career, you may have set your sights on BigLaw's gold ring: an equity partnership at a white-shoe firm. But even the best-laid plans sometimes go awry.

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple Inc.

CIGNA Corporat

CSX Corporat

Canadian Pacific Railway Limited

3 Tips For A Smooth Post-Merger Integration

For some of the law firms inspired by this year's merger mania, it can be easy to get so caught up in deal negotiations that the important — and hard — work of actually combining can get short shrift. Here, experts give their top three tips for a smooth post-merger integration process.

Bryan Cave Pressed Maxim Deal Amid Red Flags, Jury Hears

A former Bryan Cave LLP attorney facing criminal charges over a failed acquisition of Maxim magazine told a New York federal jury Tuesday that the firm had instructed him to continue working on the deal even after a lender raised concerns about possible fraud.

BigLaw Gets In Lockstep With Cravath Bonuses

A gaggle of BigLaw firms fell in lockstep late Monday and Tuesday with the associate bonus scale set by Cravath Swaine & Moore LLP, the first firm this year to come out of the gates with payout figures.

Reid Accuses Republicans Of Blocking Latino Judicial Noms

Senate Minority Leader Harry Reid accused chamber Republicans Tuesday of "obstruction" in delaying federal judicial confirmations and contended the tactic disproportionately affected Latino nominees, including a Third Circuit candidate who has been waiting more than a year.

Cigna, Orrick Atty Agree To Mediate False Claims Row

Cigna has voluntarily dismissed its complaint against an Orrick Herrington & Sutcliffe LLP attorney who the insurer had accused of filing hundreds of thousands of dollars in false insurance claims, with the parties opting for mediation, according to a Tuesday filing in Virginia federal court.

New Philly Bar Chief Slams Legal Services Tax, Nominee Delay

The incoming chancellor of the Philadelphia Bar Association told a roomful of legal luminaries on Tuesday that they could not become complacent in the face of professional threats including both a legal services tax that nearly passed the Pennsylvania Senate last month and continued delays in confirming federal judges.

JOBS
Search full listings or **advertise your job opening**

Center for Biologica Diversity Inc.

Chrysler Group

Comcast Corporat

FedEx Corporat

Foxconn

General Motors

Google Inc.

Graduate Manager Admissic Council

Graham Packagir Co. Inc.

Internatic Associati of Machinis and Aerospac Workers

Internatic Brotherh of Teamste

JPMorga Chase & Co.

Johnson & Johnson

Kinder Morgan

Markel Corporat

Mitsubish Electric Corp.

National

Associati
of
Manufac

New
York
Times
Co.

Norfolk
Southerr
Corporat

Redflex
Traffic
Systems

Sabre
Holdings
Corp.

Sharp
Corp.

Sierra
Club

Starboar
Value
LP

TMX
Group
Ltd.

Target
Corporat

Transpla
Texas
LP

Tyson
Foods
Inc.

U.S.
Chambe
of
Commer

Ultimate
Fighting

Champic

United Parcel Service Inc.

United Steelwor

Valeo SA

Verizon Commur

Volkswa

Yahoo! Inc.

Zachry Construc Corp.

Zeughau Group LLC

LAW FIRMS

Akin Gump

Alston & Bird

Andrews Kurth

Baker & McKenzi

Barley Snyder

Barrack Rodos & Bacine

Bennett Jones

Berger & Montagu

Brooks Pierce

Bryan Cave

Carlock Copelan

Carpente Lipps

Cleary Gottlieb

Cotchett Pitre

Covingto & Burling

Cravath Swaine

Crowell & Moring

Davis Polk

Debevois & Plimpton

Fine Kaplan

Freed Kanner

Freedma Boyd

Fried Frank

Gibson Dunn

Girard Gibbs

Grant & Eisenhof

Hagens Berman

Hangley Aronchic

Harris O'Brien

Hausfeld

Heins Mills

Hellmuth & Johnson

Heninge Garrison

Hilliard Munoz

Jenner & Block

Jones Day

Joseph Saveri Law Firm

Kantor & Kantor

Kaye Scholer

Kirkland & Ellis

Knapp Petersen

Latham & Watkins

Lieff Cabraser

Lipcon Margulie

Lite DePalma

Littler Mendels

Mayer Brown

Milbank Tweed

Morgan Lewis

Morris Polich

Nelson Mullins

Orrick Herringtc

Osha Liang

Paul Weiss

Pietragal Gordon

Pion Nerone

Quinn Emanuel

Sidley

Austin

Simpson Thacher

Skadden

Spector Rosemar

Steptoe & Johnson LLP

Sterne Kessler

Stinson Leonard

Swanson Martin

Thompsc Hine

Van Ness

GOVERN AGENCI

Army Corps of Engineer

Californi Departm of Transpor

Coyote Valley Band of Pomo Indians

Departm of Commer

Environn

Protectio
Agency

Federal
Bureau
of
Investiga

Federal
Energy
Regulato
Commiss

Federal
Highway
Administ

National
Highway
Traffic
Safety
Administ

National
Labor
Relations
Board

Round
Valley
Indian
Tribes

Surface
Transpor
Board

U.S.
Attorney'
Office

U.S.
Departm
of
Justice

U.S.
Departm
of
Transpor

U.S.
Patent

and
Tradema
Office

U.S.
Supreme
Court

COMPANIES
FedEx Corporation

General Motors

Sierra Club

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organizations

American Road & Transportation Builders Association

American Trucking Associations Inc.

Apple Inc.

CIGNA Corporation

CSX Corporation

Canadian Pacific Railway Limited

Center for Biological Diversity Inc.

Chrysler Group

Comcast Corporation

Foxconn

Google Inc.

Graduate Management Admission Council

Graham Packaging Co. Inc.

International Association of Machinists and Aerospace Workers

International Brotherhood of Teamsters

JPMorgan Chase & Co.

Johnson & Johnson

Kinder Morgan

Markel Corporation

Mitsubishi Electric Corp.

National Association of Manufacturers

New York Times Co.

Norfolk Southern Corporation

Redflex Traffic Systems

Sabre Holdings Corp.

Sharp Corp.

Starboard Value LP

TMX Group Ltd.

Target Corporation

Transplace Texas LP

Tyson Foods Inc.

U.S. Chamber of Commerce

Ultimate Fighting Championship

United Parcel Service Inc.

United Steelworkers

Valeo SA

Verizon Communications

Volkswagen

Yahoo! Inc.

Zachry Construction Corp.

Zeughauser Group LLC

LAW FIRMS
Skadden

Hagens Berman

Cleary Gottlieb

Girard Gibbs

Mayer Brown

Quinn Emanuel

Simpson Thacher

Steptoe & Johnson LLP

Akin Gump

Alston & Bird

Andrews Kurth

Baker & McKenzie

Barley Snyder

Barrack Rodos & Bacine

Bennett Jones

Berger & Montague

Brooks Pierce

Bryan Cave

Carlock Copeland

Carpenter Lipps

Cotchett Pitre

Covington & Burling

Cravath Swaine

Crowell & Moring

Davis Polk

Debevoise & Plimpton

Fine Kaplan

Freed Kanner

Freedman Boyd

Fried Frank

Gibson Dunn

Grant & Eisenhofer

Hangley Aronchick

Harris O'Brien

Hausfeld

Heins Mills

Hellmuth & Johnson

Heninger Garrison

Hilliard Munoz

Jenner & Block

Jones Day

Joseph Saveri Law Firm

Kantor & Kantor

Kaye Scholer

Kirkland & Ellis

Knapp Petersen

Latham & Watkins

Lieff Cabraser

Lipcon Margulies

Lite DePalma

Littler Mendelson

Milbank Tweed

Morgan Lewis

Morris Polich

Nelson Mullins

Orrick Herrington

Osha Liang

Paul Weiss

Pietragallo Gordon

Pion Nerone

Sidley Austin

Spector Roseman

Sterne Kessler

Stinson Leonard

Swanson Martin

Thompson Hine

Van Ness

GOVERNMENT AGENCIES
National Highway Traffic Safety Administration

Federal Highway Administration

U.S. Department of Transportation

Army Corps of Engineers

California Department of Transportation

Coyote Valley Band of Pomo Indians

Department of Commerce

Environmental Protection Agency

Federal Bureau of Investigation

Federal Energy Regulatory Commission

National Labor Relations Board

Round Valley Indian Tribes

Surface Transportation Board

U.S. Attorney's Office

U.S. Department of Justice

U.S. Patent and Trademark Office

U.S. Supreme Court

JOBS
Search full listings or **advertise your job opening**

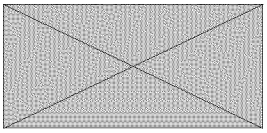
Not sure if your firm subscribes? Ask your librarian.

We hope you found this message to be useful.
However, if you'd rather not receive future emails of this sort,
you may unsubscribe here.

Please DO NOT reply to this email. For customer support inquiries, please call 1-646-783-7100 or visit our Contact Us page.

Law360 | Portfolio Media, Inc, 860 Broadway, New York, New York 10003

To: Wehrly, Linc[wehrly.linc@epa.gov]
From: Transportation Law360
Sent: Wed 12/9/2015 9:31:17 AM
Subject: 11th Circ. Sides With Insurer Over 'Employee' Coverage



TRANSPORTATION

Wednesday, December 9, 2015

TOP NEWS

11th Circ. Sides With Insurer Over 'Employee' Coverage

The Eleventh Circuit affirmed Tuesday that Progressive Mountain Insurance Co. doesn't have to defend a trucking company against an injured worker's claims because its policy excluded claims by "employees," even though the injured man was technically an independent contractor.

Transpo Project Process Reforms Underway, House Panel Told

Federal and state highway officials reassured House lawmakers on Tuesday that they're streamlining permitting processes and reducing bureaucratic redundancies to help get transportation projects off the ground quicker, saying they're making good on fulfilling their mandates under the last highway funding authorization law.

Volkswagen Emissions Fraud MDL Consolidated In California

The Judicial Panel on Multidistrict Litigation on Tuesday consolidated more than 500 suits accusing Volkswagen of cheating emissions standards, saying California federal court in San Francisco is the best venue given that nearly one-fifth of the suits were filed in the Golden State.

Lawmakers Nearing Deal On Customs Enforcement Bill

Congressional leaders on Monday said they are close to an agreement on a bill that will beef up trade enforcement at the nation's ports, signaling the end of months of intense debate between the House and the Senate over the legislation's provisions on duty evasion and currency manipulation.

Santa Monica Hit With Airport Landing Fees Class Action

The city of Santa Monica was hit with a putative class action in California state court Monday alleging it failed to give adequate public notice of newly adopted ordinances that allowed the city to impose "illegal" landing and fuel flowage fees at its municipal airport.

AVIATION

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple

US Drags China To WTO Over Aircraft Tax Exemptions

The Obama administration on Tuesday slapped China with a new World Trade Organization case, targeting a raft policies in Beijing that impose steep taxes on imported aircraft while exempting locally manufactured planes from the same measures.

5 Firms Take Lead In Airline Ticket Antitrust Row

A New York federal court Monday approved five firms as interim co-lead counsel for a proposed class of airline passengers accusing several ticket distribution companies of forming a cartel that led to higher ticket prices.

Deals Rumor Mill: Yahoo, Verizon, Airbus Group

Yahoo won't spin off its massive $30 billion stake in Alibaba Group Holding Ltd., Verizon may look into buying Yahoo's core business, and Airbus Group is seeking buyers for Vector Aerospace Corp.

AUTOMOTIVE

GM Told Other Switch Evidence OK In Ignition Bellwether

A New York federal judge on Monday said a driver could introduce evidence of ignition switches other than the type at issue in the bellwether trial in multidistrict litigation over General Motors' defective ignition switches, as the company has admitted elsewhere that some switches were identical.

NHTSA Ramps Up Probe Of Air Bag Problems In 630K Jeeps

The National Highway Traffic and Safety Administration has launched a deeper investigation into about 630,000 Jeep Wranglers over the possibility that an electrical problem can prevent driver's-side air bags from deploying on impact.

Ex-GM Franchisee Says Ally Unethically Shuttered Dealers

Ally Financial Inc. on Monday removed to North Carolina federal court a lawsuit brought by the owner of a defunct General Motors dealership who says the lending institution and automaker conspired to illegally and unscrupulously force his dealership and others located outside major metropolitan areas out of business.

DOT Proposes Update Of 5-Star Vehicle Safety Rating Tests

The U.S. Department of Transportation says it plans to update and add new testing requirements and protocols to the National Highway Traffic Safety Administration's 5-star safety rating system used to test the safety of new vehicles, according to a statement issued by the agency Tuesday.

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple Inc.

CIGNA Corporat

CSX Corporat

Canadian Pacific Railway Limited

PTAB Axes 'Identical' Bid To Review Car Camera Patent

The Patent Trial and Appeal Board refused French auto parts maker Valeo SA an inter partes review of a rear-view camera patent, saying Monday the board already took up the company's previous, nearly identical IPR request for the patent and deemed it valid.

RAIL

Norfolk Southern Snubs Revised Bid From Canadian Pacific

U.S. rail company Norfolk Southern Corp. on Tuesday rejected a revised takeover offer from hedge fund-backed Canadian Pacific Railway Ltd., saying the new bid is even worse than the original $28.4 billion proposal, which Norfolk shot down last week.

Rail Cos. Fight To Keep Expert In Play In Price-Fixing Row

Rail carriers involved in now-stalled multidistrict litigation over railroad fuel surcharges have blasted an attempt by the proposed class of rail shippers to exclude their expert, maintaining that the shippers' "sham" motion was not made in good faith, according to documents released Monday from a D.C. federal court.

Pa. Judge Sends Mitsubishi Rail Car Venture Fight To NY

A Pennsylvania federal judge backed Mitsubishi Electric Corp.'s bid to transfer a multimillion-dollar spat over a spoiled joint venture to New York on Tuesday, finding that train systems manufacturer Westcode Inc. was not the first to file suit.

LOGISTICS

FedEx Claims Deja Vu In Driver Classification Suit At DC Circ.

FedEx has told the D.C. Circuit that a case challenging the National Labor Relations Board's classification of delivery drivers as employees rather than as independent contractors is "indistinguishable" from a 2009 case in which the court ruled in FedEx's favor, arguing that precedent hasn't changed in the meantime.

FedEx Wants To Know Drug Shipping Grand Jury Instructions

FedEx Corp. told a California federal court Tuesday that it thinks the grand jury instructions in a criminal case accusing the company of colluding with illegal online pharmacies to deliver prescription drugs were erroneous and urged the court to disclose certain instructions despite prosecutors' protests.

Logistics Co. Can't Trim $3.7M Suit Over Cost Estimates

A Pennsylvania federal judge ruled Monday that a transportation logistics provider can't narrow a plastic container manufacturer's $3.7 million lawsuit accusing the company of misrepresenting the cost of contracted services, saying a pair of misrepresentation claims

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple Inc.

CIGNA Corporat

CSX Corporat

Canadian Pacific Railway Limited

are sufficiently distinct from the suit's contract claims to survive.

MARITIME

Fla. Canal Isn't Navigable Waterway, 11th Circ. Told

Florida's Miami-Dade County urged the Eleventh Circuit on Monday to affirm a lower court's dismissal of a negligence suit that sought to apply federal maritime law to a canal 7 miles inland, saying the trial judge correctly ruled the waterway is not navigable and she lacked jurisdiction.

W.Va. Restaurant Barge's Sinking Not Covered, Insurer Says

A Markel Corp. insurer asked a West Virginia federal court on Friday to let it off the hook from covering the cost of a waterfront restaurant that sunk into the Ohio river, saying the business that owned the barge wasn't the policyholder.

INFRASTRUCTURE

NH Gov. Raises Doubts Over $5B Kinder Morgan Pipeline

New Hampshire Gov. Maggie Hassan has urged the Federal Energy Regulatory Commission to either take steps to address the concerns of affected local communities or consider blocking Kinder Morgan's $5 billion Northeast Energy Direct natural gas pipeline project from moving forward.

Ex-Official Says La. Contract Relevant To Chicago Bribe Case

A former Chicago official accused of accepting bribes from a red-light camera vendor told a federal judge Tuesday that testimony about a contract in Louisiana with the same vendor should be allowed at his trial, saying allegations there raised questions about the motivations of company executives testifying for the government.

Caltrans Says Tribe's Bypass Suit Is Related To Enviro Case

The California Department of Transportation urged a federal judge Tuesday to hear a recent complaint brought by two Native American tribes challenging Caltrans' $300 million highway project after the judge handed the agency a win in an earlier suit by Northern California environmental groups, claiming conflicting rulings could result if the cases remain separate.

LEGAL INDUSTRY

5 Reasons You'll Never Make Equity Partner

Early in your legal career, you may have set your sights on BigLaw's gold ring: an equity partnership at a white-shoe firm. But even the best-laid plans sometimes go awry.

COMPANIES

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organiza

American Road & Transport Builders Associati

American Trucking Associati Inc.

Apple Inc.

CIGNA Corporat

CSX Corporat

Canadian Pacific Railway Limited

3 Tips For A Smooth Post-Merger Integration

For some of the law firms inspired by this year's merger mania, it can be easy to get so caught up in deal negotiations that the important — and hard — work of actually combining can get short shrift. Here, experts give their top three tips for a smooth post-merger integration process.

Bryan Cave Pressed Maxim Deal Amid Red Flags, Jury Hears

A former Bryan Cave LLP attorney facing criminal charges over a failed acquisition of Maxim magazine told a New York federal jury Tuesday that the firm had instructed him to continue working on the deal even after a lender raised concerns about possible fraud.

BigLaw Gets In Lockstep With Cravath Bonuses

A gaggle of BigLaw firms fell in lockstep late Monday and Tuesday with the associate bonus scale set by Cravath Swaine & Moore LLP, the first firm this year to come out of the gates with payout figures.

Reid Accuses Republicans Of Blocking Latino Judicial Noms

Senate Minority Leader Harry Reid accused chamber Republicans Tuesday of "obstruction" in delaying federal judicial confirmations and contended the tactic disproportionately affected Latino nominees, including a Third Circuit candidate who has been waiting more than a year.

Cigna, Orrick Atty Agree To Mediate False Claims Row

Cigna has voluntarily dismissed its complaint against an Orrick Herrington & Sutcliffe LLP attorney who the insurer had accused of filing hundreds of thousands of dollars in false insurance claims, with the parties opting for mediation, according to a Tuesday filing in Virginia federal court.

New Philly Bar Chief Slams Legal Services Tax, Nominee Delay

The incoming chancellor of the Philadelphia Bar Association told a roomful of legal luminaries on Tuesday that they could not become complacent in the face of professional threats including both a legal services tax that nearly passed the Pennsylvania Senate last month and continued delays in confirming federal judges.

JOBS
Search full listings or **advertise your job opening**

Center for Biologica Diversity Inc.

Chrysler Group

Comcast Corporat

FedEx Corporat

Foxconn

General Motors

Google Inc.

Graduate Manager Admissic Council

Graham Packagir Co. Inc.

Internatic Associati of Machinis and Aerospac Workers

Internatic Brotherh of Teamste

JPMorga Chase & Co.

Johnson & Johnson

Kinder Morgan

Markel Corporat

Mitsubish Electric Corp.

National

Associati
of
Manufac

New
York
Times
Co.

Norfolk
Southerr
Corporat

Redflex
Traffic
Systems

Sabre
Holdings
Corp.

Sharp
Corp.

Sierra
Club

Starboar
Value
LP

TMX
Group
Ltd.

Target
Corporat

Transpla
Texas
LP

Tyson
Foods
Inc.

U.S.
Chambe
of
Commer

Ultimate
Fighting

Champic

United Parcel Service Inc.

United Steelwor

Valeo SA

Verizon Commur

Volkswa

Yahoo! Inc.

Zachry Construc Corp.

Zeughau Group LLC

LAW FIRMS

Akin Gump

Alston & Bird

Andrews Kurth

Baker & McKenzi

Barley Snyder

Barrack Rodos & Bacine

Bennett Jones

Berger & Montagu

Brooks Pierce

Bryan Cave

Carlock Copelan

Carpente Lipps

Cleary Gottlieb

Cotchett Pitre

Covingto & Burling

Cravath Swaine

Crowell & Moring

Davis Polk

Debevois & Plimpton

Fine Kaplan

Freed Kanner

Freedma Boyd

Fried Frank

Gibson Dunn

Girard Gibbs

Grant & Eisenhof

Hagens Berman

Hangley Aronchic

Harris O'Brien

Hausfeld

Heins Mills

Hellmuth & Johnson

Heninge Garrison

Hilliard Munoz

Jenner & Block

Jones Day

Joseph Saveri Law Firm

Kantor & Kantor

Kaye Scholer

Kirkland & Ellis

Knapp Petersen

Latham & Watkins

Lieff Cabraser

Lipcon Margulie

Lite DePalma

Littler Mendels

Mayer Brown

Milbank Tweed

Morgan Lewis

Morris Polich

Nelson Mullins

Orrick Herringtc

Osha Liang

Paul Weiss

Pietragal Gordon

Pion Nerone

Quinn Emanuel

Sidley

Austin

Simpson Thacher

Skadden

Spector Rosemar

Steptoe & Johnson LLP

Sterne Kessler

Stinson Leonard

Swanson Martin

Thompsc Hine

Van Ness

GOVERN AGENCI

Army Corps of Engineer

Californi Departm of Transpor

Coyote Valley Band of Pomo Indians

Departm of Commer

Environn

Protectio
Agency

Federal
Bureau
of
Investiga

Federal
Energy
Regulato
Commiss

Federal
Highway
Administ

National
Highway
Traffic
Safety
Administ

National
Labor
Relations
Board

Round
Valley
Indian
Tribes

Surface
Transpor
Board

U.S.
Attorney'
Office

U.S.
Departm
of
Justice

U.S.
Departm
of
Transpor

U.S.
Patent

and
Tradema
Office

U.S.
Supreme
Court

COMPANIES
FedEx Corporation

General Motors

Sierra Club

Alibaba Group Holdings Ltd.

Ally Financial Inc.

Amadeus IT Holding SA

America Fujikura Ltd.

American Federation of Labor and Congress of Industrial Organizations

American Road & Transportation Builders Association

American Trucking Associations Inc.

Apple Inc.

CIGNA Corporation

CSX Corporation

Canadian Pacific Railway Limited

Center for Biological Diversity Inc.

Chrysler Group

Comcast Corporation

Foxconn

Google Inc.

Graduate Management Admission Council

Graham Packaging Co. Inc.

International Association of Machinists and Aerospace Workers

International Brotherhood of Teamsters

JPMorgan Chase & Co.

Johnson & Johnson

Kinder Morgan

Markel Corporation

Mitsubishi Electric Corp.

National Association of Manufacturers

New York Times Co.

Norfolk Southern Corporation

Redflex Traffic Systems

Sabre Holdings Corp.

Sharp Corp.

Starboard Value LP

TMX Group Ltd.

Target Corporation

Transplace Texas LP

Tyson Foods Inc.

U.S. Chamber of Commerce

Ultimate Fighting Championship

United Parcel Service Inc.

United Steelworkers

Valeo SA

Verizon Communications

Volkswagen

Yahoo! Inc.

Zachry Construction Corp.

Zeughauser Group LLC

LAW FIRMS
Skadden

Hagens Berman

Cleary Gottlieb

Girard Gibbs

Mayer Brown

Quinn Emanuel

Simpson Thacher

Steptoe & Johnson LLP

Akin Gump

Alston & Bird

Andrews Kurth

Baker & McKenzie

Barley Snyder

Barrack Rodos & Bacine

Bennett Jones

Berger & Montague

Brooks Pierce

Bryan Cave

Carlock Copeland

Carpenter Lipps

Cotchett Pitre

Covington & Burling

Cravath Swaine

Crowell & Moring

Davis Polk

Debevoise & Plimpton

Fine Kaplan

Freed Kanner

Freedman Boyd

Fried Frank

Gibson Dunn

Grant & Eisenhofer

Hangley Aronchick

Harris O'Brien

Hausfeld

Heins Mills

Hellmuth & Johnson

Heninger Garrison

Hilliard Munoz

Jenner & Block

Jones Day

Joseph Saveri Law Firm

Kantor & Kantor

Kaye Scholer

Kirkland & Ellis

Knapp Petersen

Latham & Watkins

Lieff Cabraser

Lipcon Margulies

Lite DePalma

Littler Mendelson

Milbank Tweed

Morgan Lewis

Morris Polich

Nelson Mullins

Orrick Herrington

Osha Liang

Paul Weiss

Pietragallo Gordon

Pion Nerone

Sidley Austin

Spector Roseman

Sterne Kessler

Stinson Leonard

Swanson Martin

Thompson Hine

Van Ness

GOVERNMENT AGENCIES
National Highway Traffic Safety Administration

Federal Highway Administration

U.S. Department of Transportation

Army Corps of Engineers

California Department of Transportation

Coyote Valley Band of Pomo Indians

Department of Commerce

Environmental Protection Agency

Federal Bureau of Investigation

Federal Energy Regulatory Commission

National Labor Relations Board

Round Valley Indian Tribes

Surface Transportation Board

U.S. Attorney's Office

U.S. Department of Justice

U.S. Patent and Trademark Office

U.S. Supreme Court

JOBS
Search full listings or **advertise your job opening**

Not sure if your firm subscribes? Ask your librarian.

We hope you found this message to be useful.
However, if you'd rather not receive future emails of this sort,
you may unsubscribe here.

Please DO NOT reply to this email. For customer support inquiries, please call 1-646-783-7100 or visit our Contact Us page.

Law360 | Portfolio Media, Inc, 860 Broadway, New York, New York 10003

To: Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]
Cc: Shinkman, Susan[Shinkman.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Wilson, Shari[Wilson.Shari@epa.gov]
From: Brooks, Phillip
Sent: Wed 12/9/2015 11:01:35 AM
Subject: Re: Air & Radiation Law News for December 8, 2015

Ex. 5, 7

Sent from my iPhone

On Dec 8, 2015, at 1:02 PM, Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov> wrote:

Ex. 5, 7

From: Turley, Jennifer
Sent: Tuesday, December 08, 2015 11:33 AM
To: Allnutt, David <Allnutt.David@epa.gov>; Anderson, Lea <anderson.lea@epa.gov>; Anderson, Steve <Anderson.Steve@epa.gov>; Aranda, Amber <aranda.amber@epa.gov>; Averback, Jonathan <Averback.Jonathan@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Bianco, Karen <Bianco.Karen@epa.gov>; Bogoshian, Matthew <Bogoshian.Matt@epa.gov>; Branning, Amy <Branning.Amy@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Chapman, Apple <Chapman.Apple@epa.gov>; Choi, Jake <Choi.Jake@epa.gov>; Cozad, David <Cozad.David@epa.gov>; Crum, Lynda <Crum.Lynda@epa.gov>; Crystal, Roy <crystal.roy@epa.gov>; Davis, Julian <davis.julian@epa.gov>; Dickinson, David <Dickinson.David@epa.gov>; Dierker, Carl <Dierker.Carl@epa.gov>; Dolph, Becky <Dolph.Becky@epa.gov>; Doster, Brian <Doster.Brian@epa.gov>; Dubey, Susmita <dubey.susmita@epa.gov>; Dubois, Roland <Dubois.Roland@epa.gov>; Frey, Bert <frey.bertram@epa.gov>; Froikin, Sara <Froikin.Sara@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>; Graham, Cheryl <Graham.Cheryl@epa.gov>; Harrison, Ben <Harrison.Ben@epa.gov>; Hoffman, Howard <hoffman.howard@epa.gov>; Hogan, Stephanie <Hogan.Stephanie@epa.gov>; Holmes, Carol <Holmes.Carol@epa.gov>; Igoe, Sheila <Igoe.Sheila@epa.gov>; Jordan, Scott <Jordan.Scott@epa.gov>; Kaplan, Robert <kaplan.robert@epa.gov>; Kataoka, Mark <Kataoka.Mark@epa.gov>; Klepp, Robert <Klepp.Robert@epa.gov>; Knapp, Kristien <Knapp.Kristien@epa.gov>; Lee, Michael <lee.michaelg@epa.gov>; Lovett, Lauren <Lovett.Lauren@epa.gov>; Mackey, Cyndy <Mackey.Cyndy@epa.gov>; Manners, Mary <manners.mary@epa.gov>; Marks, Matthew <Marks.Matthew@epa.gov>; Matthews, Julie <Matthews.Juliane@epa.gov>; McConkey, Diane <Mcconkey.Diane@epa.gov>; Mclean, Kevin <Mclean.Kevin@epa.gov>; Moore, Bruce <Moore.Bruce@epa.gov>; Morgan, Jeanette <Morgan.Jeanette@epa.gov>; Muller, Sheldon <Muller.Sheldon@epa.gov>; Niebling, William <Niebling.William@epa.gov>; Nguyen, Quoc

<Nguyen.Quoc@epa.gov>; Adair, Jocelyn <Adair.Jocelyn@epa.gov>; Odendahl, Steve <Odendahl.Steve@epa.gov>; Okoye, Winifred <Okoye.Winifred@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Pastorkovich, Anne-Marie <Pastorkovich.Anne-Marie@epa.gov>; Roberts, Martha <Roberts.Martha@epa.gov>; Rodman, Sonja <Rodman.Sonja@epa.gov>; Rowland, John <Rowland.John@epa.gov>; Schaaf, Eric <Schaaf.Eric@epa.gov>; Schmidt, Lorie <Schmidt.Lorie@epa.gov>; Senn, John <Senn.John@epa.gov>; Shenkman, Ethan <Shenkman.Ethan@epa.gov>; Silverman, Steven <silverman.steven@epa.gov>; Smith, Kristi <Smith.Kristi@epa.gov>; Snyder, Doug <Snyder.Doug@epa.gov>; Srinivasan, Gautam <Srinivasan.Gautam@epa.gov>; Stahle, Susan <Stahle.Susan@epa.gov>; Starfield, Lawrence <Starfield.Lawrence@epa.gov>; Stern, Allyn <Stern.Allyn@epa.gov>; Tate, Ragan <Tate.Ragan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Tierney, Jan <tierney.jan@epa.gov>; Ting, Kaytrue <Ting.Kaytrue@epa.gov>; Tsirigotis, Peter <Tsirigotis.Peter@epa.gov>; Versace, Paul <Versace.Paul@epa.gov>; Vetter, Rick <Vetter.Rick@epa.gov>; Walker, Mike <Walker.Mike@epa.gov>; Ward, W. Robert <Ward.Robert@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>; Wilcox, Geoffrey <wilcox.geoffrey@epa.gov>; Williams, Brent <Williams.Brent@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Williamson, Timothy <Williamson.Tim@epa.gov>; Zenick, Elliott <Zenick.Elliott@epa.gov>; Wills, Jennifer <Wills.Jennifer@epa.gov>; Conger, Nick <Conger.Nick@epa.gov>; Blake, Wendy <Blake.Wendy@epa.gov>; Schramm, Daniel <Schramm.Daniel@epa.gov>; Vergeront, Julie <Vergeront.Julie@epa.gov>; Tozzi, Lauren <Tozzi.Lauren@epa.gov>; Coursen, David <Coursen.David@epa.gov>; Pilchen, Zach <Pilchen.Zach@epa.gov>; Skinner-Thompson, Jonathan <Skinner-Thompson.Jonathan@epa.gov>; Vijayan, Abi <Vijayan.Abi@epa.gov>; Roder, Aileen <Roder.Aileen@epa.gov>; Walker, Denise <Walker.Denise@epa.gov>; Caballero, Kathryn <Caballero.Kathryn@epa.gov>; Thompson, Christopher <Thompson.Christopher@epa.gov>; Williams, Christopher <Williams.Christopher@epa.gov>; Matthew, Dayna <Matthew.Dayna@epa.gov>; Reid, Lauren <Reid.Lauren@epa.gov>; Hammons, Jeffrey <Hammons.Jeffrey@epa.gov>; Morris, Rachel <Morris.Rachel@epa.gov>; Nguyen, DucH <Nguyen.DucH@epa.gov>; Jordan, Deborah <Jordan.Deborah@epa.gov>; Charlton, Tom <Charlton.Tom@epa.gov>; Kulschinsky, Edward <Kulschinsky.Edward@epa.gov>; Portmess, Jessica <Portmess.Jessica@epa.gov>; Kaminer, Joan <Kaminer.Joan@epa.gov>; Kryman, Matthew <Kryman.Matthew@epa.gov>; Greenglass, Nora <Greenglass.Nora@epa.gov>; Spina, Providence <Spina.Providence@epa.gov>; Firestine, Natalie <firestine.natalie@epa.gov>; Bond, Alexander <Bond.Alexander@epa.gov>
Subject: Air & Radiation Law News for December 8, 2015

Air & Radiation Law News

for December 8, 2015

Bloomberg BNA Daily Environment Report™

Air Pollution

Beijing Issues First Red Alert for Severe Air Pollution

Beijing issued its most severe smog warning for Tuesday—the first time the municipal government has issued a so-called red pollution alert—after acrid-smelling haze returned to the Chinese capital. ...

Air Pollution

House Energy Bill Would Repeal EPA Wood Stove Standards

Energy legislation passed by the House includes language that would roll back the Environmental Protection Agency's updated emissions standards for new wood-burning heaters....

Air Pollution

N.Y. Proposes Emissions Limits for Backup Power Units

Emissions limits would be set for nitrogen oxides and particulate matter from diesel generators, gas-fired engines and other backup power sources under a proposed New York Department of Environmental Conservation rule....

Air Pollution

VW Seeks to Move Beyond Crisis Mode With Probe Results

Volkswagen AG will provide initial results of an internal investigation into emissions manipulation on Dec. 10, a sign that the automaker is coming to grips with the crisis after nearly three months....

Asbestos

Asbestos in Schools Law Needs Teeth, Senators Say

Children, teachers and others in schools remain at risk from asbestos nearly 30 years after Congress passed a law directing states to address the issue, two leading Democratic senators said in a report released Dec. 7. ...

Budget

Republicans Say More Time May Be Needed on Omnibus

House and Senate Republican leaders' plans to have a 12-bill omnibus through both chambers and on its way to the White House before a stopgap expires in a few days increasingly are in jeopardy amid an ongoing battle over the list of policy...

Climate Policy

Large Corporate Presence Seen at Paris Climate Talks

Among the dreadlocked protesters, Birkenstock-shod environmentalists and bleary-eyed negotiators gathering at the Paris climate summit, you'll find a less-expected cohort: besuited corporate types....

Climate Regulation

Concern Raised Over New Social Cost of Methane Figure

The Environmental Protection Agency's newly created social cost of methane figure has not been adequately reviewed and should not be used to justify regulating methane emissions from new oil and gas operations, industry groups said....

Elections

Sanders Climate Plan Uses Carbon Tax, No Nuclear

Sen. Bernie Sanders (I-Vt.) would push to implement a carbon tax to cut domestic greenhouse gas emissions if he is elected president, according to his climate plan released Dec. 7....

Energy

Former FERC Commissioner Joins Liquefied Natural Gas Ltd.

Former FERC Commissioner Philip Moeller has been appointed as a nonexecutive director of the Liquefied Natural Gas Ltd. board....

International Climate

All but 10 Nations Submit Pledges at Paris Climate Talks

The UN talks in Paris to rein in climate change drew unprecedented participation from world leaders, with only 10 nations deciding against issuing pledges to address greenhouse gases....

International Climate

Greenhouse Gas Pollution Seen Falling in 2015

Greenhouse gas pollution probably fell this year after slowing in 2014, the first decline during a period of strong economic growth and a boost for the effort by the United Nations to rein in climate change....

International Climate

OECD Report: Energy Emissions Remain Largely Untaxed

There are no effective taxes or other costs in place for most of the world's energy-related carbon dioxide emissions, the key source of global warming, and leaders of the world's biggest economies are unlikely to push to change that...

International Climate

Paris Climate Summit Switches to High-Level Talks

The Paris climate summit entered its second week Dec. 7 with the launch of the high-level segment of talks, where ministers from around the world will attempt to hammer out agreement on several major—and hundreds of minor—sticking...

International Climate

Rocky Road Ahead on Climate Finance at UN Talks in Paris

While nearly 200 nations still appear poised to conclude a Paris summit later this week with the first truly global climate change agreement, negotiators are struggling to nail down whether industrialized nations will agree to ramp up the...

International Climate

The Lawyers Who Trekked to Paris for Climate Change Talks

As political leaders converge in Paris this month to draft a global climate change pact, large U.S. law firms are also in the mix, hoping to influence the debate and drum up new business....

Natural Gas

Gas Leak Has Released Quarter of California's Emissions

Call it the invisible spill. You can't see it, but it's there—a steady stream of natural gas seeping out of the pipe casing in a well in Southern California that may spew as much greenhouse gas into the air as a half-million...

Renewable Energy

Clean Energy Patent Boom Unlikely to Attract Trolls

The U.S. is experiencing a boom in clean energy patents but, in interviews with Bloomberg BNA's Big Law Business, several experts didn't expect the spurt to increase frivolous patent litigation, as has been the case in the tech industry....

Renewable Energy

EU to Look Into Possible Ethanol Price Rigging

The European Union's antitrust arm added to Abengoa SA's woes Dec. 7 by opening a formal probe into suspicions the company colluded with Alcogroup and Lantmaennen to rig ethanol benchmarks published by Platts....

Trade

EU May Renew Tariffs on Chinese Solar-Panel Makers

The European Union threatened to renew tariffs on solar panels from China, potentially rekindling what was the EU's biggest trade dispute of its kind....

Trade

EU to Promote Sustainability, Tackle Corruption Via Trade

The European Union's top trade official said the EU would seek to use trade deals as a means of promoting sustainable development, labor rights and good governance....

Inside EPA's **Risk Policy Report**, 12/08/2015

http://insideepa.com/newsletters/risk-policy-report

Latest News

EPA Advisors Suggest Need To Broaden NOx-SOx NAAQS Review Plan

EPA advisors are suggesting a need for the agency to broaden its draft plan for how to conduct a

review of scientific data for a potential first-time joint nitrogen oxides (NOx) and sulfur oxides (SOx) national ambient air quality standard (NAAQS), including accounting for additional forms of nitrogen such as ammonia.

Boosting Pledges, McCarthy Says Utility Support Ensures ESPS Will 'Stick'

PARIS – EPA Administrator Gina McCarthy is highlighting the power sector's view that it can comply with the agency's landmark greenhouse gas rules for existing power plants as proof that the rule will "stick," while also seeking to reassure other countries at United Nations climate talks here that GOP attempts to block the rule ultimately will fail.

News Briefs

EPA Urged To Extend Climate ESPS FIP Comment Deadline

Utility groups and state regulators are asking EPA to extend the comment period for its proposed federal plan for implementing its greenhouse gas rule for existing power plants in noncompliant states, as well as the informal comment period for the agency's Clean Energy Incentive Program (CEIP), which they argue should also be housed under the regulatory docket.

EDF Methane Measurements Could Inform EPA Rules

A new Environmental Defense Fund (EDF) paper published Dec. 7 in the *Proceedings of the National Academy of Sciences* that reports findings from a series of methane measurement studies in Texas' Barnett Shale could inform EPA's pending first-time emissions standards for the oil and gas sector's methane releases.

Greenwire

AIR POLLUTION:

Conservative judge predicts court battle over EPA 'co-benefits'

Robin Bravender, E&E reporter

Published: Monday, December 7, 2015

As opponents sparred in court last week over the fate of a major U.S. EPA rule to slash mercury emissions, a federal judge forecast that the next big fight over the rule will center on how the agency measures so-called co-benefits.

The U.S. Court of Appeals for the District of Columbia Circuit is grappling with how to handle EPA's standards to cut power plants' emissions of mercury and other hazardous pollutants after the Supreme Court earlier this year ruled that the agency had failed to properly consider costs before it issued the rule.

During oral arguments before the appeals court Friday, Republican-appointed Judge Brett Kavanaugh pointed to concerns raised by Supreme Court Chief Justice John Roberts with EPA's practice of counting health "co-benefits" in justifying the economic impacts of its clean air rules. Those are health benefits not directly attributable to reductions in mercury.

"He referred to that as an end-run and bootstrapping and disproportionate," Kavanaugh said of Roberts' comments. "I assume that's going to be the key battleground six months, a year from now, will be whether co-benefits are properly part of the analysis or not."

Kavanaugh and two of his Democratic-appointed colleagues are now weighing a request from industry and states to vacate EPA's rule while the agency brings it in line with the Supreme Court's ruling. But the three-judge panel on Friday appeared reluctant to gut the rule, in part because much of the industry has already made investments to comply with the standards and because EPA appears poised to reissue the same standards with revised considerations of costs (*Greenwire*, Dec. 4).

The agency has committed to fully addressing the high court's concerns by April 15, and EPA issued a proposed finding last month concluding that the benefits of its mercury standards justified the costs of the rule.

If the court agrees to keep the rule in place while EPA tweaks its finding, states and industry could return to court to challenge that finding. Kavanaugh and others have predicted that EPA's assessment of co-benefits will be a key part of their arguments.

"I think there is a pretty good chance that that will be front and center if there is a challenge" to EPA's finding that it is appropriate and necessary to regulate power plants' mercury emissions, said Jeff Holmstead, an industry attorney at Bracewell & Giuliani LLP who served as EPA's air chief during the George W. Bush administration. "A lot of people, including me, have been pretty critical of EPA relying on co-benefits to justify pretty much everything, including the Clean Power Plan."

The Clean Power Plan aims to slash greenhouse gas emissions from existing power plants. EPA has predicted the rule will lead to big cuts in soot and smog, curbing emissions of sulfur dioxide, nitrogen oxides and particulates along with reducing heat-trapping carbon dioxide. Industry contends that EPA's reliance on co-benefits double-counts health benefits for reductions of pollutants that aren't the regulation's focus.

Whether the co-benefits issue comes up in the mercury case or elsewhere, Holmstead said, "I think it will find its way into the courts."

EPA's analysis of the mercury rule found that it would cost industry $9.6 billion a year, while overall benefits would tally as much as $90 billion annually. Of those total benefits, up to $6 million would come from reduced mercury pollution. Most of the rest of the monetary benefits would stem from reductions in particulate matter, a pollutant that is not a target of the mercury rule.

During oral arguments in March, Roberts grilled the Obama administration's solicitor general, Donald Verrilli, about the analysis, suggesting EPA was using the mercury rule to get reductions in particulate matter that it wouldn't be able to otherwise under the Clean Air Act.

"It's a good thing if your regulation also benefits in other ways," Roberts said. "But when it's such a disproportion, you begin to wonder whether it's an illegitimate way of avoiding the different -- quite different limitations on EPA that apply in the criteria program."

Earthjustice attorney Jim Pew said EPA "doesn't have to consider benefits at all to satisfy the Supreme Court decision," and said industry challenges to the agency's calculations of co-benefits are "extraordinarily disingenuous."

John Walke, an attorney at the Natural Resources Defense Council, said Kavanaugh's comments

Friday "could be him signaling reservations about EPA's co-benefits." But more likely, he said, it "reflects that industry has been raising that issue from day one."

Kavanaugh was the lone judge to dissent in the appeals court's divided ruling last year that upheld EPA's mercury rule before the high court shot it down.

But while Kavanaugh "has shown himself skeptical of EPA's position in this rulemaking and other rulemakings," Walke said, his "remarks from the bench won't influence what industry will do at all because they have already been doing what he is forecasting."

PARIS TALKS:

U.S., E.U. press other wealthy countries to pay their share

Lisa Friedman, E&E reporter

Published: Monday, December 7, 2015

LE BOURGET, France -- Should Qatar, the richest country in the world, help poorer nations deal with climate change? What about Singapore, the third-richest, where the gross domestic product per capita is five times higher than in Bulgaria? Or Saudi Arabia, where the average household income is higher than that of Italy, Spain and the Czech Republic?

The United States, the European Union and a growing number of vulnerable countries say yes. They are working to design language in a new climate agreement here that would upend the current structure that demands only the industrialized countries as designed in 1992 pay up.

The move is coming under fierce attack by the Group of 77 (G-77), which represents developing countries. U.S. Special Envoy for Climate Change Todd Stern today argued, though, that the poorest and most threatened by climate change should welcome the efforts.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"I think countries like the islands and the least developed countries are enthusiastically supportive. I'm not entirely sure what they do or they don't say in the councils of the G-77," he said. "What we're talking about here is to create a larger pool of funds."

At the moment, the debate is down to a battle of words. Europe wants language in a burgeoning deal to call for all countries "in a position to do so" to deliver money. Another wording option -- reportedly preferred by China -- is to ask that countries "willing to do so" write the checks.

Europeans, meanwhile argued the phrase "willing" is too wishy-washy. "Come on, seriously," one negotiator said. "Countries like Singapore and South Korea and Bahrain? They're richer than us.

How come they can't contribute?"

The answer -- like so many things in these negotiations -- lies in the age-old divisions between rich and poor nations, and the fraught nature of trying to shift those roles. Even some very poor countries like Sudan say they recognize that more countries might deliver more money in a new system but continue to argue to protect the wealthier nations in their bloc.

"Let first those who are committed, let them stick to their promises. If they are not giving, how do you expect others to give?" said Muawia Shaddad, a professor at the University of Khartoum and a member of the Pan African Climate Justice Alliance.

Ambassador Joyce Mxakato-Diseko, a South African diplomat who is chairing the G-77, complained last week that there are no criteria for countries "in a position to do so" and accused wealthy nations of trying to wriggle out of their 2009 pledge to mobilize $100 billion annually by 2020.

Saudi Arabian Minister of Petroleum Ali bin Ibrahim Al-Naimi holds a meeting on the sidelines of U.N. climate talks. His country is being asked to shoulder a greater share of the burden of helping poorer nations grapple with climate change. Photo by Lisa Friedman.

"In my family, I tell my children, 'You will clean your room.' I do not say that someone will clean the room. I say, 'You, John, will clean the room.' I say, 'You, Grace, will do the dishes.' There is no someone 'in a position to do so' will wipe the floor," Diseko said. "I need accountability, I really do need accountability. I need to know above all that the floor has been cleaned."

Meanwhile, activists who work on finance issues say they are largely in favor of efforts to expand the base of donors -- though many of them called for some set of criteria to delineate what countries do and don't have the capacity to deliver. Stern today said that's unlikely to happen.

"We think that the principle that is driving this agreement, I hope in a direction that will be successful in the end, is the notion that countries are in many respects nationally determining," he said. "The world buy-in ... is based on the notion that countries are able to make their own decisions, and I think we're going to stick with that," he said.

On the one hand, putting such language in the agreement would reflect a reality that's already happening. China has pledged $3.1 billion, more than the United States, to poor nations through a South-South Cooperation Fund, while developing countries ranging from Indonesia to Mongolia have put money toward the Green Climate Fund.

Heather Coleman of Oxfam America said making it official in legal text is "important to send a signal that countries will continue to provide finance." At the same time, she noted, many nations are fearful that allowing language in a legal text will obligate them to deliver.

"There are some developing countries that definitely need to pony up," she said. "It's clear that countries like Singapore, countries like Qatar should be on the hook."

Meanwhile, she said, "A country like India should not be obligated to put forward finance but certainly should be encouraged to do something."

Developing nations are asking the United States and other wealthy countries to commit that a pledge to mobilize $100 billion annually by 2020 will materialize and expand, but complain that's being held hostage to a desire to break down barriers in the years afterward.

Stern described it as "all part of a package" but said he is confident countries will find common language. "We are open to various formulations," he said.

APPROPRIATIONS:

Jewell says Interior stands firm against omnibus riders

Phil Taylor, E&E reporter

Published: Monday, December 7, 2015

LAS VEGAS -- Interior Secretary Sally Jewell said Friday that her department is opposing all policy riders under consideration for a government spending bill that could undermine the Obama administration's lands, energy and wildlife policies, though she conceded that the negotiations are largely above her pay grade.

But Jewell said her Capitol Hill allies are playing a stout defense and that she believes the White House will reject one particular rider by Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska) to permit a road through the Izembek National Wildlife Refuge in Alaska.

"You can't start negotiating your own execution," Jewell said at the Western Governors' Association's winter meeting here last weekend, when asked about the administration's willingness to concede on some policy measures in order to pass a long-term spending measure.

Government funding authority ends Friday, but congressional aides have offered no signs of a breakthrough on either the spending measure or another must-pass bill to extend tax provisions (*E&E Daily*, Dec. 7).

"There are a lot of riders that would undo very, very important work that's been done over the years, including the work we've done on the sage grouse here, riders that would undo many years of work on stream protection in the context of mining," Jewell said. "We oppose those, and I think you'll see us staying together on that."

Yet Jewell also said she plays a relatively minor role in the spending bill negotiations between the White House and Senate and House leaders. Talks also involve non-Interior policy issues like U.S. EPA limits on global warming emissions and the ban on exporting crude oil, as well as non-environmental issues including Syrian refugees.

Jewell said candidly that she "won't be party" to the highest-level discussions. "No one's calling me and saying, 'Could you give on this or could you give on that?'" Jewell said. "We have a clear focus that we don't want any of them."

Previously proposed environmental policy riders would affect Interior's protection of imperiled wildlife, including sage grouse and gray wolves, its regulation of oil and gas drilling, and its protection of streams from coal mining waste, as well as the president's ability to set aside Interior lands for permanent protection.

Murkowski last summer included a rider in the Senate's fiscal 2016 spending bill for Interior and EPA that would approve construction of a gravel road through Izembek, which she and other Alaska officials contend is critical to the safety of residents in King Cove who lack reliable access to medical care.

Jewell rejected the road and an associated land swap offer nearly two years ago in a move that infuriated Alaskans. She said the White House understands the importance of Izembek to migratory birds and a host of other wildlife.

"There's reasons that we the taxpayer have paid almost $54 million to not build this road, and the White House is well aware of that," Jewell said. "So I believe they'll stand firm with us on that."

But the road is a top priority for Murkowski, who chairs the Appropriations Committee panel that funds Interior. "I want to figure out a way to find safe passage for the people of King Cove, and I'm going to figure it out one way or another," she said last week when asked about the rider's inclusion in an omnibus.

Environmental groups are resolutely opposed to the road. "The rider would ensure irreparable damage to an internationally treasured landscape and set a precedent that would jeopardize wildlife refuge and wilderness protections on public lands across the country," said a memo released this morning by Defenders of Wildlife.

Other environmental riders believed to be on the negotiating table would block U.S. pledges to the Green Climate Fund and target the Clean Water Act jurisdiction rule, the stream protection rule, the White House's National Environmental Policy Act climate guidance, the social cost of carbon metric, Interior's proposal to overhaul public coal valuation, the new updated ozone standard, and the coal ash disposal rule.

Aides for House and Senate spending panels said this morning that negotiations continued through the weekend. One said an agreement is likely sometime this week.

However, it's unclear whether both sides will have language ready by today, as House Appropriations Committee Chairman Hal Rogers (R-Ky.) had hoped.

Reporters Corbin Hiar and Manuel Quiñones contributed.

COAL:

Dems call for tougher penalties in wake of Blankenship verdict

Manuel Quiñones, E&E reporter

Published: Monday, December 7, 2015

Congressional Democrats are calling for tougher penalties for violations of federal mine safety laws in the wake of former Massey Energy Co. CEO Don Blankenship's conviction in a safety case.

A federal jury last week found Blankenship guilty of conspiring to violate mine safety standards. The misdemeanor carries up to one year in prison (*E&ENews PM*, Dec. 3).

Even though prosecutors and groups welcomed the verdict as "unprecedented," Democratic lawmakers say it's further evidence of the need for a new mine safety law.

"I am troubled that criminal behavior involving a conspiracy to commit willful violations of mandatory mine safety and health standards can only result in a mere misdemeanor penalty that cannot exceed one year in prison even when a mine operator recklessly exposes a miner to significant risk of serious injury, serious illness or death," said Virginia Rep. Bobby Scott, top Democrat on the House Education and the Workforce Committee.

Investigations into the 2010 explosion at Massey's Upper Big Branch mine in West Virginia accused Blankenship of being more focused on profits than on safety.

"A misdemeanor sanction is a woefully insufficient deterrent for criminal conduct for an operator who repeatedly puts production ahead of safety requirements," Scott said Friday.

Democratic legislation, H.R. 1926, would impose a felony penalty, up to five years in prison and up to $1 million in fines for operators that jeopardize the lives of workers.

Mining companies and many of their allies on Capitol Hill, particularly on the Republican side, have rejected the need for new legislation. Rather, they say regulators should better use the tools already at their disposal.

The National Mining Association has also been touting its own mine safety initiative and is calling on regulators to take a more cooperative approach to enforcement.

CAMPAIGN 2016:

Sanders climate plan seeks drastic emissions reductions

Jennifer Yachnin, E&E reporter

Published: Monday, December 7, 2015

Vermont Sen. Bernie Sanders (I) today unveiled an aggressive climate change platform, vowing to enact a carbon tax in an effort to reduce greenhouse gas emissions by 80 percent by 2050, as well as pledging to "ban fossil fuels lobbyists from working in the White House" if elected.

In an expansive proposal posted to his campaign website, Sanders -- who is competing for the Democratic presidential nomination against former Secretary of State Hillary Clinton and former Maryland Gov. Martin O'Malley -- echoed his prior criticisms of the fossil fuel industry, as well as his desire to make significant federal investments in both energy efficiency and renewable resources including wind and solar power.

"Right now, we have an energy policy that is rigged to boost the profits of big oil companies like

Exxon, BP, and Shell at the expense of average Americans. CEO's are raking in record profits while climate change ravages our planet and our people -- all because the wealthiest industry in the history of our planet has bribed politicians into complacency in the face of climate changes," Sanders said in a statement. "Enough is enough. It's time for a political revolution that takes on the fossil fuel billionaires, accelerates our transition to clean energy, and finally puts people before the profits of polluters."

In his plan, Sanders called for a carbon tax, an idea that has gained little traction in a Republican-controlled Congress, in an effort to cut pollution by 40 percent by 2030 and by more than 80 percent by 2050.

"Bernie will tax polluters causing the climate crisis, and return billions of dollars to working families to ensure the fossil fuel companies don't subject us to unfair rate hikes," Sanders' website states. "The carbon tax will also protect those most impacted by the transformation of our energy system and protect the most vulnerable communities in the country suffering the ravages of climate change."

A Sanders administration would also look to rein in tax benefits to the fossil fuel industry, as well as banning any oil or gas lobbyists from holding future jobs in the White House.

"Massive lobbying and unlimited Super PAC donations by the fossil fuel industry gives these profitable companies disproportionate influence on our elected leader. This practice is business as usual in Washington and it is not acceptable," Sanders said. The senator's plan also cites his support for efforts to undo recent Supreme Court decisions that gave rise to significant spending by third-party groups, as well as supporting public financing of federal elections.

Sanders likewise echoed his support for a federal investigation into whether Exxon Mobil Corp. misled the public about climate change for almost four decades, vowing to "bring climate deniers to justice so we can aggressively tackle climate change."

The senator called for a Justice Department inquiry following reports from *InsideClimate News* and a collaboration between the *Los Angeles Times* and the Columbia University Graduate School of Journalism that found Exxon discovered the threat of climate change almost 40 years ago but paid millions of dollars to keep the issue out of the public eye (*ClimateWire*, Oct. 28). Exxon has since pushed back on the validity of the reporting.

"It is an embarrassment that Republican politicians, with few exceptions, refuse to even recognize the reality of climate change, let alone are prepared to do anything about it," Sanders said.

Moratorium on nuclear

In addition, Sanders' plan focuses on making new investments in solar and wind power energy production. He said the administration would create 10 million new energy-related jobs by establishing a "100 percent clean energy system."

His proposal would also seek to curtail the use of nuclear energy, and includes a moratorium on nuclear power plant license renewals in the United States.

"Bernie believes that solar, wind, geothermal power, and energy efficiency are proven and more cost-effective than nuclear plants -- even without tax incentives -- and that the toxic waste byproducts of nuclear plants are not worth the risks of the technology's benefit," Sanders' website states.

The senator similarly vowed to ban offshore drilling, drilling in the Arctic Ocean and mountaintop

coal mining.

Sanders also pledged to seek an increase in fuel economy standards, boosting requirements to 65 mpg by 2025, an increase over the current goal of 54.5 mpg by that time.

The proposals garnered immediate praise from environmentalists, including those at the Sierra Club and NextGen Climate, who have yet to endorse in the Democratic primary.

"We commend Senator Sanders for proposing this ambitious energy plan. These proposals are rooted in a clear recognition of the fact that the top priorities for a responsible energy policy are cutting dangerous carbon pollution as fast as possible, and providing even further momentum for the booming clean energy economy," Sierra Club Executive Director Michael Brune said in a statement. "We can't afford to wait a minute longer to tackle the climate crisis, or to ensure that all American families have clean air to [breathe] and clean water to drink."

But American Petroleum Institute spokesman Reid Porter dismissed Sanders' plan in a statement to *Greenwire*, asserting the senator's proposals are peppered with "false choices."

"The United States is the global leader in oil and natural gas production. We are creating millions of jobs, generating billions in revenue for the government, and we are leading the world in reducing carbon emissions. We are second to no one. Denial of this reality is preposterous, and it does a disservice to our nation's pursuit of long-term energy security and to the thousands of families who rely on affordable and reliable energy," Porter said. "It's not a matter of whether we need oil and natural gas to fuel our economy, but where will we get it. We will either continue to rely on energy from less stable parts of the world or we can focus on the developing America's abundant resources right here at home."

POLITICS:

Obama's Cabinet orchestrates sales pitch for Clean Power Plan

Jean Chemnick and Joel Kirkland, E&E reporters

Published: Monday, December 7, 2015

LE BOURGET, France -- President Obama's top advisers have arrived in force here today to begin a final push toward a global climate accord, vowing that U.S. carbon reductions are here to stay.

U.S. EPA Administrator Gina McCarthy, Energy Secretary Ernest Moniz and Secretary of State John Kerry are among the administration officials who have joined 40,000 national delegates, global warming activists and journalists gathering in this Paris suburb. Agriculture Secretary Tom Vilsack and Interior Secretary Sally Jewell participated in the first week of the U.N. summit but have since departed.

The administration's collective task is to convince a skeptical world that Obama's Climate Action Plan will survive his presidency, and it has them singing from the same hymnal.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

In an interview with *Greenwire*, McCarthy said interagency cooperation was strong in the run-up to the conference because securing an agreement is such a vital part of Obama's legacy.

"It has been incredibly seamless in terms of both planning for this event and working it through," she said. "We have coordinated doing energy Cabinet meetings totally focused across the administration on Paris."

Agencies have held a morning phone call in the lead-up to the conference to make sure they're all on the same page, and the White House has been offering guidance. "Our communications people talk to each other," McCarthy said.

McCarthy and Moniz took the same United Airlines flight Friday night, as did White House Council on Environmental Quality chief Christy Goldfuss. After landing at Charles de Gaulle Airport on Saturday morning, they made their first appearances jointly later that day, where the Cabinet members pledged the United States would make good on its commitments to cut greenhouse gas emissions.

McCarthy and Moniz told their international audience that federal carbon regulations are legally enforceable, even if Congress isn't happy with the policy and a hostile Republican president is elected in 2016.

"We have political realities in terms of how we can move forward," Moniz said today. "The president made clear -- and I think it's very important -- that ultimately we do eventually have [to have] legislation that provides an economywide approach. But in the meantime, we will emphasize executive authorities that already exist for meeting our ambitious targets."

EPA's Clean Power Plan rule to cut emissions across the electricity sector is a core policy component supporting the U.S. commitment ahead of the Paris talks to reduce emissions at least 26 percent below 2005 levels by 2025. The U.N. climate summit, led by France, is pressing for an agreement by the end of this week.

"This rule is going to stand the test of time," McCarthy said, referring to the Clean Power Plan regulations. "This rule, despite what one might read, is being actively engaged in by every state in the United States."

McCarthy and her air policy chief, Janet McCabe, who is also in Paris, have been the administration's top salespeople on climate rules for the past two years, after Obama directed the agency to get moving on power-sector regulations. As the talks enter their critical second week, McCarthy said one of her roles will be to meet with delegations and answer questions about her agency's flagship climate policy.

The power-sector regulation faces stiff opposition from Republican-led states in the South and other coal-dependent states. There are court challenges and vows to overturn the rule from nearly every candidate for the Republican presidential nomination.

But McCarthy, McCabe, White House senior climate and energy adviser Brian Deese, Senate Democrats and even some friendly electric utilities are trying to beat back any narrative that the United States might ultimately default on its climate commitments, walking away from a Paris deal as it did from the Kyoto Protocol.

McCarthy has been meeting with counterparts from other countries since the Clean Power Plan was first proposed in 2014, and many of the heads of delegation here in Le Bourget are now acquaintances.

"We have had a steady stream of countries coming in asking to understand it, is it going to last, what are all these lawsuits, what is Congress doing?" she said. She said the international community generally accepts that the rule is likely to withstand the coming challenges.

"EPA is recognized for its technological expertise in this area, as well as how well we do defending the Clean Air act and our actions," she said.

The White House has engaged extensively with China and India, the world's first- and fourth-largest carbon emitters, in hopes of paving the way for a climate deal. For that, it had to convince leaders of both countries that the U.S. economy will adopt carbon controls.

It's trying to shift discussions to the U.S. priorities for a final agreement, including establishing a five-year review period and an accountability system for checking nations' progress on cutting emissions.

Taking the stage in a grand hall inside the 19th-century Petit Palais art museum, before loud applause from global warming activists, Kerry hammered home the U.S. position that both industrialized and rich developing nations such as China and South Korea are equally responsible for slashing greenhouse gas emissions.

"We feel very strongly in the United States that in 2015, it is time to get rid of this rigid differentiation between developed and developing," Kerry said.

"It does no good to come to Paris and have a great big meeting and get out of here and say 'there are a lot of goals' if they're not being implemented and you're not moving down the road."

Kerry spoke about the need for the largest-emitting nations to play an active role in cutting emissions. The issue about "differentiation" is a critical paradigm shift for the U.N.-sponsored talks. China, India, Brazil and other big developing countries for the past two decades have insisted on being treated differently. That was put into place in the 1990s as the path forward.

Also today, former California Gov. Arnold Schwarzenegger (R) made a rousing speech before the plenary of international delegates. Meanwhile, back in a decked-out museum in central Paris, California's current governor, Jerry Brown (D), and energy-sector CEOs rallied activists.

'U.S. has taken clear action'

Any hope of Congress forging a political consensus around carbon came to a screeching halt after Obama returned from the last major U.N. climate summit in 2009. In 2010, the Senate let a House-passed carbon cap-and-trade bill die.

That history -- and the long memories of delegates who recall Senate Republicans' refusal to ratify the Kyoto accord in 1997 -- is some of the context around the administration's presence here.

"The U.S. has taken clear action," said McCabe, EPA's assistant administrator for air and radiation. "It's important that people see the United States has done that."

In a panel discussion sponsored by the Edison Electric Institute, PG&E Corp. CEO Anthony Earley said cutting U.S. emissions will rely on electric utilities and states driving toward the Clean Power Plan's target: cutting power emissions 32 percent below 2005 levels by 2030.

"From a deployment standpoint, we've shown that utilities are really the perfect organizations to leverage the scale we have in accelerating the transformation of the system."

And Earley leaned on the notion that utilities -- under some pressure from rooftop solar companies and other distributed generators -- are still the backbone of the system, warning that policymakers shouldn't "take it for granted."

The cost of implementing changes is "manageable," he asserted.

Multiple threads of discussion around deployment of energy technology are going on across Paris. And leaders here say "signals" are needed for the private sector to start spending billions on energy technology needed by India and other large developing countries.

Microsoft co-founder Bill Gates partnered with Moniz and the White House on a public-private partnership deal designed to raise billions of dollars through 2020. It would couple billions of dollars in investment from the wealthiest people in the world with a doubling of research and development spending by 20 nations. Under the plan, U.S. R&D spending on cleaner forms of energy technology would go from about $2 billion to $5 billion.

On a separate track is a call for $100 billion in financing for poor and developing countries to deploy new technology and protect themselves from the worst effects of global warming.

As this is happening, the small cadre of U.S. utility officials -- mostly sustainability officers -- is talking about Clean Power Plan implementation.

In California, deploying massive amounts of solar and wind power could eventually require a regional Western market, Earley told *Greenwire*.

"We need to create regional electricity markets," he said. "The hallmark of renewables is that they're unpredictable; we don't control them. If you have a regional market, we'll be better able to trade this clean energy."

NOTEBOOK:

Mayors wine, dine with movie stars

Lisa Friedman, Jean Chemnick and Katie Howell, E&E reporters

Published: Monday, December 7, 2015

LE BOURGET, France -- As haggard negotiators struggle to eke out a climate deal in the industrial northern suburbs of Paris, 450 mayors from around the world have been wining and dining with movie stars and ambassadors across the capital city and patting themselves on the back for doing more than the most progressive national governments could hope to achieve.

The U.S. Conference of Mayors, which sent a delegation to Paris for the climate summit, today unveiled a new report that touts the efforts of U.S. mayors as leaders on climate over the last 10 years.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"USA mayors and others throughout the world continue to lead and show that local climate action is meaningful and making a difference in curbing harmful carbon emissions," Baltimore Mayor Stephanie Rawlings-Blake, who is also president of the group, said at an event today at the residence of U.S. Ambassador to France Jane Hartley. "A number of my mayoral colleagues are already in their second decade of climate leadership. This serves as a reminder that a big part of our success in protecting our planet will turn on how well we support and accelerate local level climate action throughout the world."

The mayors on Friday met at Paris' opulent Hôtel de Ville, where they sipped fine French wine, heard from movie stars Leonardo DiCaprio and Robert Redford, and adopted the Paris City Hall Declaration, which restates local efforts to fight climate change and calls for national negotiators at the climate summit to do the same.

"Mayors are a powerful group. You are the catalysts. Be bold, be courageous -- the world is watching you," DiCaprio told the mayors Friday, according to the London *Guardian*.

Inslee, Brown knock 'knucklehead' Republicans

Governors, too, are touting their efforts to take subnational action on climate change. Govs. Jerry Brown of California and Jay Inslee of Washington, both Democrats, have advanced statewide emissions-reduction policies. And they took aim at Republicans for their continued opposition to climate action and science.

"America is really divided," Brown told an international audience in Paris this weekend. But he said that brokering an agreement would help underline how out of step U.S. Republicans are.

"Signing a good agreement will help us overcome what I call the mindless opposition, because there are a lot of people here who are not on the left who will be signing this agreement," Brown said. "And I think that idea will get through to these knuckleheads."

Inslee, who served in the House before becoming Washington's governor, said that pricing carbon would help facilitate "the green energy transition."

"On the West Coast, we live on innovation, it's our stock and trade," Inslee said. "It's what we sell as intellectual capital."

Washington state also has "knuckleheads," he said, like the state legislators who blocked his proposal to tax carbon. He now plans to use existing legal authority to cap emissions.

The two governors shared the stage with the mayors of Oakland, Calif., and Vancouver, Wash., and the environment minister of British Columbia.

China will honor its financial pledge

China will make good on its financial commitment on climate change, even if the United States doesn't, the Chinese head of delegation Su Wei told E&E.

<image010.jpg>

China's head of delegation, Su Wei (left) speaking through an interpreter at the U.N. climate conference. Photo by Lisa Friedman.

Asked to comment on the U.S. Congress' insistence that the $3 billion pledge over four years that President Obama made to the Green Climate Fund will never see the light of day, Su said it would be "most unfortunate" if the money were blocked.

"It would not be positive to the atmosphere in Paris, and every leader is determined to make Paris a successful conference," he said. "The financial issue is one of the key issues that needs to be settled here in Paris.

"Having said that, China's contribution to the South-South Cooperation Fund is not dependent on what developed country parties make," he said. No matter what happens, that $3.1 billion pledge "would remain as it is now."

Inside the E.U.'s secret meeting room

Isaac Valero-Ladron, a senior adviser to the European Union's energy commissioner, gave E&E a sneak peak at the bloc's coordination room over the weekend to offer a sense of how challenging it is to develop a common position.

<image011.jpg>

E.U. negotiators meet daily in this conference room to hash out agreements. Photo by Lisa Friedman.

Each morning, lead negotiators from the 28 member nations meet in the vast conference room in the European pavilion for an hour and a half, often going paragraph by paragraph through the text.

That's only the beginning of several such meetings throughout the day. What solar-loving Germany can live with on calls for decarbonization, or a 1.5-degree temperature-rise goal, for example, might be very different than that of coal-hungry Poland.

"We are not a country. We are 28 countries," Valero-Ladron said.

Overflow delegates bring flair to drab meeting rooms

Dark suits are de rigueur at the conference complex where negotiations are underway, but every now and then a splash of color can be seen -- typically around the Brazil delegation's headquarters.

Brazilian activist Jose de Lima Kaxinawa, a member of a tribe that lives in the Amazon rainforest of Brazil and Peru, is one of hundreds of "party overflow members" at the climate talks.

Brazil applies a unique open-door policy that allows anyone to join the government's delegation to the talks if they pay their own way. The nation has 800 delegates -- by far the largest number of overflow members, who wear purple stickers that indicate they can be asked to leave meetings when there isn't enough room.

The United States and China also have large representations, but they don't dress as vibrantly.

De Lima Kaxinawa has been wearing a flashy orange, yellow and red headdress and a colorful robe, according to Reuters.

Other Brazilian campaigners wear traditional dress or casual clothes. Francinara Soares Martins had on bone earrings and brightly colored feathers yesterday while handing out deforestation posters.

"We are very inclusive," Luiz Alberto Figueiredo Machado, a former Brazilian foreign minister, told Reuters of the overflow member policy.

Perhaps they should have taken the Chunnel

Green groups are blasting British leaders and negotiators for flying to the Paris negotiations.

Friends of the Earth called out Prime Minister David Cameron and International Development Secretary Justine Greening and her team for flying to the COP 21 talks last week.

The return flight from London's Heathrow airport to Paris' Charles de Gaulle emits 122 kilograms of carbon dioxide per person, according to Eurostar. By comparison, a train trip would emit 10.9 kilograms per person, Eurostar said.

"It's perfectly easy to understand that many people will find British ministers flying to a climate conference to be hypocritical," said Craig Bennett of Friends of the Earth, according to the London *Guardian*.

Pope prays for the negotiations

Pope Francis yesterday prayed for the success of the Paris negotiations.

"For the sake of the common home we share and for future generations, every efforts should be made in Paris to mitigate the impact of climate change and, at the same time, to tackle poverty and to let human dignity flourish," Francis said from the Vatican, according to Vatican radio and reported by *USA Today*.

NEGOTIATIONS:

Russia won't block a climate deal -- Putin

Published: Monday, December 7, 2015

Russian President Vladimir Putin has signaled that his negotiators will not block an agreement backed by other major countries at the U.N. climate change conference underway in Paris.

Though Russia has been a major player in global climate talks since 1992, Putin has not put much priority on environmental initiatives and has expressed skepticism about climate change (*ClimateWire*, Aug. 25, 2010).

According to Paris conference participants, however, Putin had assured German Chancellor Angela Merkel that he would not sink a deal. Russia has met with criticism for submitting an emissions goal that it has essentially already met, requiring few changes to its economy (*ClimateWire*, April 6).

Russia also stands to gain from any shift to cleaner-burning natural gas, as it has some of the largest reserves in the world (Harvey/Taylor, London *Guardian*, Dec. 7). **-- BTP**

PEOPLE:

France's top climate diplomat wears host hat, too

Published: Monday, December 7, 2015

France's top climate change negotiator must not only help work out a deal in her country's interests at the climate change conference currently underway outside of Paris, but also play the role of organized host to 196 delegations and a bevy of other attendees.

From installing lighting in each workspace that is soft and comforting to ensuring that the conference's cuisine befits France's culinary reputation to acting as a mediator between disagreeing sides over a deal, Laurence Tubiana has had a lot on her mind these past 18 months.

"This is an incredibly hard job, and she doesn't come to the job as a deeply seasoned professional diplomat," U.S. senior climate envoy Todd Stern said of Tubiana. "But using her think tank background, and the signature French Embassy events -- it all affects the larger buy-in to Paris."

Tubiana has indeed drawn on France's elegant embassies worldwide to host events and dinners with key political and business leaders and journalists to make sure everyone is on the same page (*ClimateWire*, Dec. 7). She has worked to avoid a repeat of the 2009 climate conference in Copenhagen, Denmark, where many blamed the Danish government's poor organization and lack of openness for helping sink the talks.

"Climate change is about ecosystems," Tubiana said. "Climate change negotiations are about ego-systems" (Coral Davenport, *New York Times*, Dec. 6). **-- BTP**

ENERGY EFFICIENCY:

Nations, Ikea plan looks to screw in 10B LED bulbs

Published: Monday, December 7, 2015

As a way to ratchet down the 5 percent of global emissions caused by lighting, governments such as China, India and the United States and large companies such as Ikea have pledged to fit 10 billion ultra-efficient lightbulbs worldwide.

India and China have said they will increase production and sale of light-emitting diodes, or LEDs, and Ikea, the Swedish furniture multinational, said it will stock its shelves with more energy-efficient bulbs to sell to its customers.

Pollution emitted from lighting sources makes up 15 percent of the world's electricity consumption. An overnight transition to LED lights could save approximately 735 million metric tons of emissions, or enough to displace around 250 coal-fired power plants.

"If we have 20 years of the global carbon budget left, we need to create products that are fantastically energy-efficient and roll them out to scale very fast," said Steve Howard, Ikea's chief sustainability officer (Arthur Neslen, London *Guardian*, Dec. 7). **-- AK**

SUPREME COURT:

Justices reject challenge to Colo. renewable standard

Robin Bravender, E&E reporter

Published: Monday, December 7, 2015

The Supreme Court today refused to hear an appeal in a case challenging Colorado's renewable energy standard.

In a short order issued this morning, the high court rejected a request by the anti-regulatory nonprofit Energy & Environment Legal Institute challenging Colorado's requirement that 20 percent of all electricity sold in the state come from renewable sources.

Lawyers for the nonprofit argued that the standard illegally regulated economic activity beyond the state line, and they asked the justices to take on the issue after a three-judge panel on the Denver-based 10th U.S. Circuit Court of Appeals unanimously upheld the standard earlier this year (*Greenwire*, Oct. 16).

David Schnare, an attorney representing the Energy & Environment Legal Institute in the case, said today that petitioners may ask the justices to reconsider their refusal to hear an appeal in the case, *Energy & Environment Legal Institute v. Joshua Epel*. Schnare said he believes the ruling from the 10th Circuit conflicts with another ruling from the San Francisco-based 9th U.S. Circuit Court of Appeals in the case *Sam Francis Foundation v. Christies Inc.*, regarding whether a California law regulating art sales violates the dormant Commerce Clause, which bars states from discriminating against interstate commerce.

"The major reason that they take these kinds of cases is to cure circuit splits," Schnare said.

Michael Freeman, a Colorado-based attorney at Earthjustice representing environmentalists in the case, said today that the "argument that there's a flaw in the 10th Circuit ruling is meritless." He added, "the courts have consistently rejected the theory" asserted by the Energy & Environment Legal Institute "that incidental impacts on commerce" somehow violate the dormant Commerce Clause.

No word on high-stakes water cases

Supreme Court watchers were waiting for news today about whether the justices would agree to hear pending wetlands cases, but the court has punted on making that decision.

The justices are weighing whether to hear two cases regarding whether courts can review federal regulators' determinations about which areas are subject to Clean Water Act protections. The

Obama administration and property rights advocates have asked the high court to weigh in on the issue after lower courts have offered conflicting opinions. Many court watchers predict that the justices will agree to hear at least one of the cases (*Greenwire*, Oct. 30).

The justices are now expected to consider whether to take the cases, *U.S. Army Corps of Engineers v. Hawkes Co. Inc.* and *Kent Recycling Services LLC v. U.S. Army Corps of Engineers*, at their conference this Friday and may announce their decision later this week or early next week.

SCIENCE:

Climate change may not have driven Vikings from Greenland

Published: Monday, December 7, 2015

For nearly five centuries, thousands of Vikings eked out a living on Greenland's harsh shores before unexpectedly departing in the mid-15th century. Until now, their disappearance has often been explained as a result of changing climate, but new research is raising doubts on that theory.

Norse settlement of Greenland occurred soon after the start of the "Medieval Warm Period," a 300-year period of more temperate climates in most parts of the world that was followed by the "Little Ice Age," which made weather harsher. A study published last week in *Science Advances* asserts that the changing climate was not likely a big factor in the Vikings' retreat from Greenland, since the region's glaciers appear to have been nearly as large during the Medieval Warm Period as they were during the Little Ice Age.

"This study suggests that while the Vikings may have left Iceland when it was relatively warm, they arrived in the Baffin Bay region, and it was relatively cool," said lead author Nicolás Young, a professor at Columbia University's Lamont-Doherty Earth Observatory. "So for their initial settlement, and the first few centuries when they were there, they persisted and thrived somewhat during a relatively cool climate. And so it's sort of a stretch to say that a cool climate is what drove them out of the region, when they demonstrated that they could be somewhat successful during a cool climate."

The scientists were able to measure the extent of the glaciers over time from their impressions left in the earth and could date the soil and rocks left behind as they retreated.

"There's certainly strong evidence in Europe that that was a real thing," said Young of the Medieval Warm Period. "But it's certainly not a global event; it was patchy, with quite a bit of variability" (Chris Mooney, *Washington Post*, Dec. 4). **-- BTP**

BUSINESS:

Food giants have bigger carbon footprint than some countries

Published: Monday, December 7, 2015

Global food production companies such as Cargill Inc., Tyson Foods Inc. and Yara International ASA have larger carbon footprints than many countries, including the Netherlands, Vietnam or Colombia, a new analysis shows.

The realization from Global Justice Now highlights the role the agri-food sector plays in climate

change, which contributes as much as 29 percent of global emissions, although the industry has received far less attention than the energy industry in the past.

Moreover, the amount of emissions that agriculture businesses report is said to be only a fraction of actual pollutants the companies release, resulting in millions of metric tons of pollution that has been kept from the public.

According to Global Justice Now's new findings, U.S. animal feed manufacturer Cargill, for example, reports annual emissions of 15 million metric tons, but if it included growing feed crops, the number would spike to some 145 million metric tons.

Tyson, the largest beef producer in the United States, says it emits 5 million metric tons but does not include keeping livestock in that number, which would increase the amount to 34 million metric tons. Yara, one of the world's largest fertilizer producers, emits nearly 12.5 million metric tons but does not take into account its use of fertilizers, boosting that number to 75 million metric tons.

"They shouldn't be able to indulge themselves in the fiction that they are not culpable for these indirect climate impacts," said Alex Scrivener, policy officer at Global Justice Now and co-author of the analysis (Tom Levitt, London *Guardian*, Dec. 7). **-- AK**

FEDERAL AGENCIES:

Government power consumption hits new low

Hannah Hess, E&E reporter

Published: Monday, December 7, 2015

The U.S. government, one of the largest energy consumers in the world, cut its fuel use to the lowest levels in the past 40 years, according to an U.S. Energy Information Administration analysis released today.

The decline indicates progress on President Obama's plan to reduce the greenhouse gas emissions of federal agencies and make federal buildings more efficient, EIA noted, with a decline in jet fuel consumption by the Defense Department accounting for the biggest change (*Greenwire*, Nov. 23, 2015).

As part of the plan, the White House aims to reduce per-mile greenhouse gas emissions from agency fleet vehicles by 30 percent over the next decade. Over the previous five fiscal years, greenhouse gas emissions from the federal fleet have fallen by a total of 3 percent, EIA said.

Data from the Department of Energy's Federal Energy Management Program show energy usage in fiscal 2014 -- 0.94 quadrillion British thermal units -- declined to the lowest level since the government started monitoring consumption in 1975. Energy bills totaled $23.1 billion, falling from $24 billion in 2013 (*Greenwire*, Feb. 4).

Vehicles and equipment energy usage accounted for 61 percent of all federal energy consumed, with the remainder consumed by facilities. Energy consumption by DOD made up 78 percent of total federal energy use.

Among the White House's targets is an increase in alternative-vehicle fuels in the federal fleet. Since fiscal 2010, the number of traditional gasoline-powered vehicles owned by government agencies

has declined 10 percent, EIA said.

AIR POLLUTION:

Health groups press EPA for new methane emissions limits

Sean Reilly, E&E reporter

Published: Monday, December 7, 2015

U.S. EPA should forge ahead with new emissions limits for methane and volatile organic compounds (VOCs) from existing oil and natural gas operations, similar to what it is already proposing for new sources, more than 600 nurses, doctors and other health care professionals said in a letter Friday.

"We need comprehensive rules that cover existing oil and gas wells and infrastructure to reduce methane emissions and the impact on climate," the signers told EPA Administrator Gina McCarthy. "We unite in urging EPA to move quickly to address emissions from existing sources as well."

The letter, released late Friday by the American Lung Association, fell on the final day for public comments on EPA's draft regulations to limit methane and VOC releases from new and modified oil and gas operations. Among other features, the draft, unveiled in mid-August, would require the industry to find and repair leaks and limit emissions from equipment used at natural gas transmission compressor stations (*Greenwire*, Aug. 18).

In a news release today, the Interstate Natural Gas Association of America, which represents the pipeline industry, expressed particular concern with that facet of the proposed regulations, warning that they could lead to increased methane emissions because operators would often have to "blow down" pipelines or compressors to make repairs. The news release followed some 80 pages of comments filed by the association Friday.

The oil and gas sector is the nation's largest industrial source of methane, a greenhouse gas that EPA ranks as 25 times more potent than carbon dioxide in its global warming potential. In September, the top lawyer for the agency's Office of Air and Radiation said it will become clear within the next few years whether the proposed methane rules should be broadened to cover existing facilities (*Greenwire*, Sept. 29).

CHINA:

Beijing issues 1st 'red alert' on smog

Published: Monday, December 7, 2015

Beijing officials issued the city's first-ever "red alert" over smog levels, prompting schools to close and construction to cease in the capital city.

Pollution levels in Beijing are currently lower than last week when an "orange alert" was issued, but that ranking has since been bumped in status because of projected increases in particulate matter in the coming days.

An air pollution monitor operated by the U.S. Embassy in Beijing reported that the levels of

particulate matter (PM2.5) are 10 times above recommended limits. China's CCTV news channel reported that some parts of Beijing have a visibility of 660 feet.

The smog is a result of coal-powered plants and heating systems, vehicle emissions and dust from construction sites, which are lingering in the city because of humidity and a lack of wind.

The red alert has never been used before and will last until at least noon local time Thursday, when a cold front is expected to disperse the smog (BBC News, Dec. 7). **-- AK**

CLEAN POWER PLAN:

NARUC's Kavulla says federal compliance plan not acceptable to states

Published: Monday, December 7, 2015

How are legal challenges to the Clean Power Plan affecting regulators' ability to effectively plan for the future under the rule? During today's OnPoint, Travis Kavulla, president of the National Association of Regulatory Utility Commissioners and a member of the Montana Public Service Commission, discusses how his state is working toward compliance, while concurrently legally challenging the rule. He also explains why the Clean Energy Incentive Program is not being prominently considered in compliance discussions in his state.

Click here to watch today's OnPoint.

POWER PLAN HUB:

McCarthy takes power plant rule road show to Paris

Emily Holden and Rod Kuckro, E&E reporters

Published: December 7, 2015

U.S. EPA chief Gina McCarthy takes her campaign for the Clean Power Plan to Paris this week, promoting the agency's ability to achieve greenhouse gas reductions through the rule in speeches and panel discussions at the U.N. climate conference.

This weekend, McCarthy was scheduled to deliver the keynote address in a side event co-hosted by the Edison Electric Institute about charting a low-carbon course for the U.S. power sector.

<image012.jpg>

Each Monday, **Power Plays** previews upcoming moves on the way to Clean Power Plan compliance and recaps the week's developments.

Planned speakers included executives from electric utilities Pacific Gas and Electric Co. and PNM Resources Inc., as well as the president of the Center for Climate and Energy Solutions and the executive vice president of EEI.

Today, McCarthy speaks about the Clean Power Plan alongside European Commission

Environmental Commissioner Miguel Arias Cañete, and tomorrow she will discuss EPA's role in delivering on President Obama's overall climate plan.

On Wednesday, EEI and the International Emissions Trading Association co-sponsor an event to highlight how utilities might use carbon trading markets to meet CPP targets.

Officials from PG&E, Calpine Corp. and Berkshire Hathaway will participate, and EPA air chief Janet McCabe will speak.

Also Wednesday, Standard & Poor's in Paris will release a report on tools the investment community can use to manage climate risk.

On Thursday, McCarthy will speak at a side event to outline how policies in the administration's Climate Action Plan will put the country on target for 2025 greenhouse gas emissions goals.

Most of the events McCarthy attends will be live-streamed. Keep an eye out for news from E&E reporters Lisa Friedman, Jean Chemnick and Joel Kirkland, all of whom are reporting from Paris.

In the United States today, EPA general counsel Avi Garbow will keynote a conference in Las Vegas on the legal implications of new power industry regulations, particularly the Clean Power Plan. *EnergyWire*'s Ellen M. Gilmer will be reporting.

On Thursday evening, the South Carolina Department of Health and Environmental Control will host in Columbia what is billed as a public engagement session on the state energy plan and EPA's Clean Power Plan.

In other news, Colorado released a schedule of upcoming meetings on the rule. Two meetings in January will focus on the Clean Energy Incentive Program. One in February in Denver will explore compliance options, and another in March will focus on demand growth cost and reliability. The state's Air Pollution Control Division also released a summary of public comments received so far and a plan development timeline.

The Kansas Corporation Commission began soliciting public comments on the CPP last week. Read more on that below.

In case you missed it:

- Pennsylvania environment chief John Quigley aims to be among first states to comply with Clean Power Plan (*ClimateWire*, Dec. 4).

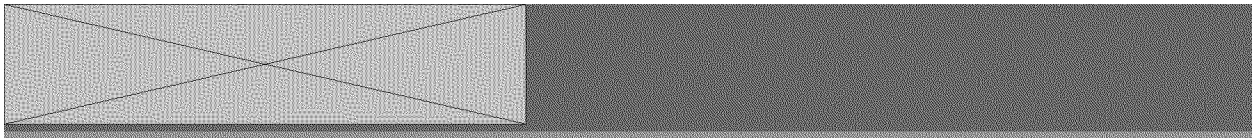
- Kansas utility regulators ordered a probe of the rule and will examine options to redispatch power (*EnergyWire*, Dec. 4).

- EPA warned a federal court against granting a stay of the greenhouse gas rules and argued industry and opposing states face no irreparable harm (*E&ENews PM*, Dec. 3).

- Missouri's air regulator is nearly certain the state will favor a mass-based compliance strategy preferred by state's electric generators (*EnergyWire*, Dec. 3).

- FERC's Tony Clark says some states will be challenged to build new pipelines and transmission lines in time to comply with Clean Power Plan (*Greenwire*, Dec. 1).

- Experts say accurate estimates of Clean Power Plan costs won't be possible for years (*EnergyWire*, Nov. 30).



CLIMATEWIRE — Tue., December 8, 2015

READ FULL EDITION

1.SCIENCE:

Bad news for the climate as methane leaks far surpass previous estimates

Emissions of methane from the oil and gas industry vastly exceed federal government estimates, according to a definitive study published yesterday. The study finds that daily leaks of the potent greenhouse gas from oil and gas wells in Texas' Barnett Shale matched the annual emissions of 8,000 cars.

2.NEGOTIATIONS:

Russia departs from its usual spoiler role at climate talks

LE BOURGET, France -- Everyone held their breath when Russia took the microphone. With a draft outcome of a new global climate change agreement on the table, ready to head to the world's ministers to make final high-level political decisions, the stakes Friday were high. If a country were to block it from moving forward, everything could crumble.

TODAY'S STORIES

3.NATIONS:
As China's economy cools, emissions are 'on track' to hold steady or decline
4.PUBLIC HEALTH:
Most groundwater arsenic in SE Asia coming from flooded wetlands -- study
5.REGULATION:
Clean Power Plan could muddle sound economics with politics -- state regulatory chief
6.FINANCE:
Green banks form network to underwrite global clean energy
7.POLICY:
Sanders launches climate push in Senate
8.ADVOCACY:
Climate skeptics offer 'cinematic proof' that warming is a sham
9.FOSSIL FUELS:
Czech Republic joins other countries in turning to coal
10.HEALTH:
Small islands face severe disease risks from climate change -- experts
11.RESOURCES:
10 African nations back massive reforestation plan
12.INNOVATION:
Australia launches $1B initiative to find 'technological breakthroughs'

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Tue., December 8, 2015

READ FULL EDITION

1.CLEAN POWER PLAN:

EPA lawyer looks to sway an apprehensive power industry

LAS VEGAS -- On a mission to build bridges with the power industry, U.S. EPA's top lawyer came out swinging yesterday against the politicization of the agency's latest environmental rules.

TOP STORIES

2.PARIS TALKS:

SolarCity CEO on changing the globe's incentive 'to pollute'

3.REGULATION:

Clean Power Plan could muddle sound economics with politics -- state regulatory chief

4.ENFORCEMENT:

Well near explosion has been leaking gas for years -- attorney

ELECTRICITY

5.RENEWABLES:

'Real numbers' holding up Ga. push for value of solar

6.NUCLEAR:

Toshiba reveals hits to Westinghouse finances

OIL AND GAS

7.METHANE:

New global studies meant to complement EDF emissions project

8.EMISSIONS:

EDF reconciles dueling methods for methane estimates

9.PEOPLE:

Alumnus of closing energy law behemoth joins Pittsburgh firm

10.PUBLIC HEALTH:

Colo. program now collecting oil and gas health concerns

11.RAIL:

N.D. training safety inspectors for pilot program

12.SHALE:

Colo. basin giving profits amid low oil prices

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Good, David[good.david@epa.gov]
From: Thomas, Richard (EEO)
Sent: Wed 12/9/2015 6:47:52 PM
Subject: RE: Voice Mail from Dave Good (Work) (1 minute and 2 seconds)

Thanks Dave, I checked my calculation and saw that I made a typo and entered a highway CO2 value of 350 instead of 353. I have now processed the correction and if you find time maybe you can run the audit again. The adjusted combined CO2 value should be 419 g/mi.

Thanks,

Richard

From: Microsoft Outlook **On Behalf Of** Dave Good
Sent: Wednesday, December 09, 2015 11:08 AM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Subject: Voice Mail from Dave Good (Work) (1 minute and 2 seconds)

You received a voice mail from Dave Good at (734) 214-4450

Caller-Id:	(734) 214-4450
Work:	(734) 214-4450
E-mail:	good.david@epa.gov

To: richard.thomas@vw.com[richard.thomas@vw.com]
From: Good, David
Sent: Wed 12/9/2015 11:24:27 PM
Subject: Re: 2016-2017 FE Guide - Errors in Verify as of 6AM on Dec 9, 2015;
VW_Group_2016-2017 FE Guide-all rel dates-no-sales-12-9-2015.xlsx

Greg,

Re: 2016-2017 FE Guide - Errors in Verify as of 6AM on Dec 9, 2015;

Attached are the data in Verify as of 6AM on Dec 9, 2015. Labels with pea green fill in the first few columns have errors which need to be corrected before I can have the data posted on www.fueleconomy.gov. There is one minor error in a release date.

The next normal posting of 2016 FE Label data on www.fueleconomy.gov will be on Dec 15, 2015 (on a monthly schedule where I run the query on the 1st, 9th,15th and 23rd of the month) and send the data to DOE for posting on that day (or a day later).

Please make any needed corrections to Verify when you get a chance.

Thanks

Dave

EPA comm	VERIFY cc	Model Yr (Mfr Name	Division (t	Carline	Verify Mfr	Index (Mo	Eng Displ	# Cyl
		2016 Volkswage	Audi	A3	VGA	36	1.8	4
		2016 Volkswage	Audi	A3 Cabriol	VGA	37	1.8	4
		2016 Volkswage	Audi	A3 Cabriol	VGA	39	2.0	4
		2016 Volkswage	Audi	A3 quattro	VGA	38	2.0	4
		2016 Volkswage	Audi	A4	VGA	51	2.0	4
		2016 Volkswage	Audi	A4 quattro	VGA	33	2.0	4
		2016 Volkswage	Audi	A4 quattro	VGA	49	2.0	4
		2016 Volkswage	Audi	A5 Cabriol	VGA	35	2.0	4
		2016 Volkswage	Audi	A5 quattro	VGA	34	2.0	4
		2016 Volkswage	Audi	A5 quattro	VGA	50	2.0	4
		2016 Volkswage	Audi	A6	VGA	16	2.0	4
		2016 Volkswage	Audi	A6 quattro	VGA	15	2.0	4
		2016 Volkswage	Audi	A6 quattro	VGA	2	3.0	6
Diesel;		2016 Volkswage	Audi	A6 quattro	VGA	3	3.0	6
		2016 Volkswage	Audi	A7 quattro	VGA	1	3.0	6
Diesel;		2016 Volkswage	Audi	A7 quattro	VGA	4	3.0	6
Diesel;		2016 Volkswage	Audi	A8L	VGA	26	3.0	6
		2016 Volkswage	Audi	A8L	VGA	25	3.0	6
		2016 Volkswage	Audi	A8L	VGA	9	4.0	8
		2016 Volkswage	Audi	A8L	VGA	66	6.3	12
		2016 Volkswage	Audi	allroad qu	VGA	32	2.0	4
		2016 Volkswage	Audi	Q3	VGA	53	2.0	4
		2016 Volkswage	Audi	Q3 quattro	VGA	54	2.0	4
		2016 Volkswage	Audi	Q5	VGA	31	2.0	4
Diesel;		2016 Volkswage	Audi	Q5	VGA	27	3.0	6
		2016 Volkswage	Audi	Q5	VGA	47	3.0	6
Hybrid;		2016 Volkswage	Audi	Q5 Hybrid	VGA	62	2.0	4
Error in RoY		2017 Volkswage	Audi	Q7	VGA	1	3.0	6
		2016 Volkswage	Audi	RS7	VGA	12	4.0	8
		2016 Volkswage	Audi	S3	VGA	55	2.0	4
		2016 Volkswage	Audi	S4	VGA	42	3.0	6
		2016 Volkswage	Audi	S4	VGA	45	3.0	6
		2016 Volkswage	Audi	S5	VGA	43	3.0	6
		2016 Volkswage	Audi	S5	VGA	46	3.0	6
		2016 Volkswage	Audi	S5 Cabriole	VGA	44	3.0	6
		2016 Volkswage	Audi	S6	VGA	14	4.0	8
		2016 Volkswage	Audi	S7	VGA	13	4.0	8
Relabeled. Please include in mix		2016 Volkswage	Audi	S8	VGA	11	4.0	8
		2016 Volkswage	Audi	SQ5	VGA	48	3.0	6
		2016 Volkswage	Audi	TT Coupe c	VGA	60	2.0	4
		2016 Volkswage	Audi	TT Roadste	VGA	61	2.0	4
		2016 Volkswage	Audi	TTS Coupe	VGA	52	2.0	4
		2016 Volkswage	Bentley	Continenta	VGA	6	4.0	8
		2016 Volkswage	Bentley	Continenta	VGA	28	6.0	12

	2016	Volkswage	Bentley	Continenta	VGA	7	4.0	8
	2016	Volkswage	Bentley	Continenta	VGA	30	6.0	12
	2016	Volkswage	Bentley	Flying Spur	VGA	8	4.0	8
	2016	Volkswage	Bentley	Flying Spur	VGA	29	6.0	12
	2016	Volkswage	Bentley	Mulsanne	VGA	5	6.8	8
	2016	Volkswage	Lamborghi	Aventador	VGA	17	6.5	12
	2016	Volkswage	Lamborghi	Aventador	VGA	18	6.5	12
	2016	Volkswage	Lamborghi	Huracan	VGA	87	5.2	10
Suppressed by EPA from FE2016	2016	Volkswage	Lamborghi	Huracan Sp	VGA	88	5.2	10
	2016	Volkswage	Volkswage	Beetle	VGA	71	1.8	4
	2016	Volkswage	Volkswage	Beetle	VGA	74	1.8	4
	2016	Volkswage	Volkswage	Beetle	VGA	82	2.0	4
	2016	Volkswage	Volkswage	Beetle	VGA	79	2.0	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	72	1.8	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	77	2.0	4
	2016	Volkswage	Volkswage	Beetle Con	VGA	80	2.0	4
	2016	Volkswage	Volkswage	CC	VGA	63	2.0	4
	2016	Volkswage	Volkswage	CC	VGA	64	2.0	4
	2016	Volkswage	Volkswage	CC 4Motio	VGA	68	3.6	6
	2016	Volkswage	Volkswage	Eos	VGA	65	2.0	4
	2016	Volkswage	Volkswage	Golf	VGA	58	1.8	4
	2016	Volkswage	Volkswage	Golf	VGA	59	1.8	4
Relabeled. Please include in mo	2016	Volkswage	Volkswage	Golf R	VGA	22	2.0	4
	2016	Volkswage	Volkswage	Golf R	VGA	23	2.0	4
	2016	Volkswage	Volkswage	Golf Sport	VGA	56	1.8	4
	2016	Volkswage	Volkswage	Golf Sport	VGA	57	1.8	4
	2016	Volkswage	Volkswage	GTI	VGA	40	2.0	4
	2016	Volkswage	Volkswage	GTI	VGA	41	2.0	4
	2016	Volkswage	Volkswage	Jetta	VGA	85	1.4	4
	2016	Volkswage	Volkswage	Jetta	VGA	100	1.4	4
	2016	Volkswage	Volkswage	Jetta	VGA	70	1.8	4
	2016	Volkswage	Volkswage	Jetta	VGA	73	1.8	4
	2016	Volkswage	Volkswage	Jetta	VGA	76	2.0	4
	2016	Volkswage	Volkswage	Jetta	VGA	78	2.0	4
Hybrid;	2016	Volkswage	Volkswage	Jetta Hybri	VGA	83	1.4	4
	2016	Volkswage	Volkswage	Passat	VGA	81	1.8	4
	2016	Volkswage	Volkswage	Passat	VGA	67	3.6	6
	2016	Volkswage	Volkswage	Tiguan	VGA	21	2.0	4
	2016	Volkswage	Volkswage	Tiguan 4M	VGA	20	2.0	4
Diesel;	2016	Volkswage	Volkswage	Touareg	VGA	19	3.0	6
	2016	Volkswage	Volkswage	Touareg	VGA	69	3.6	6

Transmiss	City FE (G	Hwy FE (C	Comb FE	Low'd City	Low'd HW	Low'd Cor	City Unad	Hwy Unad	Comb Una
Auto(AM-S	23	33	27				28.9	46.6	34.858
Auto(AM-S	24	35	28				30.5	47	36.2224
Auto(AM-S	23	32	26				29	44.2	34.3094
Auto(AM-S	24	33	27				30	44.6	35.1828
Auto(AV-S	24	31	27				30.3	44.6	35.4089
Auto(S8)	21	30	25				27.1	42.2	32.3011
Manual(M	22	32	26				27.6526	43.9914	33.2017
Auto(S8)	21	29	24				26.4	41	31.4377
Auto(S8)	21	30	25				27.1	42.2	32.3011
Manual(M	22	32	26				27.6526	43.9914	33.2017
Auto(AM-S	24	35	28				31.2269	48.8	37.2657
Auto(S8)	22	32	26				27.8348	45.5	33.7274
Auto(S8)	20	30	24				25.6	41.9	31.0325
Auto(S8)	25	38	30				31.1687	52.7	38.1901
Auto(S8)	20	30	24				25.6	41.9	31.0325
Auto(S8)	25	38	30				31.1687	52.7	38.1901
Auto(S8)	24	36	28				29.9399	51.4	36.8664
Auto(S8)	19	29	22				23.5657	39.6	28.8162
Auto(S8)	18	29	22				22.278	39.1	27.6266
Auto(S8)	14	22	17				17.2	28.6	20.9595
Auto(S8)	21	28	24				26.7	39.2	31.1732
Auto(S6)	20	29	23				24.8499	40	29.9555
Auto(S6)	20	28	23				24.8	38.5	29.5284
Auto(S8)	20	28	23				24.8	38.6	29.5548
Auto(S8)	24	31	27				29.1832	44.1	34.4228
Auto(S8)	18	26	21				22.8446	35.5	27.2096
Auto(S8)	24	30	26				30.4	39.9	34.048
Auto(S8)	19	29	21				23.5	35.2	27.6332
Auto(S8)	15	25	18				17.8763	33.1799	22.5584
Auto(AM-S	23	31	26				28.5	41.5	33.1767
Auto(AM-S	18	28	21				22.4	35.8	26.9372
Manual(M	17	26	20				20	33.4	24.4063
Auto(AM-S	18	28	21				22.4	35.8	26.9372
Manual(M	17	26	20				20	33.4	24.4063
Auto(AM-S	18	26	21				22.1	34.7	26.4165
Auto(AM-S	18	27	21				21.9777	36.8	26.843
Auto(AM-S	17	27	21				21.7499	37.3	26.7724
Auto(S8)	19	26	20				19.6464	35.1518	24.6781
Auto(S8)	17	24	19				20.8	32.9	24.9252
Auto(AM-S	23	30	26				28.8051	41.9128	33.5228
Auto(AM-S	23	30	26				28.8051	41.9128	33.5228
Auto(AM-S	23	27	25				28.2	38	31.9024
Auto(S8)	15	25	19				19.1	33.5	23.6806
Auto(S8)	12	21	15				15.4	28.3	19.3741

419: Please revise/verify as needed.

vided). [600.314-08 states label values must not change for entire model year, except for 600.507(a) and 600.314-0

Auto(S8)	14	24	17	17.3	31.8	21.7662
Auto(S8)	12	20	15	14.4	26.7	18.1658
Auto(S8)	14	24	17	17.3	31.8	21.7662
Auto(S8)	12	20	15	14.4	26.7	18.1658
Auto(S8)	11	18	13	13.6993	24.8	17.1546
Auto(AM-S	11	18	13	12.6	25.2	16.2581
Auto(AM-S	10	17	12	11.7313	21.9881	14.8481
Auto(AM-S	14	21	17	17.3	27	20.6362
Auto(AM-S	14	20	16	17	26.4	20.2436
Auto(S6)	25	34	28	31.4714	47.6267	37.1407
Manual(M	25	34	28	31.76	47.8	37.4089
Auto(AM-S	24	31	27	30.4602	44.2	35.4141
Manual(M	23	31	26	28.5453	43.3257	33.7222
Auto(S6)	25	34	28	31.4714	47.6267	37.1407
Auto(AM-S	23	31	26	29.1428	43.2697	34.1618
Manual(M	23	31	26	28.5453	43.3257	33.7222
Auto(AM-S	22	31	25	26.9721	42.4615	32.2692
Manual(M	21	32	25	25.7082	43.8369	31.5863
Auto(S6)	17	25	20	20.5	33.5	24.8373
Auto(AM-S	22	30	25	27.5	41.5	32.4219
Auto(S6)	25	36	29	32.5	51.1	38.8661
Manual(M	25	37	30	32.6	52.5	39.3042
Auto(AM-S	23	30	25	28.1	40.6	32.6159
Manual(M	22	31	25	26.5	39.7	31.1626
Auto(S6)	25	35	29	32.7	49.4	38.567
Manual(M	25	36	29	31.7	50.5	38.0792
Auto(AM-S	25	33	28	30.7	45.3	35.9078
Manual(M	25	34	28	30	46.4	35.674
Auto(S6)	28	39	32	36.4	58.1	43.7538
Manual(M	28	40	33	37.3	59.4	44.8007
Auto(S6)	25	36	29	32.6424	51.503	39.083
Manual(M	25	37	29	32.2552	52.1	38.9275
Auto(AM-S	24	33	27	30.639	47.1	36.3569
Manual(M	23	33	27	28.8819	46.678	34.8632
Auto(AM-S	42	48	44	57.5	65.3	60.7663
Auto(S6)	25	38	29	32.1277	53.336	39.1294
Auto(AM-S	20	28	23	23.9	37.3	28.5088
Auto(S6)	21	26	23	25.9873	36.0386	29.7169
Auto(S6)	20	26	23	25.7782	36.0407	29.5668
Auto(S8)	21	29	24	25.3	41	30.5673
Auto(S8)	17	23	19	21.3	31.6	24.9612

vided). [600.314-08 states label values must not change for entire model year, except for 600.507(a) and 600.314-0

City Unrd	Hwy Unrd	Comb Unr	Guzzler?	Air Aspir I	Air Aspira	Trans	Trans Des	Trans, Otl	# Gears
23.4556	33.3421	27.0673		TC	Turbochar	AMS	Automated Manual-	Selectable	6
24.3444	34.5845	28.0867		TC	Turbochar	AMS	Automated Manual-	Selectable	6
23.312	31.5429	26.4136		TC	Turbochar	AMS	Automated Manual-	Selectable	6
24.0818	32.6198	27.297		TC	Turbochar	AMS	Automated Manual-	Selectable	6
23.7847	30.8933	26.532		TC	Turbochar	SCV	Selectable Continuously Variable		8
21.3584	30.0427	24.5522		TC	Turbochar	SA	Semi-Automatic		8
22.2613	32.093	25.8209		TC	Turbochar	M	Manual		6
20.8442	29.2228	23.9319		TC	Turbochar	SA	Semi-Automatic		8
21.3584	30.0427	24.5522		TC	Turbochar	SA	Semi-Automatic		8
22.2613	32.093	25.8209		TC	Turbochar	M	Manual		6
24.3335	34.5182	28.059		TC	Turbochar	AMS	Automated Manual-	Selectable	7
21.8708	32.2876	25.5853		TC	Turbochar	SA	Semi-Automatic		8
20.2543	29.8379	23.6763		SC	Supercha	SA	Semi-Automatic		8
25.2158	37.5811	29.5982		TC	Turbochar	SA	Semi-Automatic		8
20.2543	29.8379	23.6763		SC	Supercha	SA	Semi-Automatic		8
25.2158	37.5811	29.5982		TC	Turbochar	SA	Semi-Automatic		8
23.8727	36.3252	28.2271		TC	Turbochar	SA	Semi-Automatic		8
18.6853	29.3211	22.3303		SC	Supercha	SA	Semi-Automatic		8
17.9485	28.5015	21.5369		TC	Turbochar	SA	Semi-Automatic		8
13.8358	21.9706	16.602	G	NA	Naturally A	SA	Semi-Automatic		8
21.0646	27.9892	23.7037		TC	Turbochar	SA	Semi-Automatic		8
19.6619	28.538	22.8617		TC	Turbochar	SA	Semi-Automatic		6
19.7028	28.0105	22.7375		TC	Turbochar	SA	Semi-Automatic		6
19.6619	27.5771	22.5781		TC	Turbochar	SA	Semi-Automatic		8
23.6286	31.3636	26.5783		TC	Turbochar	SA	Semi-Automatic		8
17.8443	25.5746	20.6536		SC	Supercha	SA	Semi-Automatic		8
24.0075	29.7936	26.3065		TC	Turbochar	SA	Semi-Automatic		8
18.7066	25.0209	21.1032		SC	Supercha	SA	Semi-Automatic		8
14.521	25.1577	17.9329		TC	Turbochar	SA	Semi-Automatic		8
23.1833	30.7065	26.056		TC	Turbochar	AMS	Automated Manual-	Selectable	6
18.117	27.558	21.419		SC	Supercha	AMS	Automated Manual-	Selectable	7
17.0438	26.023	20.1767		SC	Supercha	M	Manual		6
18.117	27.558	21.419		SC	Supercha	AMS	Automated Manual-	Selectable	7
17.0438	26.023	20.1767		SC	Supercha	M	Manual		6
17.6699	25.953	20.6333		SC	Supercha	AMS	Automated Manual-	Selectable	7
17.7328	26.6352	20.8721		TC	Turbochar	AMS	Automated Manual-	Selectable	7
17.4937	26.7312	20.715		TC	Turbochar	AMS	Automated Manual-	Selectable	7
16.1899	25.2898	19.9672		TC	Turbochar	SA	Semi-Automatic		8
16.7285	23.6581	19.2682		SC	Supercha	SA	Semi-Automatic		8
23.3039	30.3915	26.0363		TC	Turbochar	AMS	Automated Manual-	Selectable	6
23.3039	30.3915	26.0363		TC	Turbochar	AMS	Automated Manual-	Selectable	6
22.8034	27.3644	24.6524		TC	Turbochar	AMS	Automated Manual-	Selectable	6
15.2087	25.3816	18.5553		TC	Turbochar	SA	Semi-Automatic		8
12.4737	21.0866	15.2827	G	TC	Turbochar	SA	Semi-Automatic		8

8(e)(4) reasons] Please revise release date to the effective date when vehicles were relabeled;

13.819	23.8488	17.0447	G	TC	Turbocharged	SA	Semi-Automatic	8
12.0228	20.0478	14.6643	G	TC	Turbocharged	SA	Semi-Automatic	8
13.819	23.8488	17.0447	G	TC	Turbocharged	SA	Semi-Automatic	8
12.0228	20.0478	14.6643	G	TC	Turbocharged	SA	Semi-Automatic	8
11.1823	17.9616	13.4701	G	TC	Turbocharged	SA	Semi-Automatic	8
10.6055	18.4729	13.1199	G	NA	Naturally Aspirated	AMS	Automated Manual- Selectable	7
9.9676	16.7	12.1766	G	NA	Naturally Aspirated	AMS	Automated Manual- Selectable	7
14.318	20.6311	16.6044	G	NA	Naturally Aspirated	AMS	Automated Manual- Selectable	7
13.9274	19.9987	16.1311	G	NA	Naturally Aspirated	AMS	Automated Manual- Selectable	7
24.5488	33.7087	27.9689		TC	Turbocharged	SA	Semi-Automatic	6
24.7637	33.8438	28.164		TC	Turbocharged	M	Manual	5
23.83	31.405	26.7315		TC	Turbocharged	AMS	Automated Manual- Selectable	6
23.0368	30.5347	25.8985		TC	Turbocharged	M	Manual	6
24.5488	33.7087	27.9689		TC	Turbocharged	SA	Semi-Automatic	6
22.8175	30.7926	25.8277		TC	Turbocharged	AMS	Automated Manual- Selectable	6
23.0368	30.5347	25.8985		TC	Turbocharged	M	Manual	6
21.8736	31.0153	25.2185		TC	Turbocharged	AMS	Automated Manual- Selectable	6
20.7831	31.7504	24.6082		TC	Turbocharged	M	Manual	6
16.9415	25.219	19.8774		NA	Naturally Aspirated	SA	Semi-Automatic	6
21.7634	30.1121	24.8658		TC	Turbocharged	AMS	Automated Manual- Selectable	6
25.264	36.0643	29.1989		TC	Turbocharged	SA	Semi-Automatic	6
25.3353	37.0021	29.5244		TC	Turbocharged	M	Manual	5
21.6859	29.8622	25.5705		TC	Turbocharged	AMS	Automated Manual- Selectable	6
21.6528	30.5249	24.911		TC	Turbocharged	M	Manual	6
25.4066	34.9222	28.9572		TC	Turbocharged	SA	Semi-Automatic	6
24.6921	35.6616	28.6591		TC	Turbocharged	M	Manual	5
24.6434	32.6158	27.6891		TC	Turbocharged	AMS	Automated Manual- Selectable	6
24.9095	34.2917	28.407		TC	Turbocharged	M	Manual	6
27.8072	39.2595	32.009		TC	Turbocharged	SA	Semi-Automatic	6
28.4148	40.0257	32.681		TC	Turbocharged	M	Manual	5
25.3353	36.3325	29.3303		TC	Turbocharged	SA	Semi-Automatic	6
25.1212	36.7344	29.2878		TC	Turbocharged	M	Manual	5
23.902	33.3709	27.4007		TC	Turbocharged	AMS	Automated Manual- Selectable	6
23.1336	32.7327	26.6506		TC	Turbocharged	M	Manual	6
41.5773	48.2766	44.3466		TC	Turbocharged	AMS	Automated Manual- Selectable	7
24.9783	37.5368	29.4054		TC	Turbocharged	SA	Semi-Automatic	6
19.7174	27.8048	22.6868		NA	Naturally Aspirated	AMS	Automated Manual- Selectable	6
20.5496	25.7855	22.6161		TC	Turbocharged	SA	Semi-Automatic	6
20.3859	25.8136	22.5164		TC	Turbocharged	SA	Semi-Automatic	6
20.799	28.6879	23.7363		TC	Turbocharged	SA	Semi-Automatic	8
17.0411	22.7325	19.2048		NA	Naturally Aspirated	SA	Semi-Automatic	8

8(e)(4) reasons] Please revise release date to the effective date when vehicles were relabeled.

Lockup Tc	Trans Cre	Drive Sys	Drive Des	Primary B	Max Ethar	Max Biodi	Range1 - I	Fuel Usag	Fuel Usag
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
MT with pad	dles)	F	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		422	GP	Gasoline (F
N	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		406	GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		422	GP	Gasoline (F
N	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4	5		DU	Diesel, ultr
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4	5		DU	Diesel, ultr
Y	N	A	All Wheel	GVGAJ03.0	NU4	5		DU	Diesel, ultr
Y	N	A	All Wheel	GVGAV03.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV06.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		406	GP	Gasoline (F
Y	N	F	2-Wheel D	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ02.(	85		455	GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.0	NU4	5		DU	Diesel, ultr
Y	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAT02.(	15			GP	Gasoline (F
Y	N	A	All Wheel	IHVGAT03.(	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
N	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
N	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV04.	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAJ03.(	15			GP	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			G	Gasoline (F
tomated Ma	nual with	paddles)	All Wheel	GVGAV02.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV04.	15			GP	Gasoline (F
Y	N	A	All Wheel	GVGAV06.	15			GP	Gasoline (F

Y	N	A	All Wheel IGVGAV04.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV06.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV04.	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV06.	15		GP	Gasoline (F
Y	N	R	2-Wheel DGVGAV06.	15		GP	Gasoline (F
tomated Manual with	N	A	All Wheel IGVGAV06.	15		GPR	Gasoline (F
tomated Manual with	N	A	All Wheel IGVGAV06.	15		GPR	Gasoline (F
tomated Manual with	N	A	All Wheel IGVGAV05.	15		GP	Gasoline (F
tomated Manual with	N	A	All Wheel IGVGAV05.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
N	N	F	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAV03.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV02.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	A	All Wheel IGVGAV02.	15		GP	Gasoline (F
N	N	A	All Wheel IGVGAV02.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV01.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV01.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV02.	15		G	Gasoline (F
N	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV01.	15		GP	Gasoline (F
Y	N	F	2-Wheel DGVGAV02.	15		G	Gasoline (F
tomated Manual with	N	P	2-Wheel DGVGAV03.	15		G	Gasoline (F
Y	N	F	2-Wheel DGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAJ02.(	15		GP	Gasoline (F
Y	N	A	All Wheel IGVGAT03.0NU2		5	DU	Diesel, ultr
Y	N	A	All Wheel IGVGAT03.(	15		G	Gasoline (F

Pollutant	Fuel Unit	Fuel	Gas Guzz	Gas Guzz	2Dr Pass	2Dr Lugg	4Dr Pass	4Dr Lugg	Htchbk Pa	Htchbk Lu
MPG (Unleaded Recommended)	miles per gal	Not exempt					86	12		
MPG (Unleaded Recommended)	miles per gal	Not exempt	79	10						
MPG (Unleaded Recommended)	miles per gal	Not exempt	79	10						
MPG (Unleaded Recommended)	miles per gal	Not exempt					86	10		
MPG (Unleaded Recommended)	miles per gal	Not exempt					91	12		
MPG (Unleaded Recommended)	miles per gal	Not exempt					91	12		
MPG (Unleaded Recommended)	miles per gal	Not exempt					91	12		
MPG (Unleaded Recommended)	miles per gal	Not exempt	81	10						
MPG (Unleaded Recommended)	miles per gal	Not exempt	84	12						
MPG (Unleaded Recommended)	miles per gal	Not exempt	84	12						
MPG (Unleaded Recommended)	miles per gal	Not exempt					98	16		
MPG (Unleaded Recommended)	miles per gal	Not exempt					98	16		
MPG (Unleaded Recommended)	miles per gal	Not exempt					98	16		
ulfur (15 ppm maximum)	miles per gal	Not exempt					98	16		
MPG (Unleaded Recommended)	miles per gal	Not exempt							94	25
ulfur (15 ppm maximum)	miles per gal	Not exempt							94	25
ulfur (15 ppm maximum)	miles per gal	Not exempt					107	15		
MPG (Unleaded Recommended)	miles per gal	Not exempt					107	15		
MPG (Unleaded Recommended)	miles per gal	Not exempt					107	15		
MPG (Unleaded Recommended)	miles per gal	Not exempt					107	15		
MPG (Unleaded Recommended)	miles per gal	Not exempt					90	28		
MPG (Unleaded Recommended)	miles per gal	Not exempt							84	17
MPG (Unleaded Recommended)	miles per gal	Not exempt							84	17
MPG (Unleaded Recommended)	miles per gal	Truck								
ulfur (15 ppm maximum)	miles per gal	Truck								
MPG (Unleaded Recommended)	miles per gal	Truck								
MPG (Unleaded Recommended)	miles per gal	Truck								
MPG (Unleaded Recommended)	miles per gal	Truck								
MPG (Unleaded Recommended)	miles per gal	Not exempt							94	25
MPG (Unleaded Recommended)	miles per gal	Not exempt					86	10		
MPG (Unleaded Recommended)	miles per gal	Not exempt					90	13		
MPG (Unleaded Recommended)	miles per gal	Not exempt					90	13		
MPG (Unleaded Recommended)	miles per gal	Not exempt	84	13						
MPG (Unleaded Recommended)	miles per gal	Not exempt	84	13						
MPG (Unleaded Recommended)	miles per gal	Not exempt	81	10						
MPG (Unleaded Recommended)	miles per gal	Not exempt					98	16		
MPG (Unleaded Recommended)	miles per gal	Not exempt							94	25
MPG (Unleaded Recommended)	miles per gal	Not exempt					100	15		
MPG (Unleaded Recommended)	miles per gal	Truck								
MPG (Unleaded Recommended)	miles per gal	Not exempt	74	13						
MPG (Unleaded Recommended)	miles per gal	Not exempt								
MPG (Unleaded Recommended)	miles per gal	Not exempt	74	13						
MPG (Unleaded Recommended)	miles per gal	Not exempt	89	11						
MPG (Unleaded Recommended)	miles per gal	Not exempt	89	11						

Unleaded Recommended)	Not exempt	86	7				
Unleaded Recommended)	Not exempt	86	7				
Unleaded Recommended)	Not exempt	102	13				
Unleaded Recommended)	Not exempt	102	13				
Unleaded Recommended)	Not exempt			101	11		
Unleaded Required)	Not exempt						
Unleaded Required)	Not exempt						
Unleaded Recommended)	Not exempt						
Unleaded Recommended)	Not exempt						
Unleaded Recommended)	Not exempt					85	15
Unleaded Recommended)	Not exempt					85	15
Unleaded Recommended)	Not exempt					85	15
Unleaded Recommended)	Not exempt					85	15
Unleaded Recommended)	Not exempt	81	7				
Unleaded Recommended)	Not exempt	81	7				
Unleaded Recommended)	Not exempt	81	7				
Unleaded Recommended)	Not exempt	94	13				
Unleaded Recommended)	Not exempt	94	13				
Unleaded Recommended)	Not exempt	94	13				
Unleaded Recommended)	Not exempt	77	11				
Unleaded Recommended)	Not exempt					93	16
Unleaded Recommended)	Not exempt					93	16
Unleaded Recommended)	Not exempt					93	16
Unleaded Recommended)	Not exempt					93	16
Unleaded Recommended)	Not exempt			94	30		
Unleaded Recommended)	Not exempt			94	30		
Unleaded Recommended)	Not exempt					93	16
Unleaded Recommended)	Not exempt					93	16
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			94	16		
Unleaded Recommended)	Not exempt			102	16		
Unleaded Recommended)	Not exempt			102	16		
Unleaded Recommended)	Truck						
Unleaded Recommended)	Truck						
ulfur (15 ppm maximum)	Truck						
Unleaded Recommended)	Truck						

Annual Fu	EPA Calcu	Comment	City2 FE (H	Hwy2 Fue	Comb2 Fu	Low'd City	Low'd Hw	Low'd Cor	City2 Una
1650	1650	fuel costs corrected							
1600	1600	fuel costs corrected							
1750	1750	fuel cost corrections							
1650	1650	fuel cost corrections							
1850	1850								
2000	2000		15	22	18				19.5
1900	1900								
2050	2050		15	21	17				19
2000	2000		15	22	18				19.5
1900	1900								
1750	1750								
1900	1900	CO2 unrounded and rounded values corrected, typo. further CO2 corrections							
2050	2050								
1700	1700	release date change,added configuration after EPA confirmatory testing, corrected unadj unr							
2050	2050								
1700	1700	added configuration after EPA confirmatory testing to base level, corrected unadj unrnd com							
1800	1800								
2250	2250								
2250	2250	engine code correction, data sub used							
2900	2900								
2050	2050		15	21	17				19.2
2150	2150								
2150	2150								
2150	2150		14	19	16				17.4
1850	1850	corrected fuel economy rating							
2350	2350								
1900	1900								
2000	2000								
2750	2750	50/50 weighting of best and worse (D&S) testing							
1900	1900								
2350	2350								
2500	2500								
2350	2350								
2500	2500								
2350	2350								
2350	2350	corrected typo adj unrounded city CO2 value.							
2350	2350								
2500	2500	voluntary relabeled with addition of 605 HP engine and configuration for the S8 Plus model (S							
2600	2600								
1750	1750	fuel costs correction							
1750	1750	fuel cost correction							
2000	2000								
2600	2600	engine configuration changed to 520 HP = #6, release date changed							
3300	3300	changed to a gasoline fueled label from flex fueled concept. 15% ethanol max							

2900	2900	
3300	3300	this is corrected to drop flex fueled concept for 2016; 15% ethanol max
2900	2900	
3300	3300	this is corrected to drop flex fueled concept for 2016, 15% ethanol max
3800	3800	Vehicle model equipped with cylinder deactivation with a switch. Active and inactive tests av
3800	3800	
4100	4100	corrected ETW with RLHP for SV
2900	2900	release date change
3100	3100	release date change
1600	1600	
1600	1600	5 YR FUEL SAVINGS CORRECTED
1650	1650	release date changed to 8/28, corrected typo rounded CO2 value, corrected unrounded CO2 c
1750	1750	
1600	1600	
1750	1750	release date changed
1750	1750	
2000	2000	
2000	2000	
2250	2250	recommended fuel correction
2000	2000	
1550	1550	fuel costs corrected
1500	1500	
2000	2000	new ETW for automatic
2000	2000	
1550	1550	
1550	1550	
1600	1600	fuel cost correction, 5 year cost correction, add equivalent engine codes data substitution use
1600	1600	fuel cost correction, add equivalent engine codes, data substitution used
1400	1400	
1350	1350	
1550	1550	gal/100 miles corrected
1550	1550	
1650	1650	combined typo unadjusted MPG value corrected, adjusted unrounded CO2 value corrected
1650	1650	adjusted unrounded CO2 values corrected
1100	1100	
1550	1550	release date change to Sept 21st
1950	1950	recommended fuel change correction, release date now Sept 21st
2150	2150	
2150	2150	
2100	2100	
2350	2350	

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] Alternative Fuel		
Hwy2 Unit	Comb2	Cnty2	Cnty2 Unit	Hwy2	Unit	Comb2	Unit	Range2 -	Fuel2 Usa	Fuel2 Usa	Fuel2 Unit	Fuel2 Unit
30.8	23.356	15.3563	21.9111	17.7451	304	E	Ethanol (E8	MPG	miles per g
30	22.7545	15.0024	21.384	17.3296	287	E	Ethanol (E8	MPG	miles per g
30.8	23.356	15.3563	21.9111	17.7451	304	E	Ethanol (E8	MPG	miles per g

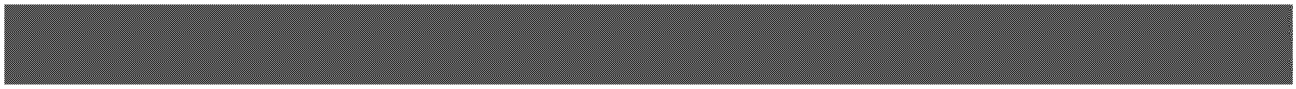
nd combined CO2 value

bined CO2

28.8	22.5882	15.1507	20.5603	17.1855	287	E	Ethanol (E8	MPG	miles per g
27.1	20.7407	13.7947	19.3602	15.8444	317	E	Ethanol (E8	MPG	miles per g

OP wk45) no new carline.

eraged together at 50/50. Data substitution for engine code with lesser HP.



ity value

d

Alternative Fuel									
Fuel2 AltmCity	CO2 I	Hwy CO2	Comb CO	Fuel2 EPA	Descripto	Intake Val	Exhaust V	Carline Cl	Carline Cl
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
2150	400	281	347	2150	SIDI; FFV;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
2300	410	288	355	2300	SIDI; FFV;	2	2	3	Subcompa
2150	400	281	347	2150	SIDI; FFV;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
						2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
						2	2	5	Midsize Ca
						2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
					SIDI;	2	2	6	Large Cars
2300	406	300	358	2300	SIDI; FFV;	2	2	7	Small Stati
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
2450	450	320	392	2450	SIDI; FFV;	2	2	31	Small SUV 4WD
						2	2	31	Small SUV 4WD
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	31	Small SUV 4WD
					SIDI & PFI;	2	2	33	Standard SUV 4W
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	4	Compact C
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	5	Midsize Ca
					SIDI;	2	2	5	Midsize Ca
					SIDI; Unde	2	2	5	Midsize Ca
					SIDI;	2	2	31	Small SUV 4WD
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	1	Two Seate
					SIDI;	2	2	3	Subcompa
					SIDI;	2	2	4	Compact C
						2	2	4	Compact C

	SIDI;	2	2	3 Subcompa
		2	2	3 Subcompa
	SIDI;	2	2	5 Midsize Ca
		2	2	5 Midsize Ca
		1	1	5 Midsize Ca
		2	2	1 Two Seate
		2	2	1 Two Seate
	SIDI & PFI;	2	2	1 Two Seate
	SIDI & PFI;	2	2	1 Two Seate
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	3 Subcompa
	SIDI;	2	2	3 Subcompa
	SIDI;	2	2	3 Subcompa
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	3 Subcompa
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI; Unde	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	7 Small Stati
	SIDI;	2	2	7 Small Stati
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	4 Compact C
	SIDI;	2	2	5 Midsize Ca
	SIDI;	2	2	5 Midsize Ca
	SIDI;	2	2	30 Small SUV 2WD
	SIDI;	2	2	31 Small SUV 4WD
		2	2	33 Standard SUV 4W
	SIDI;	2	2	33 Standard SUV 4W

SC	Car/Truck	Calc Appr	Sales	Release D	EPA FE Label Dataset	Unique La	Label Rec	Relabel	Relabel D
	car	Vehicle Specific 5-cycle	6/22/2015	18159		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18160		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18162		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18161		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18128		N	N		
	car	Derived 5-cycle label	6/22/2015	18103		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18121		N	N		
	car	Derived 5-cycle label	6/22/2015	18105		N	N		
	car	Derived 5-cycle label	6/22/2015	18104		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18122		N	N		
	car	Vehicle Specific 5-cycle	3/23/2015	17682		N	N		
	car	Derived 5-cycle label	3/23/2015	17714		N	N		
	car	Derived 5-cycle label	1/8/2015	17475		N	N		
	car	Vehicle Specific 5-cycle	3/30/2015	17658		N	N		
	car	Derived 5-cycle label	1/8/2015	17474		N	N		
	car	Vehicle Specific 5-cycle	3/30/2015	17659		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18062		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18055		N	N		
	car	Vehicle Specific 5-cycle	6/8/2015	17744		N	N		
	car	Vehicle Specific 5-cycle	7/13/2015	18361		N	N		
ons	car	Derived 5-cycle label	6/22/2015	18102		N	N		
	car	Derived 5-cycle label	6/22/2015	18130		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18131		N	N		
		Derived 5-cycle label	6/22/2015	18101		N	N		
		Vehicle Specific 5-cycle	6/22/2015	18088		N	N		
		Vehicle Specific 5-cycle	6/22/2015	18118		N	N		
		Vehicle Specific 5-cycle	6/22/2015	18216		N	N		
	D	Derived 5-cycle label	1/4/2016	19271		N	N		
	car	Vehicle Specific 5-cycle	6/8/2015	17565		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18132		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18113		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18116		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18114		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18117		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18115		N	N		
	car	Vehicle Specific 5-cycle	3/23/2015	17715		N	N		
	car	Vehicle Specific 5-cycle	3/23/2015	17657		N	N		
el	economy label values for 5-cycle values were XX MPG city, XX MPG highway, and XX MPG combined;								
	car	Vehicle Specific 5-cycle	11/16/2015	19049		N	N	RL	Relabel; la
		Vehicle Specific 5-cycle	6/22/2015	18120		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18213		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18212		N	N		
	car	Vehicle Specific 5-cycle	6/22/2015	18129		N	N		
	car	Vehicle Specific 5-cycle	5/26/2015	17559		N	N		
	car	Vehicle Specific 5-cycle	7/30/2015	18239		N	N		

car	Vehicle Specific 5-cycle label	5/25/2015	17560		N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18241		N	N
car	Vehicle Specific 5-cycle label	5/25/2015	17561		N	N
car	Vehicle Specific 5-cycle label	6/15/2015	18240		N	N
car	Derived 5-cycle label	1/14/2015	17486		N	N
car	Vehicle Specific 5-cycle label	5/1/2015	17766		N	N
car	Vehicle Specific 5-cycle label	5/1/2015	17787		N	N
car	Vehicle Specific 5-cycle label	3/14/2015	18710		N	N
car	Vehicle Specific 5-cycle label	3/14/2016	18711		N	N
car	Derived 5-cycle label	7/20/2015	18391		N	N
car	Derived 5-cycle label	7/20/2015	18461		N	N
car	Derived 5-cycle label	9/2/2015	18981		N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18398		N	N
car	Derived 5-cycle label	7/20/2015	18392		N	N
car	Vehicle Specific 5-cycle label	7/27/2015	18576		N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18399		N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18217		N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18218		N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18370		N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18307		N	N
car	Derived 5-cycle label	7/13/2015	18183		N	N
car	Derived 5-cycle label	7/13/2015	18185		N	N
el economy label values on Previous values were XX MPG city, XX MPG highway, and XX MPG combined;						
car	Vehicle Specific 5-cycle label	10/2/2015	19097		N	N Relabel - la
car	Vehicle Specific 5-cycle label	6/22/2015	18134		N	N
ons car	Derived 5-cycle label	7/13/2015	18176		N	N
ons car	Derived 5-cycle label	7/13/2015	18179		N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18365		N	N
car	Vehicle Specific 5-cycle label	7/13/2015	18366		N	N
car	Derived 5-cycle label	8/17/2015	18665		N	N
car	Derived 5-cycle label	10/26/2015	18905		N	N
car	Derived 5-cycle label	7/20/2015	18462		N	N
car	Derived 5-cycle label	7/30/2015	18714		N	N
car	Derived 5-cycle label	7/20/2015	18570		N	N
car	Vehicle Specific 5-cycle label	7/20/2015	18464		N	N
car	Vehicle Specific 5-cycle label	8/17/2015	18676		N	N
car	Derived 5-cycle label	9/21/2015	19016		N	N
car	Vehicle Specific 5-cycle label	9/21/2015	19015		N	N
	Derived 5-cycle label	7/13/2015	18215		N	N
	Derived 5-cycle label	7/13/2015	18214		N	N
D	Vehicle Specific 5-cycle label	7/13/2015	17922		N	N
D	Derived 5-cycle label	7/27/2015	18591		N	N

Suppress	Police/Em	Comment	Cyl Deact	Cyl Deact	Var Valve	Var Valve	Var Valve	Var Valve	Energy St
N	N	1.8L Engin	N		Y	CONTINUC	N		
N	N	1.8L Engin	N		Y	CONTINUC	N		
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N			Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	Electro/Hy	Y	Audi Valve System	
N	N	Engine Coc	N		Y	Electro/Hy	Y	Audi Valve System	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	N		N		N			
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	N		N		N			
N	N	N		N		N			
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	12 to 6 cyli	Y	Intake and	N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM FO	
N	N	N		N		N			
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVBattery(s)	
N	N	Engine Coc	N		Y	INTAKE / E	Y	Electronically controlled 2-p	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	CONTINUC	Y	Audi Valve System - Exhaust	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
Ne decreas	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	CONTINUC	Y	AUDI VALVE LIFT SYSTEM	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	2.0L Engin	N		Y	CONTINUC	Y	Audi Valve System	
N	N	Engine Coc	N		Y	CONTINUC	N		
N	N	Engine Coc	Y	Deactivatic	Y	Continuou	Y	Multi-lobe Int/Exh cam desig	
N	N	Engine Coc	N		Y	INLET AND	N		

N	N	Engine Coc	Y	Deactivatic	Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	Y	Deactivatic	Y
N	N	Engine Coc	N		Y
N	N	Engine cod	Y	Cylinder de	Y
N	N	Engine Coc	Y	ELECTRON	Y
N	N	Engine Coc	Y	ELECTRON	Y
N	N	ENGINE CC	Y	Soft COD. !	Y
Y	N	ENGINE CC	Y	Soft COD. !	Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	N			Y
N	N	N			Y
N	N	N			Y
N	N	N			Y
N	N	1.8L Engin	N		Y
N	N	1.8L Engin	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	1.8L Engin	N		Y
N	N	1.8L Engin	N		Y
N	N	2.0L Engin	N		Y
N	N	2.0L Engin	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	Engine Coc	N		Y
N	N	N			Y
N	N	Engine Coc	N		Y
N	N	Engine cod	N		Y
N	N	N			Y
N	N	N			Y
N	N	Engine Coc	N		N
N	N	N			Y

Continuou	Y
INLET AND	N
Continuou	Y
INLET AND	N
Variation c	N
HYDRAULI	N
HYDRAULI	N
INLET AND	Y
INLET AND	Y
MECANICA	N
MECANICA	N
MECANICA	N
MECANICA	N
MECANICA	N
MECANICA	N
MECANICA	N
position of	N
position of	N
position of	N
CONTINUC	N
CONTINUC	N
CONTINUC	N
CONTINUCY	
CONTINUCY	
CONTINUC	N
CONTINUC	N
CONTINUCY	
CONTINUCY	
MECHANIC	N
MECHANIC	N
MECANICA	N
MECANICA	N
MECANICA	N
MECANICA	N
MECANICA	N
Electronic	N
position of	N
position of	N
N	
INTAKE / E	N

Multi-lobe Int/Exh cam desig
Multi-lobe Int/Exh cam desig
Fixed 1: One Setting of Valve
Fixed 1: One Setting of Valve
Audi Valve System - Exhaust
Audi Valve System - Exhaust
Audi Valve System
Audi Valve System
Battery(s)

evice Desc	# Batteries	Battery Ty	Battery Ty	Total Volt	Batt Ener	Batt Spec	Batt Char	Comment	# Capacit
Energy St									
R / EXHAUST									
R / EXHAUST									
R / EXHAUST									
R / EXHAUST									
alve Electric valve lift (all valves designed, tolled and hydraulically adjusted.								before injection and ignition for optimal combustion and low emissions.	Depending on the actuation principle, the valve lift can be freely selected in a range between zero and the maximum valve lift. This is the basis for variable valve timing and variable valve lift.		
R / EXHAUST									
R / EXHAUST									
	1	Lithium Ion		266	5		37	On-Board	
bCAMVVAVE CONTROLLED ELECTRONICALLY									
alve Electric valve lift (all valves designed, valves only								before injection and ignition for optimal combustion and low emissions.	Depending on the actuation principle, the valve lift can be freely selected in a range between zero and the maximum valve lift. This is the basis for variable valve timing and variable valve lift.		
alve Electric valve lift (all valves designed,								before injection and ignition for optimal combustion and low emissions.	Depending on the actuation principle, the valve lift can be freely selected in a range between zero and the maximum valve lift. This is the basis for variable valve timing and variable valve lift.		
alve Electric valve lift (all valves designed,								before injection and ignition for optimal combustion and low emissions.	Depending on the actuation principle, the valve lift can be freely selected in a range between zero and the maximum valve lift. This is the basis for variable valve timing and variable valve lift.		
alve Electric valve lift (all valves designed, ECHANICAL-HYDRAULIC								before injection and ignition for optimal combustion and low emissions.	Depending on the actuation principle, the valve lift can be freely selected in a range between zero and the maximum valve lift. This is the basis for variable valve timing and variable valve lift.		

valves to vary lift before it is closed), the fuel injection and ignition for cylinder deactivation as described
ECHANICAL-HYDRAULIC
valves to vary lift before it is closed), the fuel injection and ignition for cylinder deactivation as described
ECHANICAL-HYDRAULIC
aust valves on a single camshaft. No change in valve overlaps.
CONTINUOUSLY VVT
CONTINUOUSLY VVT
ECHANICAL-HYDRAULIC
ECHANICAL-HYDRAULIC
AMS
AMS
AMS
AMS
AMS
AMS
AMS
controlled and hydraulically adjusted
controlled and hydraulically adjusted
controlled and hydraulically adjusted

valves only
valves only

AND OUTLET CAMS
AND OUTLET CAMS
AMS
AMS
AMS
AMS
ND OUTLET CAMS 1 Lithium Ion 220 1100 27 On-Board
AMS

controlled and hydraulically adjusted
controlled and hydraulically adjusted

LICALLY AND CONTROLLED ELECTRONICALLY

Regen Bra	Regen Bra	Regen Bra	Driver Cnt	Fuel Cell I	Usable H2	Fuel Cell (	HEV-EV C	# Drive M	Motor Ger

est above 3rd gear or higher, ECT greater than 40C, engine speed 930 to 3500 RPM, vehicle speed greater than 25 km

est above 3rd gear or higher, ECT greater than 40C, engine speed 930 to 3500 RPM, vehicle speed greater than 25 km

[redacted]

Electrical RBRAKE PEDFront WheY 1Other

Motor Ger	Rated Mot	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Mete	Fuel Cell V	Off Board	Camless V	Oil Viscosi
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				CRDI	Common Rail Direct Diesel Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
		40		GDI	Spark Ignit	N	N	N	5W40 VW
				GDPI	Spark Ignit	N		N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignit	N		N	5W40
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignition Direct Injection			N	5W40 VW
				GDI	Spark Ignit	N		N	5W40
h				GDI	Spark Ignition Direct Injection			N	5W30 VW
				MFI	Multipoint	N		N	5W30 VW

h		GDI	Spark Ignition Direct Injection	N	5W30 VW
		MFI	MultipointN	N	5W30 VW
h		GDI	Spark Ignition Direct Injection	N	5W30 VW
		MFI	MultipointN	N	5W30 VW
		MFI	Multipoint/sequential fuel injection	N	0W40 / VW
		MFI	Multipoint/sequential fuel injection	N	5W30 VW
		MFI	Multipoint/sequential fuel injection	N	5W30 VW
		GDPI	Spark Ignition direct & ported injection	N	5W30 VW
		GDPI	Spark Ignition direct & ported injection	N	5W30 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W-40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 / VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark IgnitN	N	5W40
		GDI	Spark IgnitN	N	5W40
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
3 PHASE PI	15	GDI	Spark IgnitN N	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW
		CRDI	Common Rail Direct Diesel Injection	N	5W30 VW
		GDI	Spark Ignition Direct Injection	N	5W40 VW

Stop/Start	Stop/Start	Trans in FE	Trans as I	Model Typ	Charge De	Charge De	Charge Su	Charge Su	EPA Calcul
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AV-S	Auto(AV-S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Manual(M	Manual(M6)						
Y	Yes	Auto(AM-S	Auto(AM-S7)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
Y50700	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(S6)	Auto(S6)						
N	No	Auto(S6)	Auto(S6)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
Y	Yes	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)	Audi Q7					
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(AM-S	Auto(AM-S6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N	No	Manual(M	Manual(M6)						
N	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(AM-S	Auto(AM-S7)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						
N	No	Auto(AM-S	Auto(AM-S	TT Coupe quattro					
N	No	Auto(AM-S	Auto(AM-S	TT Coupe quattro					
N	No	Auto(AM-S	Auto(AM-S6)						
N50700	No	Auto(S8)	Auto(S8)						
N	No	Auto(S8)	Auto(S8)						

N	50700	No	Auto(S8)	Auto(S8)
N		No	Auto(S8)	Auto(S8)
N	50700	No	Auto(S8)	Auto(S8)
N		No	Auto(S8)	Auto(S8)
N	VW50500	No	Auto(S8)	Auto(S8)
Y	50700	Yes	Auto(AM-S	Auto(AM-S7)
Y	50700	Yes	Auto(AM-S	Auto(AM-S7)
N		No	Auto(AM-S	Auto(AM-S7)
N		No	Auto(AM-S	Auto(AM-S7)
N		No	Auto(S6)	Auto(S6)
N		No	Manual(M	Manual(M5)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Manual(M	Manual(M6)
N		No	Auto(S6)	Auto(S6)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Manual(M	Manual(M6)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Manual(M	Manual(M6)
N		No	Auto(S6)	Auto(S6)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Auto(S6)	Auto(S6)
N		No	Manual(M	Manual(M5)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Manual(M	Manual(M6)
N		No	Auto(S6)	Auto(S6)
N		No	Manual(M	Manual(M5)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Manual(M	Manual(M6)
N		No	Auto(S6)	Auto(S6)
N		No	Manual(M	Manual(M5)
N		No	Auto(S6)	Auto(S6)
N		No	Manual(M	Manual(M5)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Manual(M	Manual(M6)
Y		Yes	Auto(AM-S	Auto(AM-S7)
N		No	Auto(S6)	Auto(S6)
N		No	Auto(AM-S	Auto(AM-S6)
N		No	Auto(S6)	Auto(S6) Tiguan front
N		No	Auto(S6)	Auto(S6)
N		No	Auto(S8)	Auto(S8)
N		No	Auto(S8)	Auto(S8)

[illegible]	EPA Calculated Gas G	[illegible]	[illegible] (GHG Ratin	#1 Smog R	#1 Mfr Sm	#1 EPA Sm	SmartWay
34.9		6	6	GVGAV02.	9		
36.2		7	7	GVGAV02.	9		
34.3		6	6	GVGAV02.	9		
35.2		6	6	GVGAV02.	9		
35.4		6	6	GVGAV02.	5		
32.3		6	6	GVGAJ02.(	5		
33.1		6	6	GVGAV02.	5		
31.4		5	5	GVGAJ02.(	5		
32.3		6	6	GVGAJ02.(	5		
33.1		6	6	GVGAV02.	5		
37.3		7	7	GVGAV02.	6		
33.7		6	6	GVGAV02.	6		
31		5	5	GVGAV03.	5		
38.2		7	6	GVGAJ03.(	5		
31		5	5	GVGAV03.	5		
38.2		7	6	GVGAJ03.(	5		
36.9		7	6	GVGAJ03.(	5		
28.8		5	5	GVGAV03.	5		
27.6		5	5	GVGAV04.	5		
21.1		3	3	GVGAV06.	5		
31.2		5	5	GVGAJ02.(	5		
30		5	5	GVGAV02.	5		
29.5		5	5	GVGAV02.	5		
29.6		5	5	GVGAJ02.(	5		
34.3		6	5	GVGAJ03.(	5		
27.2		5	5	GVGAJ03.(	5		
34		6	6	GVGAT02.(	5		
27.6		4	4	HVGAT03.(	5		
22.6		4	4	GVGAV04.	5		
33.2		6	6	GVGAV02.	5		
26.9		5	5	GVGAJ03.(	5		
23.5		4	4	GVGAJ03.(	5		
26.9		5	5	GVGAJ03.(	5		
23.5		4	4	GVGAJ03.(	5		
26.4		5	5	GVGAJ03.(	5		
26.8		5	5	GVGAV04.	5		
26.8		5	5	GVGAV04.	5		
24.7		4	4	GVGAV04.	5		
24.9		4	4	GVGAJ03.(	5		
33.5		6	6	GVGAV02.	9		
33.5		6	6	GVGAV02.	9		
31.9		6	6	GVGAV02.	5		
23.7		4	4	GVGAV04.	5		
19.5		2	2	GVGAV06.	5		

21.9	[redacted]	3	3 GVGAV04.	5
18.3		2	2 GVGAV06.	5
21.9		3	3 GVGAV04.	5
18.3		2	2 GVGAV06.	5
17.3		1	1 GVGAV06.	5
16.4		1	1 GVGAV06.	5
15		1	1 GVGAV06.	5
20.8		3	3 GVGAV05.	5
20.4		3	3 GVGAV05.	5
37.1		7	7 GVGAV02.	7
37.4		7	7 GVGAV02.	7
35.4		6	6 GVGAV02.	7
33.7		6	6 GVGAV02.	7
37.1		7	7 GVGAV02.	7
34.2		6	6 GVGAV02.	7
33.7		6	6 GVGAV02.	7
32.2		6	6 GVGAV02.	7
31.6		6	6 GVGAV02.	7
24.8		4	4 GVGAV03.	5
32.4		6	6 GVGAV02.	5
38.9		7	7 GVGAV02.	9
39.3		7	7 GVGAV02.	9
32.6		6	6 GVGAV02.	5
31.2		6	6 GVGAV02.	5
38.6		7	7 GVGAV02.	9
38.1		7	7 GVGAV02.	9
35.9		7	7 GVGAV02.	9
35.8		7	7 GVGAV02.	9
43.8		8	8 GVGAV01.	5
44.8		8	8 GVGAV01.	5
39.4		7	7 GVGAV02.	7
38.9		7	7 GVGAV02.	7
36.4		6	6 GVGAV02.	7
34.9		6	6 GVGAV02.	7
60.8		9	9 GVGAV01.	7
39.1		7	7 GVGAV02.	7
28.5		5	5 GVGAV03.	5
29.7		5	5 GVGAJ02.(	5
29.6		5	5 GVGAJ02.(	5
30.6		5	4 GVGAT03.(	5
25		4	4 GVGAT03.(	5

| | | |

GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAJ02.C	5
GVGAJ02.C	5

GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5
GVGAV02.I	5

[illegible]	$ You Save	$ You Spend	City CO2	Hwy CO2	Comb CO2	CO2- Volu	CO2- Volu	CO2-Vol In
	750		379	267	328			
	1000		362	256	314			
	250		379	280	334			
	750		366	271	323			
		250	371	303	341			
		1000	415	295	361			
		500	397	276	343			
		1250	424	303	370			
		1000	415	295	361			
		500	397	276	343			
	250		357	252	310			
		500	398	269	340			
		1250	436	296	373			
	500		403	270	343			
		1250	436	296	373			
	500		403	270	343			
	0		426	280	360			
		2250	473	303	397			
		2250	492	310	410			
		5500	640	403	534			
		1250	420	317	373			
		1750	451	313	389			
		1750	446	316	387			
		1750	452	322	393			
		250	430	328	385			
		2750	496	347	429			
		500	369	298	337			
		3000	473	350	418			
		4750	614	355	497			
		500	381	289	340			
		2750	488	321	413			
		3500	519	341	439			
		2750	488	321	413			
		3500	519	341	439			
		2750	500	341	428			
		2750	497	332	423			
		2750	505	331	427			
		3500	546	336	452			
		4000	528	373	458			
	250		373	290	336			
	250		373	290	336			
		1000	386	323	358			
		4000	580	347	475			
		7500	710	421	580			

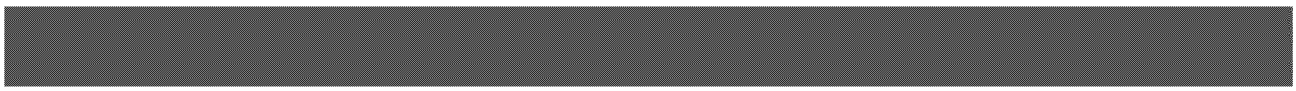
	5500	638	370	517
	7500	736	443	604
	5500	638	370	517
	7500	736	443	604
	10000	791	491	656
	10000	836	481	676
	11500	887	532	727
	5500	617	429	532
	6500	634	442	547
1000		360	263	316
1000		358	261	314
750		374	282	333
250		385	292	343
1000		360	263	316
250		383	288	340
250		385	292	343
	1000	403	283	349
	1000	426	279	360
	2250	523	351	446
	1000	405	292	354
1250		352	247	305
1500		350	240	300
	1000	388	298	347
	1000	406	289	354
1250		348	253	305
1250		358	248	309
1000		358	271	319
1000		355	258	311
2000		321	228	279
2250		311	221	271
1250		350	245	302
1250		353	241	303
750		370	265	323
750		383	273	333
3500		212	184	200
1250		355	236	302
	750	449	319	390
	1750	431	344	392
	1750	435	344	394
	1500	502	356	437
	2750	520	391	462

[illegible]	[illegible]	[illegible]	[illegible]	240V Char	120V Char	PHEV Tota
309	191	255.9	378.7	267.1	328.5
289	188	243.6	362.1	255.5	314.1
305	200	257.8	378.6	280.1	334.3
294	198	250.8	366	271	323.2
292	199	250.2	371.2	303.3	340.6
327	210	274.4	415	295	361
320.1	202	267	396.8	276.4	342.5
335	216	281.4	424.4	303.1	369.8
327	210	274.4	415	295	361
320.1	202	267	396.8	276.4	342.5
278.5	178	233.3	357.1	251.9	309.8
312.5	191	257.8	397.9	269.4	340.1
345	211	284.7	436.2	296.4	373.3
326.3	193.3	266.4	402.7	270.5	343.2
345	211	284.7	436.2	296.4	373.3
326.3	193.3	266.4	402.7	270.5	343.2
339	198	275.6	425.6	280.1	360.1
376.5	225	308.3	473.4	302.9	396.7
396	226	319.5	492.3	309.7	410.1
515	310	422.8	640.3	403.3	533.6
331	226	283.8	419.7	316.6	373.3
357.5	223	297	451	312.5	388.7
357	230	299.9	445.6	315.7	387.1
358	230	300.4	451.6	321.9	393.2
348	231	295.4	430.5	328.5	384.6
390	251	327.4	496	347	429
380	223	309.4	369	298	337
376	251	319.8	472.8	350.2	417.7
499.5	269.5	396	613.8	354.8	497.3
311	214	267.4	381.4	289.2	339.9
396	248	329.4	488	321	412.8
443	266	363.4	519	341	438.9
396	248	329.4	488	321	412.8
443	266	363.4	519	341	438.9
401	256	335.8	500	341	428.4
403.5	241	330.4	496.9	331.8	422.6
407.5	238	331.2	505.4	331.1	427
446.1	251.6	358.6	546	336.3	451.6
427	269	355.9	528	372.7	458.1
307.9	216.6	266.8	373.4	289.6	335.6
307.9	216.6	266.8	373.4	289.6	335.6
314	233	277.6	385.7	323.4	357.7
462	263	372.4	580	347	475.2
576	314	458.1	709.5	420.8	579.6

511	278	406.2	638.3	369.6	517.4
617	333	489.2	736.3	442.9	604.3
511	278	406.2	638.3	369.6	517.4
617	333	489.2	736.3	442.9	604.3
645.5	355.5	515	791	490.9	656
705	353	546.6	836	481	676.2
756.1	403.3	597.3	887.1	532.1	727.4
512	328	429.2	616.6	428.8	532.1
521	336	437.8	633.8	441.8	547.4
280.8	185.9	238.1	360.4	262.6	316.4
278.4	185	236.4	357.6	261.3	314.3
292.5	200	250.9	374.2	281.5	332.5
309.3	204.2	262	384.6	292.2	343
280.8	185.9	238.1	360.4	262.6	316.4
299.7	204.7	257	382.8	287.9	340
309.3	204.2	262	384.6	292.2	343
327.3	207.8	273.5	402.7	282.8	348.8
346.5	203.1	282	426	279.1	359.9
434	265	358	523	351	445.6
321	213	272.4	404.7	291.7	353.9
274	174	229	352.4	246.5	304.7
272	169	225.6	350.1	239.8	300.5
315	218	271.4	388	297.7	347.4
334	223	284	406.3	289.2	353.6
270	179	229	347.7	253.3	305.2
279	175	232.2	358.3	247.9	308.6
288	195	246.2	358	270.7	318.7
294	191	247.7	354.6	257.9	311.1
245	154	204.1	320.6	227.7	278.8
237	149	197.4	311.3	221.2	270.8
271.8	172.5	227.1	349.8	244.5	302.4
274.4	170	227.4	352.9	241.2	302.6
288.6	188	243.3	369.7	265.4	322.8
305.8	189.6	253.5	382.9	272.9	333.4
155	136	146.4	212.1	184.3	199.6
276.4	166.4	226.9	355.3	236.3	301.8
372	238	311.7	449	319	390.5
340.8	246.4	298.3	431.3	344	392
343.8	246.3	299.9	434.9	343.9	393.9
401	248	332.2	502.3	356.5	436.7
416	281	355.2	520.1	390.6	461.8

[illegible]	DISTANCE	Comb Vol Higher	Final Label	EPA_FUEL	EPA_GHG	EPA_AMT
N		3.7	3.7			
N		3.6	3.6			
N		3.8	3.8			
N		3.7	3.7			
N		3.7	3.7			
N		4	4			
N		3.8	3.8			
N		4.2	4.2			
N		4	4			
N		3.8	3.8			
Y		3.6	3.6			
Y		3.8	3.8			
N		4.2	4.2			
N		3.3	3.3			
N		4.2	4.2			
N		3.3	3.3			
N		3.6	3.6			
N		4.5	4.5			
N		4.5	4.5			
N		5.9	5.9			
N		4.2	4.2			
N		4.3	4.3			
N		4.3	4.3			
N		4.3	4.3			
N		3.7	3.7			
N		4.8	4.8			
N		3.8	3.8			
N		4.8	4.8			
N		5.6	5.6			
N		3.8	3.8			
N		4.8	4.8			
N		5	5			
N		4.8	4.8			
N		5	5			
N		4.8	4.8			
N		4.8	4.8			
N		4.8	4.8			
N		5	5			
N		5.3	5.3			
N		3.8	3.8			
N		3.8	3.8			
N		4	4			
N		5.3	5.3			
N		6.7	6.7			

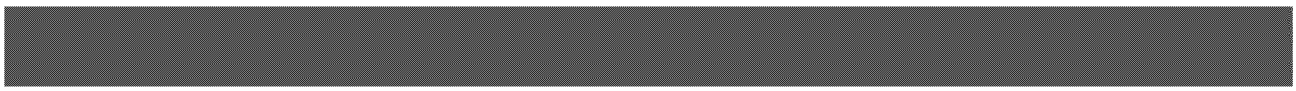
N	5.9	5.9
N	6.7	6.7
N	5.9	5.9
N	6.7	6.7
N	7.7	7.7
N	7.7	7.7
N	8.3	8.3
N	5.9	5.9
N	6.2	6.2
N	3.6	3.6
N	3.6	3.6
N	3.7	3.7
N	3.8	3.8
N	3.6	3.6
N	3.8	3.8
N	3.8	3.8
N	4	4
N	4	4
N	5	5
N	4	4
N	3.4	3.4
N	3.3	3.3
N	4	4
N	4	4
N	3.4	3.4
N	3.4	3.4
N	3.6	3.6
N	3.6	3.6
Y	3.1	3.1
Y	3	3
N	3.4	3.4
N	3.4	3.4
N	3.7	3.7
N	3.7	3.7
N	2.3	2.3
N	3.4	3.4
N	4.3	4.3
N	4.3	4.3
N	4.3	4.3
N	4.2	4.2
N	5.3	5.3

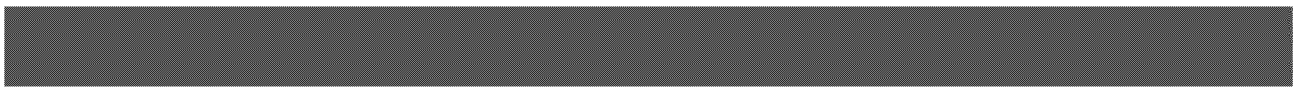


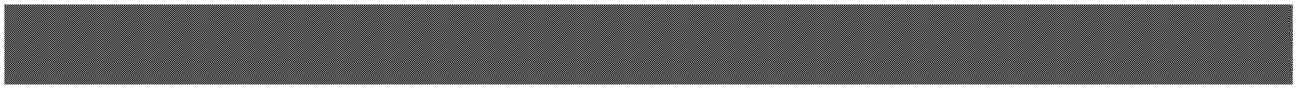
EPA_UNR	EPA_UNR	EPA_UNR	EPA_ADJ_	EPA_PHEV	Label Subr	GHG 1-10	rating on Ethanol (EPA Deter
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richarc	6	
					Mr Richard E Thomas Jr		
					Mr Richarc	6	
					Mr Richarc	6	
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richarc	6	
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richarc	5	
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		
					Mr Richard E Thomas Jr		

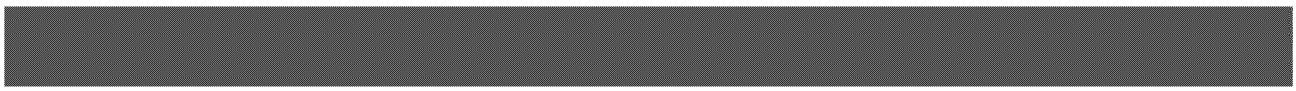
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr
Mr Richard E Thomas Jr

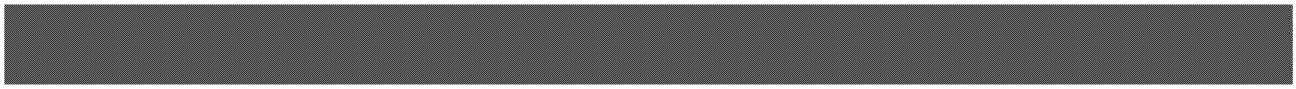
mined)

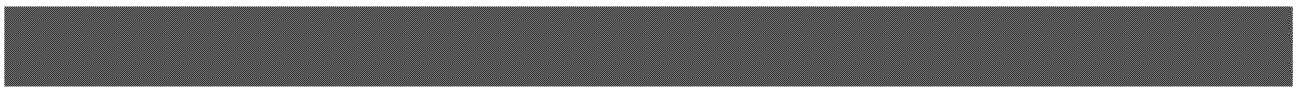


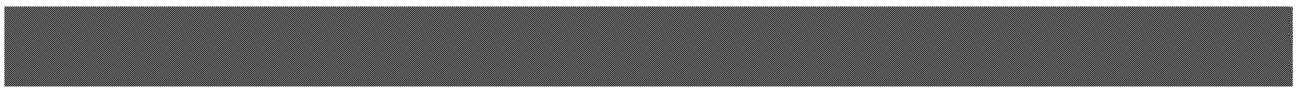


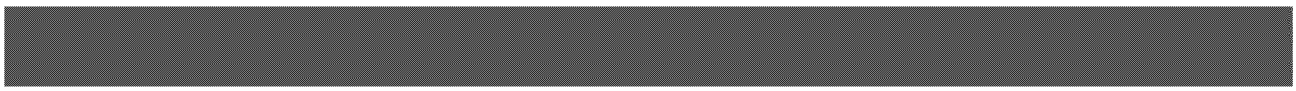


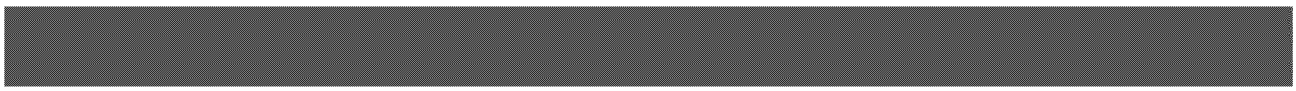


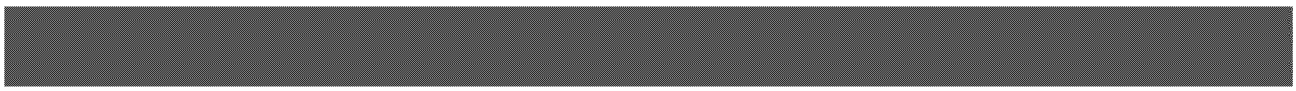


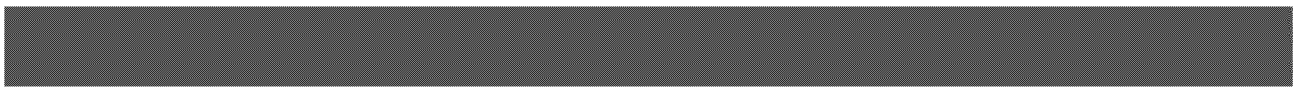


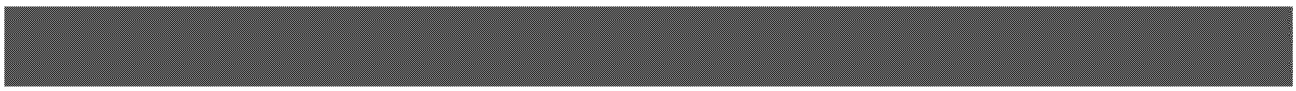


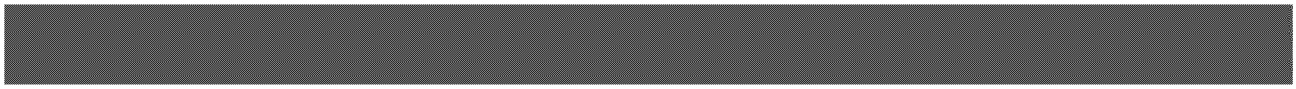


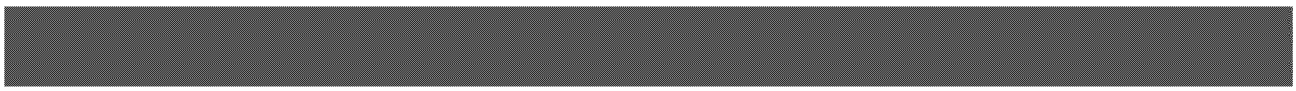


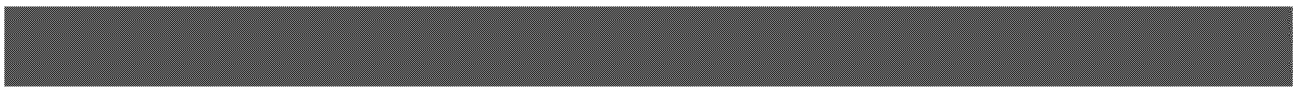


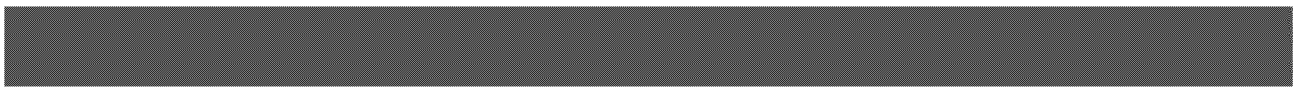


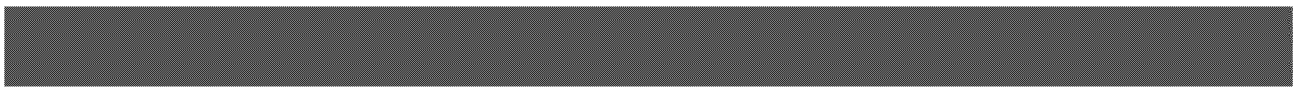


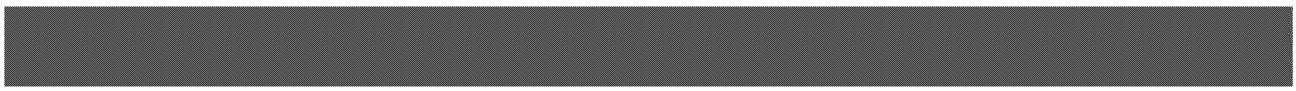


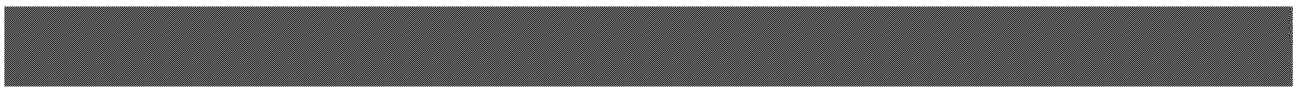


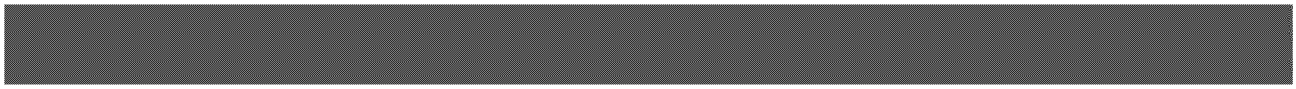


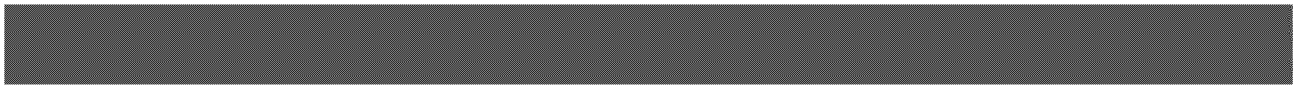


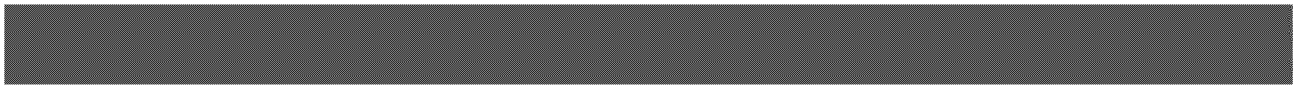


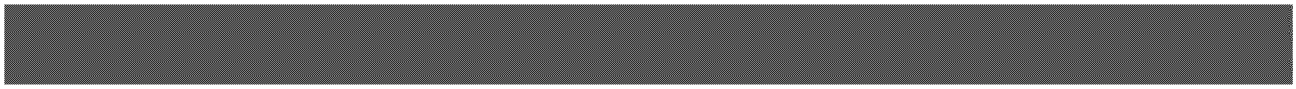


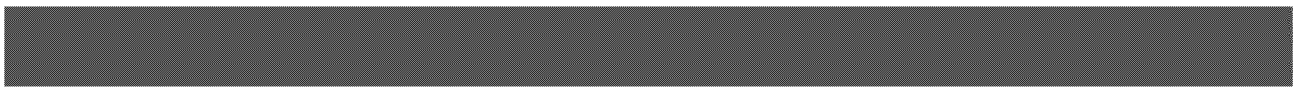


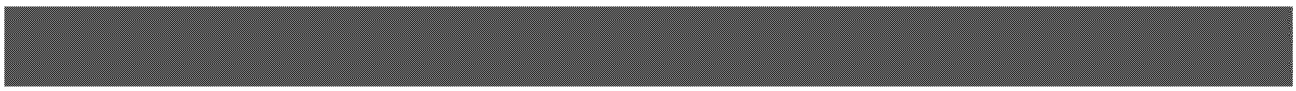


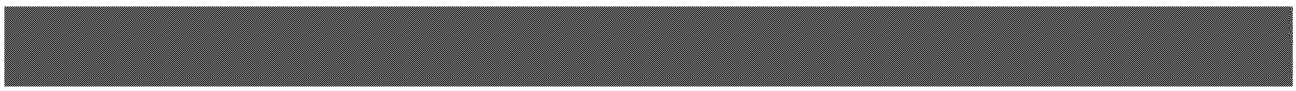


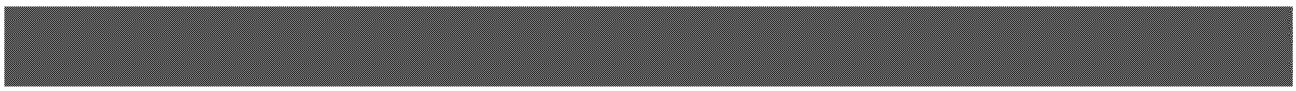


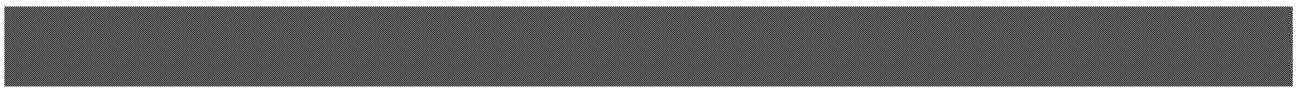


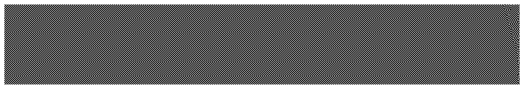












To: Thomas, Richard (EEO)[Richard.Thomas@vw.com]
From: Good, David
Sent: Wed 12/9/2015 11:27:30 PM
Subject: RE: Voice Mail from Dave Good (Work) (1 minute and 2 seconds)

Richard,

You're too fast for me. I just sent you the data (with errors) as of 6AM this morning (Wed). I double checked the macro and your label should be correct (with CO2 values of 473c, 453h, 419comb).

Dave

From: Thomas, Richard (EEO) [mailto:Richard.Thomas@vw.com]
Sent: Wednesday, December 09, 2015 1:48 PM
To: Good, David
Subject: RE: Voice Mail from Dave Good (Work) (1 minute and 2 seconds)

Thanks Dave, I checked my calculation and saw that I made a typo and entered a highway CO2 value of 350 instead of 353. I have now processed the correction and if you find time maybe you can run the audit again. The adjusted combined CO2 value should be 419 g/mi.

Thanks,

Richard

From: Microsoft Outlook **On Behalf Of** Dave Good
Sent: Wednesday, December 09, 2015 11:08 AM
To: Thomas, Richard (EEO) <Richard.Thomas@vw.com>
Subject: Voice Mail from Dave Good (Work) (1 minute and 2 seconds)

You received a voice mail from Dave Good at (734) 214-4450

Caller-Id: (734) 214-4450
Work: (734) 214-4450
E-mail: good.david@epa.gov

To: Grundler, Christopher[grundler.christopher@epa.gov]
From: Geanacopoulos, David
Sent: Thur 12/10/2015 10:42:55 AM
Subject: 09122015_PM zur PK 10 12_v2_2030 Uhr_ENG_OL.DOC
09122015_PM zur PK 10 12_v2_2030 Uhr_ENG_OL.DOC
ATT00001.txt

Dear Chris,
Here is a press release just made at VWAG.
Best regards,
David G

VOLKSWAGEN

AKTIENGESELLSCHAFT

Presse | News | Prensa | Tisk | Imprensa | Prasa | Stampa | Pers | 新闻 | Пресса

Embargo: 12/10/2015, 11:30 a.m. CET

Volkswagen making good progress with its investigation, technical solutions, and Group realignment

- **Initial results of the emissions investigation available**
- **Approximately 450 external and internal experts involved in the investigations**
- **100 terabytes of data secured – equivalent to information in approximately 50 million books**
- **Volkswagen will have future emissions tests evaluated independently**
- **Technical solutions for customers in Europe developed; implementation to begin in January 2016**
- **Group realignment making good progress**

Wolfsburg, December 10, 2015 – The Volkswagen Group's realignment is well underway. The Group is making progress on all five of the priorities it set at the end of October: The technical solutions for customers in Europe have been devised, presented to the authorities, and positively evaluated by them. These solutions will begin to be implemented in January 2016. The emissions investigation is producing results, and initial consequences have already been drawn based on the findings to date. The implementation of the new structure is proceeding according to plan, and the process of developing a new strategy has commenced. The Chairman of the Supervisory Board of Volkswagen AG, Hans Dieter Pötsch, told the press in Wolfsburg today: "The Volkswagen Group is fully functional in every respect, even during these eventful days. How, and when we meet the current challenges is primarily – although not solely – up to us. In order to pass this test, we must make an enormous, common effort – and we are all ready to do so." The Chairman of the Board of Management, Matthias Müller, said: "We are doing everything to overcome the current situation, but we will not allow the crisis to paralyze us. On the contrary, we will use it as a catalyst to make the changes Volkswagen needs."

For the first time, the Company provided detailed commentary on the status of its investigation, which is being coordinated by a special committee of the Supervisory Board. Approximately 450 internal and external experts are involved in the investigations, which are being conducted in two phases. An internal review, being conducted by a task force of experts from various Group companies with a clearly defined mandate and a deadline, is focused on the mandate to Group Audit by the Supervisory Board and the Management Board to investigate relevant processes, reporting and monitoring systems, and the associated infrastructure. Group Audit will provide its findings to the external experts of Jones Day. The Supervisory Board has given this internationally respected law firm a parallel mandate to completely clarify the facts and responsibilities – i.e., among other things, it has been asked to conduct a forensic investigation. In connection with its work, Jones Day is being provided with operational support by the audit firm Deloitte.

Group Audit has identified process weak points

As reported on Wednesday, extensive internal investigations, which were subject to external independent review, did not confirm the suspicion of irregularities during the CO_2 certification process. Now, the first significant findings in the investigation of the nitrogen oxide (NOx) issue are available. Group Audit's examination of the relevant processes indicates that the software-influenced NOx emissions behavior was due to the interaction of three factors:

- The misconduct and shortcomings of individual employees
- Weaknesses in some processes
- A mindset in some areas of the Company that tolerated breaches of rules.

It is clear that, in the past, deficiencies in processes have favored misconduct on the part of individuals. This is true, for example, for test and certification processes affecting our engine control devices, which were not suited to preventing use of the software in question. Group Audit has suggested specific remedies to correct this. We are concentrating on structuring these processes more transparently and systematically. For example, in the future, software for engine control devices will be developed more strictly in accordance with the 4-eyes principle. In addition, the bodies responsible for the release of such software are being reorganized. They will be given more sharply defined and binding powers and responsibilities. Deficiencies were also found in reporting and monitoring systems. The main problem there was that responsibilities were not sufficiently clear. Volkswagen will now further sharpen them. Group Audit also found deficiencies in some areas of Volkswagen's IT infrastructure. These deficiencies will also be remedied. Volkswagen will introduce IT systems that allow individual processes to be monitored with greater efficiency and transparency. This will simultaneously reduce our dependence on individuals when problematic processes have to be identified and, if necessary, escalated. As Pötsch stated: "Group Audit's investigation is producing valuable findings, which will help us create a structure that, rather than favoring breaches of regulations, will prevent them, or at least allow them to be detected early on."

The Company has already drawn a key conclusion based on Group Audit's findings, namely that its testing practice must undergo comprehensive changes. Volkswagen has decided that in the future emissions test will be evaluated externally and independently. In addition, randomly selected real-life tests to assess emissions behavior on the road will be introduced.
Chairman of the Supervisory Board Pötsch stated: "We hope that this will help Volkswagen regain lost trust."

More time is required for the external investigation

Although Group Audit's analysis of the processes will be concluded shortly, Jones Day will need well into next year in order to finish its work. The external investigators will need more time for their investigation, for two reasons. The first is that they have a massive volume of data to screen. At present, 102 terabytes of information have been secured, which is the equivalent of the information contained in approximately 50 million books. More than 1,500 electronic data storage units have been collected from approximately 380 employees. The second reason is that their investigation of the facts takes legal responsibility into account. Therefore, their findings must not only be plausible and consistent, but must also hold up in court. Volkswagen plans to provide a status update on the external investigation at its Annual General Meeting on April 21, 2016.

The information that has been screened to date has largely explained the origin and development of the nitrogen oxide issue. It proves not to have been a one-time error, but rather a chain of errors that were allowed to happen. The starting point was a strategic decision to launch a large-scale promotion of diesel vehicles in the United States in 2005. Initially, it proved impossible to have the EA 189 engine meet by legal means the stricter nitrogen oxide requirements in the United States within the required timeframe and budget. This led to the incorporation of software that adjusted nitrogen oxide emission levels according to whether vehicles were on the road or being tested. Later, when an effective technical process was available to reduce NOx emissions, it was not employed to the full extent possible. On the contrary, the software in question allowed the exhaust gas treatment additive “AdBlue” to be injected in variable amounts such that the NOx values were particularly low when vehicles were in the test bay, but significantly higher when vehicles were on the road.

Hans Dieter Pötsch stressed that, “No business transaction justifies overstepping legal and ethical bounds.” As a first step, nine managers who may have been involved in the manipulations were suspended. Pötsch emphasized: “I here and now guarantee that we will pursue our thorough investigation to its conclusion. I vouch for this personally, as does the entire Supervisory Board of Volkswagen AG.”

Technical solutions, which have been positively evaluated by the German Federal Motor Transport Authority (“Kraftfahrtbundesamt”), are now available for the European variants of the EA 189 engine type affected. Volkswagen is thus ensuring that the models affected in Europe will meet all legal requirements in the future. The costs of implementing these solutions will be manageable in technical, manufacturing, and financial terms. The software of the 2.0 and 1.2 liter TDI will be updated. For the 1.6 liter TDI, a so-called flow transformer will be used that increases the measurement precision and, in combination with redesigned software, will optimize injection quantity.

Now that the technical solutions have been approved, Volkswagen is working intensely on plans to implement them. The recall of the highest-volume variant, the 2.0 liter TDI, will begin in January 2016. The recall of the 1.2 liter TDI is currently scheduled to begin in the second quarter. The implementation phase for the 1.6 liter models is planned to begin in the third quarter to allow time to prepare for the hardware modification. Under the current plan, the entire initiative will take at least all of calendar year 2016. Matthias Müller, Chairman of the Board of Management, promised: "Volkswagen will not rest until this matter has been resolved once and for all to our customers’ satisfaction.” Volkswagen will inform the owners of the affected vehicles individually as to when their vehicles will be updated. Volkswagen guarantees that the solutions will be implemented free of charge. The company waives any statute of limitations for the technical solutions, and will provide an appropriate replacement vehicle if required.

Due to far stricter nitrogen oxide limits in the United States, it is a greater technical challenge to retrofit the vehicles such that all applicable emissions limits can be met with one and the same emissions strategy. To this end, Volkswagen is cooperating closely with the United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB). The solution designed for North America will be presented as soon as it has been approved by the responsible authorities.

Implementation of the new Group structure commenced

Parallel to overcoming the crisis, Volkswagen is also instituting a comprehensive new alignment that affects the structure of the Group, as well as its way of thinking and its strategic goals.

Volkswagen will be managed in a more decentralized fashion in the future, and its brands and regions will be granted more independence. The Group's Board of Management is fully focused on its core task: advancing the major, global issues for the future, as well as synergies, controls, and strategy. Volkswagen will have significant input to the technical changes that have a major impact on its own business model, becoming more agile, and streamlining its decision-making processes. In addition, Volkswagen will become leaner and improve cost efficiency. All these structural changes ultimately aim to reduce managerial complexity and ensure that the Group can be effectively led over the long term.

At an organizational level, with the appointment of Dr. Christine Hohmann-Dennhardt, the Integrity & Law area will be represented as its own department on the Group's Board of Management in the future – a clear indication that these issues are extremely important to Volkswagen. Significantly more importance will be attached to digitalization, which will report directly to the Chairman of the Board of Management. Overall, direct reports will be reduced from more than 30 to 19.

The renewal of personnel in the Group has recently again been given new impetus. Since the beginning of 2015, the Group's Board of Management has seen six new members join, seven of the brands have had their top personnel changed, and eight departments falling within the CEO's area of responsibility now have new heads. Müller stated: "The team with which we wish to address the challenges of the coming months and years is in place." The details of the new structure are to be worked out in the first quarter of 2016. The new structure will be in place Group-wide by the start of 2017.

New mindset initiated

Müller noted: "We can have the best people, and a great organization, but we can do nothing without the right attitude and mentality." During the upcoming process of change toward a new way of thinking, Volkswagen can build on its traditional strengths: quality consciousness, strong identification with its vehicles, and a high degree of social responsibility. According to Müller, the future will be about more open discussions, closer cooperation, and a willingness to allow mistakes if they are understood as an opportunity to learn. The Chairman of the Board of Management stated, "We don't need yes-men, but managers and engineers who make good arguments in support of their convictions and projects, who think and act like entrepreneurs. I am calling for people who are curious, independent, and pioneering. People who follow their instincts and are not merely guided by the possible consequences of impending failure. In short: the future at Volkswagen belongs to the bold. We need a little more Silicon Valley, coupled with the competence from Wolfsburg, Ingolstadt, Stuttgart, and the other Group locations."

New strategic destination under development

In addition, Volkswagen has initiated development of a new strategic target: "Strategy 2025", with which Volkswagen will address the main issues for the future, is scheduled to be presented in mid 2016.
Müller explained, "We are realigning Volkswagen strategically and technologically. Our goal is to courageously and decisively participate in shaping the future of mobility." Among other things, the

Group aims to achieve a significant expansion of its sales outside of its current core business. Furthermore, a digitalization and an electrification offensive are being prepared.

In parallel, Volkswagen is currently doing everything it can to limit the effect the current situation has on its business performance. The operating business is meeting expectations, and the 2015 annual forecast, which was updated at the end of October, remains unchanged. The sales figures are very mixed as regards the various markets and brands. Müller explained, “Overall, the situation is not dramatic, but, as was to be expected, it's tense.”

In summary, the Chairman of the Board of Management stated: “Although the current situation is serious, this company will not be broken by it. We have a clear mission: we will create a new, better, and stronger Volkswagen. A company that uses its strengths to make the transition to the new world of automobiles. A company that now releases new forces, and takes better advantage of its huge potential. And, last but not least, a company that will be successful over the long term on the basis of strong values.”

Volkswagen Group Communications
Head of Group Communications
Hans-Gerd Bode
Phone: +49 (0) 53 61 / 9 - 2 43 19
www.volkswagen-media-services.com
www.volkswagenag.com

Volkswagen Group Communications
Head of Group Communications
Company and Business
Eric Felber
Phone: +49 (0) 53 61 / 9 – 8 75 75
E-mail: eric.felber@volkswagen.de
www.volkswagen-media-services.com

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; Kaminer, Joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]; Firestine, Natalie[firestine.natalie@epa.gov]; Bond, Alexander[Bond.Alexander@epa.gov]
From: Turley, Jennifer

Sent: Thur 12/10/2015 4:17:38 PM
Subject: Air & Radiation Law News for December 10, 2015

Air & Radiation Law News

for December 10, 2015

Bloomberg BNA **Daily Environment Report™**

Air Pollution

EPA Limits Emissions at Eight Texas Plants

The Environmental Protection Agency imposed sulfur dioxide limits on eight coal-fired power plants in Texas after disapproving portions of the state's regional haze plan, according to a final rule signed Dec. 9....

Air Pollution

IBM Broadens Push in China, India on Air Quality Projects

International Business Machines Corp., which has been developing artificial intelligence to help fight Beijing's toxic air pollution, plans to work with other municipalities in China and India on similar projects to

manage air quality....

Air Pollution

Study: Air Mercury Levels Fall in Western Maryland

Emissions controls on coal-fired power plants installed in the last decade in Ohio, Pennsylvania and West Virginia have more than halved the amount of power plant-sourced mercury in the air over Western Maryland, according a study released...

Air Pollution

VW: Carbon Dioxide Emissions Issues Not Widespread

Irregularities with carbon dioxide levels and fuel consumption figures affect far fewer Volkswagen vehicles than the company previously thought....

Climate Regulation

Court Should Review Clean Power Plan Legality First

Opponents of the Clean Power Plan are asking a federal appellate court to first address whether the Environmental Protection Agency has the legal authority to issue the rule before tackling specific challenges to how the regulations are implemented...

Climate Regulation

Obama Hasn't Received Carbon Resolutions to Veto

More than a week after Congress passed two resolutions to nullify the centerpieces of President Barack Obama's efforts to fight climate change domestically, several Republican aides said legislators haven't yet sent copies of...

Energy

Group Seeks Larger Role for Nuclear Power in Climate Talks

International climate negotiators should give greater acknowledgment to the role of nuclear power in fighting climate change, says a report by the Global Nexus Initiative, a partnership of an international security group and the nuclear...

Energy

Ontario Defers Energy Efficiency Standards

Dec. 9 — The Ontario government deferred setting energy efficiency standards for wine chillers and residential gas water heaters and added a new standard for fluorescent lamp ballasts, in part to better harmonize standards with those...

Energy

Some Investors Seek to Engage Polluting Energy Companies

Call it the softer side of the fossil fuel divestment movement....

General Policy

China to Require Companies to Submit to Clean Production Audits

China will take its voluntary clean production policies to a new level by requiring specific companies to undergo mandatory audits of their clean production practices, according to a draft document for public comment the Ministry of Environmental...

General Policy

Former Coal Executive Leading Kentucky Environment Unit

A retired coal executive is now running Kentucky's Energy and Environment Cabinet....

General Policy

Grijalva Urges White House Effort on Environmental Riders

The Obama administration should be doing more to keep environmental riders, including one related to the stream protection rule, out of the upcoming omnibus bill, a senior House Democrat told Bloomberg BNA Dec. 9....

International Climate

Businesses Prepare to Meet 2-Degree Climate Goal

About 100 businesses are starting to line up their carbon-cutting efforts with a target being haggled over by 195 of the world's governments as they write a global deal to fight climate change: 2 degrees Celsius....

International Climate

China Needs $389B Per Year to Meet Climate Pledge

China needs to invest an average of about 2.5 trillion yuan ($389 billion) a year to achieve its goal of peak carbon emissions by 2030, a study found....

International Climate

IEA Wants National Emissions Pledges Legally Binding

A global climate deal should legally cement national pledges that countries submitted to the United Nations this year, and should state a long-term temperature goal to put the energy sector on a low-carbon path for the future, the International...

International Climate

Manitoba to Join Regional Cap-and-Trade System

Dec. 9 — Manitoba has agreed to join Ontario and Quebec and link their cap-and-trade systems for greenhouse gas emissions through the Western Climate Initiative. A memorandum of understanding reached Dec. 7 at the United Nations climate...

International Climate

New Climate Proposal Leaves Critical Issues for Final Hours

Delegates at the international climate talks in Paris Dec. 9 began working from a dramatically slimmed and focused negotiating text, but one that still left the most difficult issues unresolved....

International Climate

Pushing for Climate Deal, U.S. to Double Adaptation Grant Funds

The U.S. will double its annual grant-based funding to help nations vulnerable to rising sea level and other climate impacts to $800 million by 2020, Secretary of State John Kerry said Dec. 9....

International Climate

Senators Urge Paris Negotiators to Push Carbon Capture

Two Democratic senators urged the Obama administration to push for expanded use of carbon capture systems as part of the ongoing climate change negotiations in Paris....

Renewable Energy

Brazil Olympics Misses First Deadline for Clean Energy

The Brazilian government has missed a key deadline to secure a deal for environmentally friendly energy for the 2016 Rio Olympics. If no agreement is reached, Olympics organizers say they will have to use diesel generators, notorious for high...

Renewable Energy

U.S. Solar Installations on Pace for Record Year

The U.S. solar industry is on pace for a record year after adding 1.4 gigawatts of capacity in the third quarter. The fourth quarter is likely to be the largest in the industry's history, with more than 3 gigawatts of installations expected,...

Vehicle Fuels

Ontario Funding Charging Stations for Electric Cars

The Ontario government will invest C$20 million ($15 million) in 2016 to build additional public charging stations for electric vehicles, the Ontario Ministry of the Environment and Climate Change said Dec. 8. The funding from the C$325 million...

INTERVIEW

EPA

Interview: Karl Brooks Is Tasked With Bolstering EPA's Depleted Ranks

Over the past several years, the Environmental Protection Agency has navigated an aging and evolving workforce. Nearly 800 career staff took voluntary retirement packages by the end of fiscal year 2014, leaving the agency with the smallest...

Inside EPA's **Weekly Report**, 12/11/2015

http://insideepa.com/newsletters/inside-epa

Latest News

EPA Sends Updated Nuclear Emergency Guidance To OMB For Review

EPA has sent its controversial and long-pending final guidance on how to respond to a radiological emergency for White House Office of Management and Budget (OMB) pre-publication review, putting the agency on track to finalize it next year as it has planned.

Seeking Speedy Ruling, Critics Ask D.C. Circuit To Split Issues In ESPS Suit

States and industry groups that are seeking to overturn EPA's greenhouse gas rule for existing power plants are asking the appellate court hearing the case to bifurcate the litigation, suggesting an expedited briefing schedule on "fundamental core" legal issues to allow for a ruling likely before states must demonstrate their initial compliance next September.

Greenwire

PARIS TALKS:

Kerry demands action, vows aid ahead of summit conclusion

Jean Chemnick, E&E reporter

Published: Wednesday, December 9, 2015

LE BOURGET, France -- The fate of the planet may hang on what happens here in the next two days, Secretary of State John Kerry said this morning.

Kerry, who has been involved in the U.N. climate negotiations since their inception, told delegates gathered in an airfield outside of Paris that the time for delay is over. They must resolve differences and forge an agreement or risk losing their best chance to avert catastrophe.

"If a global community cannot come together and refuses to rise to this challenge, if we continue to allow calculated obstruction to derail the urgency of this moment, we will be liable for a collective moral failure of historic consequence," he said.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

Kerry, who as a Massachusetts senator attended the 1992 Earth Summit in Rio that led to these negotiations, said that while the next few days will not result in a deal that solves climate change, it must "chart a new path" that will lead to a sustainable future.

"We need to get the job done," he told an audience of delegates and officials who will spend the next days grappling with contentious issues ranging from legal form to climate aid for poor countries.

He presented the United States as a reliable partner in these talks, seizing the opportunity to disparage U.S. Republicans who say that human-driven warming doesn't exists.

"My friends, these people are so out of touch with science that they believe rising sea levels don't matter because in their view the extra water is just going to spill out of the sides of a flat Earth," he said. U.S. EPA Administrator Gina McCarthy and others have spent considerable time this week holding news conferences and meeting with delegations to argue that the agency's Clean Power Plan and other policies will withstand GOP attacks.

The top U.S. diplomat, meanwhile, told his audience that the United States is aware of its historic contribution to the emissions that are driving warming and is determined to help resolve the problem.

But while the Obama administration has won kudos from many for its ambitious domestic agenda on climate change -- including its new power-plant emissions controls -- poor countries continue to insist that developed countries provide them with more guarantees of aid for adaptation, mitigation, and loss and damage. Rich countries have promised to help raise $100 billion a year by 2020, but there are substantial disagreements between developed and developing countries about how that aid should be counted and uncertainty about where it will come from.

Poor countries note that while private investment may be available for green energy projects and other means of mitigation, the same is not true for adaptation. They insist that rich countries provide more certainty about what they will contribute directly and that such help come in the form of grants rather than loans.

Kerry responded this morning by announcing that the United States would double the money now flowing to adaptation grants by 2020 (*Greenwire*, Dec. 9). That means increasing expenditures from the State Department, U.S. AID and the Treasury Department from about $431 million last year to $860 million by the end of the decade. He acknowledged in his remarks that many of the countries most affected by warming did little to cause it and in some cases may face losing their homes to sea-level rise and other threats.

"We will not leave the most vulnerable nations among us to quite literally weather the storm alone," Kerry pledged.

Adaptation aid would be additional

A senior official said earlier today that the rollout would be a net increase to U.S. adaptation funding. The funds will support programs at the State Department and other agencies.

The administration has pledged separately to provide $3 billion over the next four years to the United Nations' Green Climate Fund to help poor countries cope with climate change and reduce their own emissions. But less than half of that money will go to adaptation grants, and the pledge ends in 2020.

"With this commitment, we are committing to an enduring effort to ramp up our investments in adaptation, of which our contribution to the Green Climate Fund will be component, but which will endure beyond that additional GCF contribution and which will be reflected in increased investment through State, through USAID and through Treasury," the official said.

The money will go to projects to help climate-vulnerable countries better forecast and prepare for changing weather patterns, adapt to changes in precipitation by trapping rainwater, or to help islands shore up their mangroves, among other things, the official said. These are already underway through U.S. AID and other agencies.

The fate of the Green Climate Fund remains uncertain. Congress must pass legislation by Friday to fund the federal government, and while the administration has said it is prioritizing its fiscal 2016 GCF contribution of $350 million in the State Department budget, it remains unclear whether that will be provided. The adaptation funding would be available in the future if the State Department "prioritizes" the funding in its budget, the official said.

But Sen. John Barrasso (R-Wyo.), who heads a key Senate Foreign Relations Committee subcommittee, said in a statement to *Greenwire* that Kerry's announcement is just the latest example of the administration making promises it can't keep without authorization from Congress.

"Secretary Kerry is simply trying to buy off developing nations with money he doesn't have and Congress won't give him," he said. "Thirty-six senators recently joined me in pledging to President Obama that there will be no international climate funding without Senate approval."

Aid a 'strategic play'

The offer of aid is intended to help the world reach a climate agreement that will be a key component of President Obama's climate legacy.

The United States hopes it will spur poor countries to accept its priorities in these talks, especially a legal architecture that does not make emissions targets subject to international law and that the United States can therefore participate in without consent from the Senate. Other top U.S. asks include provisions to ensure greater transparency of emissions reporting, language lessening the differences between developed and developing countries' responsibilities, and certainty that rich countries will never be liable

for climate-related damages.

Paul Bledsoe, a former Clinton White House climate adviser who is attending the talks, called the announcement "a strategic play to both head off loss and damage calls by developing nations, and gain additional help from other nations on the key U.S. issues of emissions reporting and updating greenhouse gas ambitions every five years that China and India are resisting."

Nathaniel Keohane, who oversees international climate issues for the Environmental Defense Fund, said the commitment would shore up U.S. "bona fides" going in to the final negotiations by showing that the United States is sensitive to developing world priorities.

While disagreements persist, the talks seem on course to end with a deal.

U.S. analysts who were at the 2009 summit in Copenhagen, Denmark, contrasted Kerry's speech to that of former Secretary of State Hillary Clinton then. During the darkest days of that conference, when negotiations were at their lowest point, Clinton announced the United States and other wealthy countries would mobilize $100 billion annually by 2020.

"The momentum had really ground to the halt," recalled Peter Ogden, a senior fellow at the Center for American Progress who was serving as U.S. climate envoy Todd Stern's chief of staff at the time.

"She arrived and gave a really energizing speech and breathed some fresh hope into the process," he said. "It gave it a spark that it really needed at that point."

While Kerry's announcement of doubling adaptation finance to about $860 million annually is hardly as jaw-dropping, Ogden and others said the Paris moment calls for a different touch.

"You needed shock and awe" in Copenhagen, said Jake Schmidt, international programs director for the Natural Resources Defense Council.

Agreed Ogden: "Clearly there is momentum still in the process here." Kerry's speech and delivering money for adaptation takes on a key issue that very poor nations are concerned about. But, he said, "We're not experiencing anywhere near the tension that ripped the Bella Center at this juncture."

Those who work directly with poor countries to help them protect communities from the impacts of climate change, like Heather Coleman of Oxfam America, called the money important politically and substantively.

"It's a really positive political signal," Coleman said. She described the money as part of existing U.S. commitments but repackaged for adaptation. Still, she said, "It is still a critically important message to send, and it shows the commitment this administration has to delivering on what they said they will do."

Developing countries were the obvious target for the adaptation announcement -- which came after Kerry met with representatives of small island nations earlier this week.

Anthony Wolimbwa, who works for an environmental group in Uganda, called it "a good thing."

But, he said, "It really needs to be matched by capacity building. Most of the African states don't have the capacity to attract the money," he said. He also urged other wealthy countries like Japan, Canada and Australia to follow in the footsteps of the United States.

Saleemul Huq, who advises the group of least developed countries in the negotiations, called Kerry's speech "a master class in climate change issues, both diplomacy and reality."

He praised the adaptation funding and said he hopes it helps "raise the level of ambition collectively."

Raman Mehta, director of policy and programs at the Vasudha Foundation in New Delhi, said before the announcement that the developing world wouldn't accept "aspirational" commitments.

"It has now reached a stage where promises of something being done in the future don't really count, because there have been so many promises in the past that have not been met, at least in this process," he said.

When details emerged, Mehta said that the new aid promises would help, but that $800 million a year was still "a drop in the ocean" compared with the vast sums that climate-vulnerable countries would ultimately need.

Others were skeptical of the move.

Harlan Watson of the Competitive Enterprise Institute and a former George W. Bush administration climate envoy questioned whether Kerry was offering up new money.

"Can he even get the old money?" Watson asked. "He's almost waving a red flag before Congress."

Reporter Lisa Friedman contributed.

CLEAN POWER PLAN:

Litigation 'Super Bowl' tops list of 2016 cases to watch

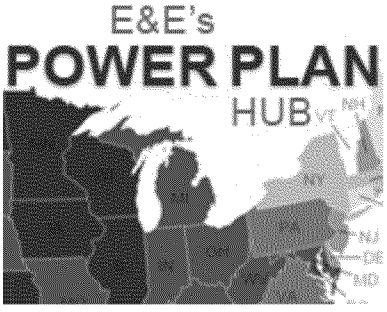
Robin Bravender, E&E reporter

Published: Wednesday, December 9, 2015

The morass of litigation engulfing the Obama administration's signature climate change rule will be the top environmental law issue to watch next year, according to new rankings from Vermont Law School.

U.S. EPA's Clean Power Plan -- a contentious rule requiring power plants to curb their greenhouse gas emissions -- is at the center of a massive court battle that is widely expected to drag on for years and ultimately wind up at the Supreme Court. The legal "Super Bowl" surrounding the regulation ranked No. 1 on the law school's annual top 10 list.

The Supreme Court "has upheld the EPA's authority and obligation to regulate carbon pollution three times," the watchlist says. "But it has also signaled that there is a limit to how much deference it will give to the EPA's assertion of broad authority with such significant economic and social consequences. So the outcome is uncertain."



The No. 2 issue identified by the law school: a battle over EPA's landmark approach for cleaning up the Chesapeake Bay.

Earlier this year, the 3rd U.S. Circuit Court of Appeals upheld EPA's pollution diet -- or total maximum daily load (TMDL) -- for the entire 64,000-square-mile watershed. The American Farm Bureau Federation and other industry groups have asked the Supreme Court to review EPA's plan, arguing that the agency far overstepped its boundaries under the Clean Water Act (*Greenwire*, Nov. 6).

"Regardless of whether the Supreme Court hears the case, the Third Circuit ruling will provide a foundation for the EPA, states, and environmental organizations in the development of plans to address polluted stormwater runoff across the country, from the Great Lakes to the Gulf of Mexico," the law school's list says.

Another issue that made the top 10 is the battle playing out over the administration's so-called Waters of the U.S. rule, dubbed "The WOTUS Wars" on the rankings.

"It will take years to achieve clarity" on that rule, wrote law student Charlotte Rand and professor Patrick Parenteau. "With the exception of the Clean Power Plan, no rule has ignited more controversy and litigation than the rule adopted by the Environmental Protection Agency and the Department of the Army seeking to clarify the meaning of the term 'waters of the United States' (WOTUS) under the Clean Water Act."

Lawsuits opposing the regulation have been lodged in courts around the country amid a debate about the proper venue for challenging the rule. Yesterday, federal judges appeared to favor keeping those lawsuits in appeals court rather than district courts across the country as requested by the regulation's challengers (*E&ENews PM*, Dec. 8).

Other topics on the list include: the aftermath of a Supreme Court decision that knocked down EPA mercury standards for power plants, litigation surrounding rules "cracking down on fracking," a pending Supreme Court decision on electricity market rules and a decision not to list the greater sage grouse under the Endangered Species Act.

Click here to read Vermont Law School's top 10 list.

FEDERAL WORKFORCE:

Paid leave bill pulled as panel passes whistleblower measures

Hannah Hess, E&E reporter

Published: Wednesday, December 9, 2015

The Senate Homeland Security and Governmental Affairs Committee today cleared two measures aimed at protecting the federal workforce from retaliation and discrimination.

But legislation meant to clarify when paid administrative leave is permitted, a joint effort by Sens. Chuck Grassley (R-Iowa) and Jon Tester (D-Mont.), was abruptly pulled from the agenda.

"But it's still in play," Tester assured *Greenwire* after the business meeting. A staffer explained that the bill, which follows Grassley's report on the ballooning costs of administrative leave, was not yet ready for introduction and still needed work with some stakeholders (*E&ENews PM*, Dec. 1).

"It's got to be somebody in the bureaucracy that doesn't like it," Grassley said when asked about wrangling over the legislation.

Chairman Ron Johnson's whistleblower protection bill, S. 2127, was approved 9-0. The Wisconsin Republican said the "Dr. Chris Kirkpatrick Whistleblower Protection Act of 2015," named for a former employee of a Veterans Affairs medical center, is meant to provide "some real disciplinary action" in cases of improper retaliation.

The bill intends to provide protections to federal employees, including access to the Office of Special Counsel, if they are terminated. It would also require the comptroller general to submit a report on retaliation against whistleblowers, specifically employees who are in probationary status.

Approval of H.R. 1557 sends that measure one step closer to the president's desk. The "Federal Employee Antidiscrimination Act" advanced on voice vote, after the panel adopted an amendment from Sen. James Lankford (R-Okla.) that would ensure supervisors face disciplinary action for discriminating against employees.

"We must do better and ensure employees have confidence that they can report an act of discrimination without suffering retaliation," said Rep. Elijah Cummings (D-Md.), sponsor of the bill, when it passed the House in July 403-0 under suspension of the rules.

The bill would require agencies to create a system to track complaints of discrimination and retaliation from beginning to end. It would also ensure that agencies report to the Equal Employment Opportunity Commission whether disciplinary action has been taken against an employee for discrimination or retaliation, and require agencies to send electronic notification to employees when such an action occurs. Agencies would have to post additional information about discriminatory practices on their websites.

The committee also advanced a second Johnson bill, S. 2375. It aims to make it easier to consolidate and sell excess federal property. A copy of the legislation was not available at press time.

FEDERAL AGENCIES:

Committee passes fraud prevention bill

Kevin Bogardus, E&E reporter

Published: Wednesday, December 9, 2015

The House Oversight and Government Reform Committee today approved legislation that would have federal agencies use data analysis tools to catch fraudulent spending.

The panel passed H.R. 4180 by unanimous consent along with a package of bills and a committee report

that slammed the Secret Service for its recent security failures.

The legislation, known as the "Fraud Reduction and Data Analytics Act of 2015," was introduced by Rep. Mark Meadows (R-N.C.), chairman of the panel's Government Operations Subcommittee, and Rep. Gerry Connolly (D-Va.), the subcommittee's ranking member.

The bill would promote agencies' using data tools to detect patterns of fraud in their spending, have them share their best anti-fraud practices with each other and give Congress regular reports on their efforts to combat fraud. Similar legislation was approved by the Senate Homeland Security and Governmental Affairs Committee this October (*E&E Daily*, Dec. 8).

Fraudulent spending has been a costly problem for the federal government. In March, the Government Accountability Office found that agencies had spent $125 billion in improper payments for fiscal 2014 (*Greenwire*, March 17).

Connolly praised the legislation today before the committee approved it.

"This is something we can do something about. This is something that the federal government can do something about," Connolly said. "In the category of oversight and reform, this bill is the classic example of a positive contribution that this committee can make."

Meadows said the bill would help the government capture funds misspent by agencies, which can then be put to better use.

"When you get improper payments of 120-plus billion dollars, those dollars could be worked and put to use in many other ways," Meadows said.

POLITICS:

Obama admin 'desperate' for Paris deal -- Sen. Barrasso

Hannah Hess, E&E reporter

Published: Wednesday, December 9, 2015

Sen. John Barrasso (R-Wyo.) portrayed the Obama administration today as "desperate" for a climate deal in Paris, and scorned the announcement of additional aid to help the world's poorest cope with global warming.

"I'm not surprised that this administration is so desperate for a deal," Barrasso told *Greenwire*, when asked about Secretary of State John Kerry's proposal for doubling the funding to $800 million.

"We've seen on the Iranian deal that they were so desperate for a deal they were willing to take any deal, which is what happened with Iran, it seems now with Paris," he said.

A member of both the Senate environment and energy committees, Barrasso has blasted the Obama administration as "out of touch" today for trying to forge an agreement at the U.N. climate talks.

He predicted Congress would oppose contributing more money "to the green climate slush fund," and said Kerry and President Obama ought to be focused on terrorism.

NEGOTIATIONS:

U.S. set to join 'ambition coalition'

Lisa Friedman, E&E reporter

Published: Wednesday, December 9, 2015

A group of countries including the United States are poised to announce tonight that they have formed an "ambition coalition" toward a new global climate accord.

Led by the European Union, the group also includes 79 African, Caribbean and Pacific island countries and 32 progressive nations like Costa Rica that have long been involved in a group called the Cartagena Dialogue. The group will announce common positions, presumably around a review of emissions targets, transparency and asking wealthy developing nations to voluntarily put money on the table for the poorest.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

It also will raise a number of objections to a draft text just released this afternoon.

"We don't like the text," said a negotiator from a developed country that's part of the coalition. "There are a lot of extremes. You still have all the firewalls."

U.S. Special Envoy for Climate Change Todd Stern is expected to be involved in the announcement, as will Marshall Islands Foreign Minister Tony de Brum.

For its part, the United States has made noises over the past few days that it is part of this burgeoning coalition, but European negotiators say the deal to include the United States was sealed only hours ago.

What made the difference? U.S. "flexibility" on finance and setting a target of keeping temperature rise below 1.5 degrees Celsius, the negotiator said.

Secretary of State John Kerry today announced that the United States would double its funding for adaptation to help the world's poorest countries adapt to climate change.

Meanwhile, he said, the United States is open to a formulation in the text that embraces that goal, dear to island nations but opposed by major emerging nations because they fear agreeing to it will force them to do more than they can accept, or are getting funding to accomplish.

"I think you can write that [1.5 degrees] aspiration into the agreement in a way that doesn't make it what the target, the guidepost, for this agreement is."

NOTEBOOK:

Birth control may offer 'solution' to warming -- Catholic cardinal

Lisa Friedman and Katie Howell, E&E reporters

Published: Wednesday, December 9, 2015

LE BOURGET, France -- The Catholic Church may be softening its stance on birth control.

Cardinal Peter Turkson, Pope Francis' leading climate adviser, told BBC News that birth control could "offer a solution" to the effects of climate change.

Turkson, who is Ghanaian, said the Catholic Church has never rejected natural family planning and that birth control could help stem the impact of food availability in a warming world.

SPECIAL SERIES

Paris Climate Talks provides in-depth coverage of the 21st U.N. summit to forge a new global agreement to reduce carbon dioxide emissions. Visit the special report.

"This has been talked about, and the Holy Father on his trip back from the Philippines also invited people to some form of birth control, because the church has never been against birth control and people spacing out births and all of that. So, yes, it can offer a solution," Turkson said on the sidelines of the Paris talks.

Turkson stressed, however, that the church wasn't condoning the use of artificial birth control techniques like the contraceptive pill.

"You don't deal with one good with another evil: The Church wants people to be fed, so let's do what the Church feels is not right? That is a kind of sophistry that the church would not go for," he said.

Back at the Vatican, the Holy See has turned the facade of St. Peter's Basilica into the backdrop for a massive public art installation timed to coincide with the home stretch of the climate negotiations in Paris.

Humanitarian organizations are projecting a photo light show about nature onto the building's walls.

Images posted to the London *Guardian*'s website show a parrot, hundreds of candles, a coral reef and clownfish, among others, illuminated on the walls of the basilica.

Obama, Modi chitchat about negotiations

President Obama yesterday spoke by phone with Indian Prime Minister Narendra Modi about the ongoing Paris climate talks.

According to the White House, Obama and Modi expressed their personal commitments to nail down a strong deal this week at the conference and about working together to achieve success.

It's raining men

Men are dominating the Paris climate talks -- so says the United Nations' special envoy on climate change.

"This is a very male world [at the conference]," Mary Robinson, formerly Ireland's first female president, told the London *Guardian*. "When it is a male world, you have male priorities."

She pointed out that few of the ministers leading the negotiations are women.

"If you don't have women here, how can you say this is about people?" she asked.

French minister stays optimistic

French Foreign Minister Laurent Fabius isn't swaying on his goal to pin down a final climate deal by the Friday deadline.

"The objective is to present a final text in time for its adoption by the Conference of Parties on Friday, Dec. 11, at 1800 [noon EST]," Fabius told Reuters.

Historically, negotiations have trickled well past their deadlines and into the weekends after previous summits.

Tuvalu's 'brilliant' meeting with Kerry

E&E ran into Tuvalu Prime Minister Enele Sopoaga today and asked him about his meeting yesterday with U.S. Secretary of State John Kerry.

"It was brilliant," Sopoaga said. When asked whether he agrees with Kerry's assessment that the United States and island nations had a "meeting of the minds" on issues important to small island nations, Sopoaga remained upbeat.

"I feel the people are really moving on their mandate," he said.

Loss and damage has emerged as one of the most difficult issues in the negotiations (*Greenwire*, Dec. 8).

May the Force be with you

Yoda and Stormtroopers want to make sure Paris climate talks are successful.

Activists with the group Avaaz dressed as the "Star Wars" characters appeared today at one of the protest stunts around the talks, according to the Associated Press.

The group is urging negotiators to support renewable energy over oil, gas and coal.

Alec Baldwin says *au revoir* to Big Oil

Other celebrities want to say *au revoir* to oil and gas, as well.

Actor and activist Alec Baldwin told the Associated Press in an interview on the sidelines of the Paris climate talks that he doesn't want to see massive U.S. job losses. But "I'd love to see a major oil company go out of business in the United States," he said.

"That would be a tremendous sign of progress," he said.

Trojan polar bear?

In other stunts surrounding the talks, Greenpeace activists have rolled a 2-story-tall mechanical polar bear into the conference venue.

"We want the bear to represent everyone hoping in the next 72 hours" for a robust climate deal, Greenpeace's Ben Stewart told the Associated Press.

The bear came to Paris after protesting outside Royal Dutch Shell PLC's headquarters during the environmental group's campaign against Arctic oil drilling.

Meat is off the table

At least one topic seems to be off the table during the Paris negotiations when it comes to cutting emissions: meat.

The livestock sector is responsible for roughly 14.5 percent of global climate emissions. But negotiators at the talks are focusing primarily on reducing carbon dioxide output from industry, rather than diet.

"This is one of the most delicate issues with climate protection, because we all have our habits, and diet is something quite holy for some people, not to be meddled with," Jo Leinen, an omnivore and a German member of the European Parliament, told Reuters.

Still, activists are pushing meat-free living as a way to cut carbon. On the sidelines of the talks, one U.S. firm is touting its "Impossible Burger," which is made entirely from plants, is intended to look and taste like beef, and produces a similar smell when grilled.

CHINA:

Nation offers perks to coal plants that meet climate regs

Published: Wednesday, December 9, 2015

Chinese government officials say setting tighter restrictions on coal-fired power plants to cut back on carbon dioxide emissions and smog blanketing Beijing will be two-pronged and will include incentives as well as fines.

For years, the government has fined noncompliant coal plants, but today it announced that it also will offer bonuses for firms that meet efficiency benchmarks, effective Jan. 1, 2016.

"It will help to cut coal use and emissions from the sector," said Lin Boqiang, an energy researcher with Xiamen University. "And some outdated facilities will be phased out that will ease the power oversupply."

Coal plants that open after Jan. 1 will get a per-kilowatt incentive on top of a basic grid tariff, while plants already in operation will receive an extra monetary per-kilowatt hour incentive that could equate to $6.5 million.

Lin said keeping tabs on hundreds of coal plants throughout the country could be problematic.

The announcement comes at a time when world leaders are meeting in Paris to discuss a global climate deal, pushing both the public and private sectors to invest in renewable energies to improve air quality (Chen/Stanway, Reuters, Dec. 9). **-- AK**

COAL:

Appeals court sees 'no clear misconduct' by EPA

Manuel Quiñones, E&E reporter

Published: Wednesday, December 9, 2015

A three-judge panel of the U.S. Court of Appeals for the 4th Circuit yesterday defended its reasons for blocking Murray Energy Corp.'s deposition of U.S. EPA Administrator Gina McCarthy.

Late last month, Judges Diana Motz, Roger Gregory and Henry Floyd reversed a West Virginia District Court ruling saying the deposition could take place (*Greenwire*, Nov. 30).

"It is well established that high-ranking government officials may not be deposed or called to testify about their reasons for taking official actions absent 'extraordinary circumstances,'" said an appeals court explanation filed yesterday.

At issue in the lawsuit is Murray's assertion that EPA failed to properly study the potential economic impacts of recent rules as required by the Clean Air Act.

U.S. District Court Judge John Preston Bailey for the Northern District of West Virginia had allowed the deposition, saying EPA statements to lawmakers and in the litigation were contradictory.

The agency has said it may not have conducted reviews with the express purpose of meeting the statute in question, but it did analyze the potential economic effect of rules.

The appeals court said, "In short, we see no contradiction in EPA's positions that would support the district court's finding of an extraordinary circumstance."

The judges added, "We see no clear misconduct in EPA's alleged failure to perform a duty that was not declared to be mandatory until the district court so declared in this case."

SCIENCE:

IPCC chairman refutes warming 'pause'

Published: Wednesday, December 9, 2015

The much-hyped global warming "pause" does not actually exist, according to the chairman of the U.N.

Intergovernmental Panel on Climate Change, and more research is needed on warming levels that could cause irreversible damage.

"There is no hiatus [in global warming]. Multiple lines of evidence suggest that the Earth is warming," said Hoesung Lee, the South Korean economics professor who has chaired the IPCC since October (*ClimateWire*, Oct. 7).

"For instance, the atmospheric concentration of CO2 is rising, sea levels have been rising and the temperature of the ocean has also been rising," he said. "The important point is we need to look at the trend, not just one year of data."

The IPCC reported that global warming had slowed to nearly a pause since 1998 in a 2013 report, even though greenhouse gas emissions had continued unabated (*ClimateWire*, Nov. 1, 2013). A National Oceanic and Atmospheric Administration report released this year, however, refuted the existence of a pause (*ClimateWire*, June 5).

"Clearly, the most dangerous impacts will be related to crossing over the tipping points," Lee said, such as when ice melt becomes irreversible (Nina Chestney, Reuters, Dec. 8). **-- BTP**

CAMPAIGN 2016:

Sanders' climate plan isn't 'good enough' -- O'Malley

Published: Wednesday, December 9, 2015

Former governor of Maryland and Democratic presidential hopeful Martin O'Malley called fellow presidential hopeful Sen. Bernie Sanders' plan to tackle climate change "not good enough" during a University of Iowa New Leadership Forum yesterday.

Sanders (I-Vt.) earlier this week released a 16-page climate report that maps out reducing U.S. emissions 40 percent by 2030 and 80 percent by 2050 (*Greenwire*, Dec. 7). Included in the plan is a carbon tax, eliminating fossil fuel subsidies and investing in renewable resources.

"I don't believe that his goals are adequate to the challenge, and I also don't believe he actually has any experience in getting these things done, and I have," O'Malley said in response to Sanders' plan.

O'Malley unveiled a plan to tackle climate change in June that calls on the country to transition to 100 percent clean energy by 2050. To achieve this, O'Malley would create a Clean Energy Jobs Corps to retrofit pre-existing infrastructure to make it more energy-efficient and require the federal fleet of 250,000 vehicles to be low or zero emissions.

Although the candidates' plans parallel in many instances, O'Malley argues that his plan is farther-reaching and that he has the experience to put words into action.

O'Malley also spoke to yesterday's crowd of about 130 people about defeating the Islamic State group, raising middle-class wages and easing student debt (Stephen Gruber-Miller, *Iowa City Press-Citizen*, Dec. 8). **-- AK**

SCIENCE:

Greenpeace sting tests researchers' funding ethics

Published: Wednesday, December 9, 2015

A Greenpeace sting operation has shown some researchers who dispute climate change science are willing to hide their sources of funding.

Two employees from the environmental activist group posed as energy company representatives and offered to pay two prominent climate change commentators to publish papers trumpeting the benefits of carbon emissions and coal. The disguised activists also requested that the payments be kept secret.

The commentators were retired Pennsylvania State University professor Frank Clemente, who agreed to write a paper on behalf of an Indonesian coal company, and Princeton University physics professor William Happer, who agreed to publish a paper for an unnamed Middle Eastern oil and gas company.

Both men acknowledged that the emails Greenpeace released yesterday showing arrangements being made were genuine, but they denied that anything improper was done. Clemente, former director of Penn State's environmental policy center, has been a prominent defender of coal in the face of its decline in popularity as a fuel source (*ClimateWire*, May 30, 2012). Happer is a founding member of the CO2 Coalition, a group of scientists who assert that more carbon dioxide in the atmosphere will help vegetation grow better (*Greenwire*, Aug. 13). Sen. Ted Cruz (R-Texas) tapped him to participate in a hearing yesterday that criticized mainstream climate science (*ClimateWire*, Dec. 9).

"It shows a way that fossil fuel money can get into funding these climate skeptic campaign groups," said Lawrence Carter, one of the Greenpeace employees involved (John Schwartz, *New York Times*, Dec. 9). **-- BTP**

AIR POLLUTION:

VW's CO2 emissions scandal may be smaller than feared

Published: Wednesday, December 9, 2015

Volkswagen AG said the number of vehicles with altered carbon dioxide levels is fewer than originally anticipated, news that increased the German carmaker's fallen shares by 5 percent today.

Last month, the company said CO2 emissions and fuel consumption figures were likely adjusted in 800,000 cars; however, VW says that number is now closer to 36,000 affected vehicles.

The carmaker already is facing the prospect of shelling out tens of billion of euros in fines for rigging diesel emissions levels, and news about altered CO2 emissions raised the possibility that the number would continue to climb.

Initial estimates show the CO2 discovery could cost the company €2 billion ($2.2 billion), although the figure won't be solidified until more information is discovered.

The company is scheduled to provide an update tomorrow at its Wolfsburg, Germany, headquarters, where it will also map out plans to offset fines it is required to pay in the wake of the scandal (Graham Ruddick, London *Guardian*, Dec. 9). **-- AK**

EPA:

Former deputy, regional chief win leadership awards

Kevin Bogardus, E&E reporter

Published: Wednesday, December 9, 2015

Two former senior U.S. EPA officials have been selected for a prestigious environmental award.

Bob Perciasepe, president of the Center for Climate and Energy Solutions and formerly the agency's longtime deputy administrator, and Mindy Lubber, president of Ceres and once a regional administrator for EPA's New England office, have won the 2016 William K. Reilly Award for Environmental Leadership, according to an announcement from last week.

The Reilly Awards are given by the Center for Environmental Policy at the American University School of Public Affairs. They are named after Bill Reilly, President George H.W. Bush's EPA administrator, and honor individuals with stellar environmental careers.

Dan Fiorino, director of the Center for Environmental Policy, said this batch of nominations was outstanding, which made the award committee's job difficult.

"Both Mindy Lubber and Bob Perciasepe exemplify the Bill Reilly model of working across political and policy divisions to achieve innovative and measurable results," Fiorino said in a statement.

Perciasepe was picked for his service in the public sector. He was EPA's No. 2 from 2009 to 2014, when the agency developed tougher auto emissions standards as well as the Waters of the U.S. rule and the Clean Power Plan. Perciasepe also has been the agency's assistant administrator for both its water and air programs.

He also held the post of chief operating officer at the National Audubon Society and worked in state and municipal government as Maryland's secretary of the environment and as a senior planning official for Baltimore.

Perciasepe left EPA and took charge of the Center for Climate and Energy Solutions in summer of last year (*Greenwire*, July 17, 2014).

Lubber earned her award for her work at Ceres, a nonprofit advocacy group that mobilizes investors and companies to adopt sustainable business practices. She has a long history in environmental causes as president of the National Environmental Law Center and as president and CEO of Green Century Capital Management, which invests in environmentally responsible mutual funds.

Lubber also served at EPA, joining the agency in 1995 as a senior policy adviser. President Clinton in 2000 named her regional administrator of EPA's New England office, where she helped manage the office's then-$450 million annual budget.

Perciasepe and Lubber will pick up the awards March 31 at American University.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Thu., December 10, 2015

1.NEGOTIATIONS:

Glimmers of a climate deal emerge, backed by nontraditional coalition

LE BOURGET, France -- Diplomats crafting a new global climate change accord pulled their first real all-nighter yesterday, working through dawn to stitch together a deal riddled with political bullet holes.

2.FOSSIL FUELS:

China's natural gas use plummets despite its pledge to switch from coal

HONG KONG -- As global diplomats parley in Paris for a new agreement to curb greenhouse gas emissions, demand for a cleaner fuel has been nosediving in China.

TODAY'S STORIES

3.FINANCE:

Big players pledge 'robust' green bond market with clear climate benefits

4.ADAPTATION:

Experts push for greater focus on climate-driven human migration at Paris summit

5.ADVOCACY:

Think tank that cast doubt on climate change science morphs into smaller one

6.RESOURCES:

Wood pellet maker pledges to protect bottomland forests

7.ADAPTATION:

Kiribati looks to a man-made floating island to handle sea-level rise

8.EXTREME WEATHER:

Mount Rainier braces for 15 feet of snow

9.CITIES:

Charleston, S.C., pumps $250M toward fighting flooding, rising seas

10.NATIONS:

Canada pushes bigger role for carbon markets at Paris summit

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Thu., December 10, 2015

READ FULL EDITION

1.TECHNOLOGY:

Home energy storage is a fire hazard; FDNY is on the case

The scenario hasn't yet come to pass, thankfully. But Lt. Paul Rogers knows the day may come that a large lithium-ion battery, set up in a New York City building, catches on fire.

TOP STORIES

2.ALASKA:

Governor eyes 'major paradigm shift' in budget ruled by oil

3.LAW:

Fight over fracking bans hits Colo. high court

4.GRID:

Don't rush reform plan, N.Y. regulators are told

ELECTRICITY

5.ELECTRICITY:

Texas should reject possible Oncor deal -- PUC staff filing

6.CLEAN POWER PLAN:

Renewables giant weighs in on Pa. compliance strategy

OIL AND GAS

7.LAW:

Pa. AG sues Chesapeake over royalties payments

8.BAKKEN SHALE:

N.D. oil production poised to continue to drop

9.EARTHQUAKES:

Oil and gas companies ask for dismissal of Okla. suit

10.FINANCE:

Deeper drilling cuts announced as China's growth continues to slow

11.OFFSHORE DRILLING:

Supply ships in 'precarious' situation

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

HAUSFELD

CHRISTOPHER L. LEBSOCK
Partner

600 Montgomery Street
Suite 3200
San Francisco, CA 94111

415-633-1949 Direct
415-633-1908 Main
415-358-4980 Fax

clebsock@hausfeld.com

October 9, 2015

VIA CERTIFIED U.S. MAIL

Volkswagen Group of America, Inc.
c/o Corporation Service Company
270 Gateway Oaks Drive, Suite 150N
Sacramento, CA 95833

Audi of America, Inc.
c/o Corporation Service Company
Bank of America Center
111 East Main Street
Richmond, VA 23219

Volkswagen of America, Inc.
c/o Corporation Service Company
Bank of America Center
111 East Main Street
Richmond, VA 23219

David Geanacopoulos
Executive Vice President Public Affairs and
General Counsel
Volkswagen Group of America, Inc.
2200 Ferdinand Porsche Drive
Herndon, VA 20171

Terry McAuliffe
Governor of Virginia
PO Box 1475
Richmond, VA 23218
(804) 786-2211

Stuart Johnson
General Manager
Engineering and Environmental Office
Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills. MI 48326

Richard Snyder
Governor of Michigan
PO Box 30013
Lansing, MI 48909
(517) 373-3400

General Counsel
Volkswagen Group of America, Inc.
2710 Gateway Oaks Dr., Suite 150N
Sacramento, CA 95833

Edmund G. Brown, Jr
Governor of California
c/o State Capitol, Suite 1173
Sacramento, CA 95814
(916) 445-2841

General Counsel
Audi Of America, Inc.
2200 Ferdinand Porsche Drive
Herndon, VA 20171

VW FOIA, EPA 06/20/2017 2017-FFP_036722

Gina McCarthy
Environmental Protection Agency,
Administrator
Office Of The Administrator, Mail Code
1101A
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Muriel Bower Mayor of Washington, DC
1350 Pennsylvania Avenue, NW, Suite 316
Washington, DC 20004

Regional Administrator
South Central Region
Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Greg Abbott
Governor of Texas
State Insurance Building
1100 San Jacinto
Austin, TX 78701

Regional Administrator
Pacific Northwest Region
Environmental Protection Agency
1200 6th Avenue, Suite 900
Seattle, WA 98101

Jay Inslee
Governor of Washington State
PO Box 40002
Olympia, WA 98504-0002

Regional Administrator
Pacific Southwest Region
Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Regional Administrator
New England Region
Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Charlie Baker
Governor of Massachusetts
Massachusetts State House
Office of the Governor, Room 280
Boston, MA 02133

Regional Administrator
Region 2
Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

Andrew Cuomo
Governor of New York
NYS State Capitol Building
Albany, NY 12224

VW FOIA, EPA 06/20/2017 2017-FFP_036723

Regional Administrator
Mid-Atlantic Region
Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

Tom Wolf
Governor of Pennsylvania
508 Main Capitol Building
Harrisburg, PA 17120

Mary D. Nichols, Chair
California Air Resources Board
9460 Telstar Avenue, Suite 4
El Monte, California 91731

General Counsel
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

Douglas Ducey
Governor of Arizona
1700 West Washington Street
Phoenix, AZ 85007

General Counsel
Connecticut Department of Energy & Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Dannel P. Malloy
Governor of Connecticut
210 Capitol Avenue
Hartford, CT 06106

General Counsel
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

Paul R. LePage
Governor of Maine
1 State House Station
Augusta, ME 04333-0001

General Counsel
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Larry Logan
Governor of Maryland
100 State Circle
Annapolis, MD 21401

General Counsel
Massachusetts Department of Environmental Protection
1 Winter Street
Boston, Massachusetts 02108

VW FOIA, EPA 06/20/2017 2017-FFP_036724

General Counsel
New Jersey Department of Environmental Protection
401 E. State St.
7th Floor, East Wing
P.O. Box 402
Trenton, NJ 08625-0402

Chris Christie
Governor of New Jersey
PO Box 001
Trenton, NJ 08625

General Counsel
New Mexico Environment Department
Harold L. Runnels Building
1190 St. Francis Drive, Suite N4050
Santa Fe, New Mexico 87505

Susana Martinez
Governor of New Mexico
490 Old Santa Fe Trail, Room 400
Santa Fe, NM 87501

General Counsel
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-0001

General Counsel
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204-1390

Kate Brown
Governor of Oregon
160 State Capitol
900 Court Street
Salem, OR 97301-4047

General Counsel
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17101

General Counsel
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Gina M. Raimondo
Governor of Rhode Island
82 Smith Street
Providence, RI 02903

General Counsel
Vermont Department of Environmental Conservation
1 National Life Drive, Main 2
Montpelier, VT 05620-3520

Peter Shumlin
Governor of Vermont
109 State Street, Pavilion
Montpelier, VT 05609

VW FOIA, EPA 06/20/2017 2017-FFP_036725

General Counsel
Washington Department of Ecology
300 Desmond Drive SE,
Lacey, WA 98503

RE: ***VW Emissions Violations; Notice of Intent to Sue.***

Dear Sir or Madame:

Pursuant to 42 U.S.C. § 7604(b), we write to notify you that Volkswagen AG, Audi AG, Volkswagen Group of America, Inc., Volkswagen of America, Inc., and Audi of America, Inc. (collectively "VW") are alleged to have violated the Clean Air Act ("CAA"), 42 U.S.C. §§ 7401 - 7671q, and its implementing regulations, and the motor vehicle emissions laws, regulations and orders of California, Arizona, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington by installing "defeat devices" on its emissions control systems for at least the following Volkswagen and Audi vehicles sold in the United States:

- VW Jetta TDI (Model Years 2009-15);
- VW Jetta SportWagen TDI (Model Years 2009-14);
- VW Golf TDI (Model Years 2010-15);
- VW Golf SportWagen TDI (Model Year 2015);
- VW Beetle TDI and VW Beetle Convertible TDI (Model Years 2012-15);
- VW Passat TDI (Model Years 2012-15); and
- Audi A3 TDI (Model Years 2010-15).

The defeat devices masked real world NOx emissions that exceeded emissions levels authorized by the U.S. Environmental Protection Agency limits by 10 to 40 times.

VW has widely admitted to its violation of E.P.A. and California Air Resources Board

VW FOIA, EPA 06/20/2017 2017-FFP_036726

rules and regulations (which have been adopted in 13 states), and to its deception of state and federal regulators. On October 8, 2016, VW additionally publicly announced that some or all of its SCR engines may also be non-compliant with state and federal regulations. VW executives at the highest level of the company were aware of these emissions violations and these individuals authorized concealment through the use of a sophisticated software code that understood when an engine was being subjected to an emissions test. The software then altered engine settings to allow the vehicle to pass the emissions test. Thereafter, the engine would revert to normal settings for real-world driving conditions.

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use."' CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86. 1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued Certificate of Conformity ("COC"). CAA § 203(a)(1), 42 U.S.C. § 7522(a)(1); 40 C.F.R. § 86. 1854-1 2(a)(l). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854- 12(a).

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-1 O(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86. 1844-01 (listing required content for COC applications), 86.1848-0 l (b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86- 1809-10, 86-1809-1 2. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control system's performance are AECDs. EPA, *Advisaty Circular*

VW FOIA, EPA 06/20/2017 2017-FFP_036727

Number 24-2: Prohibition of Emission Control Defeat Devices - Optional Objective Criteria (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

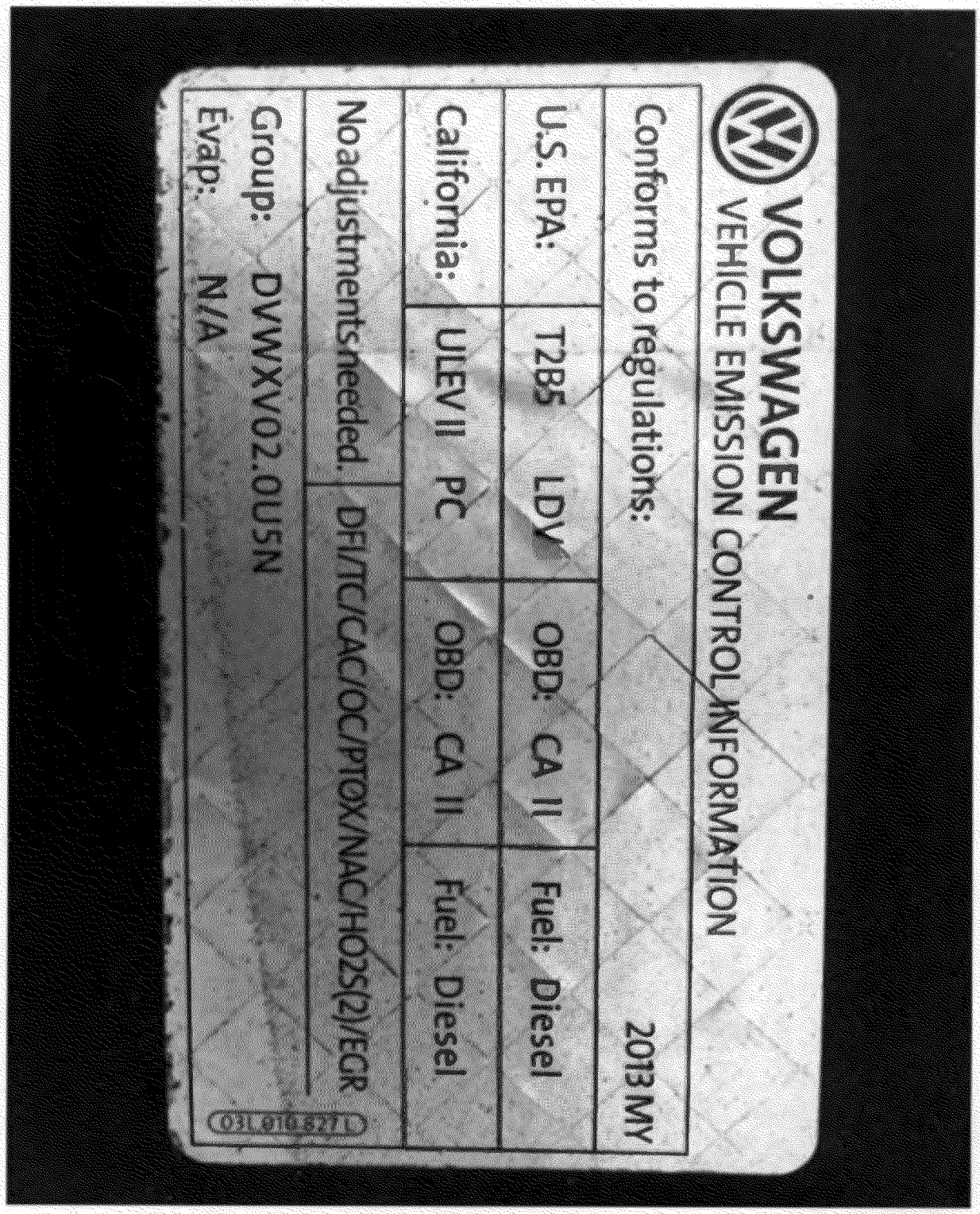
To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R.
§ 86.1 843-0 1. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86. 1844-01 (d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86. 1803-01. The COC application must also include "ajustification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C. F .R. § 86. 1844-01 (d)(11). A defeat device is an AECD " that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) Such conditions are substantially included in the Federal emission test procedure; (2) The need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) The AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . ... " 40 C.F.R. § 86. 1803-01.

Persons who violate section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), are subject to a civil penalty of up to $3,750 for each violation that occurred on or after January 13, 2009;[1] CAA § 205(a), 42 U.S.C. § 7524(a); 40 C.F.R. § 19.4. In addition, any manufacturer who, on or after January 13, 2009, sold, offered for sale, introduced into commerce, delivered for introduction into commerce, imported, or caused any of the foregoing acts with respect to any new motor vehicle that was not covered by an EPA-issued COC is subject, among other things, to a civil penalty of up to $37,500 for each violation.[2] CAA § 205(a), 42 U.S.C. § 7524(a); 40 C.F.R. § 19.4. Additional equitable remedies to further address these alleged violations are also authorized. CAA § 204(a). 42 U.S.C. § 7523(a).

VW's certifications, which are affixed to hundreds of thousands of non-compliant vehicles are false. An exemplar of these certifications is as follows:

[1] $2.750 for violations occurring prior to January 13. 2009.
[2] $32,500 for violations occurring prior to January 13, 2009.

VW FOIA, EPA 06/20/2017 2017-FFP_036728


VOLKSWAGEN
VEHICLE EMISSION CONTROL INFORMATION
Conforms to regulations:
2013 MY
U.S. EPA:
T2B5
LDV
OBD: CA II
Fuel: Diesel
California:
ULEV II
PC
OBD: CA II
Fuel: Diesel
No adjustments needed.
DFI/TC/CAC/OC/PTOX/NAC/HO2S(2)/EGR
Group: DVWXV02.0USN
Evap: N/A
03L 910 827 L

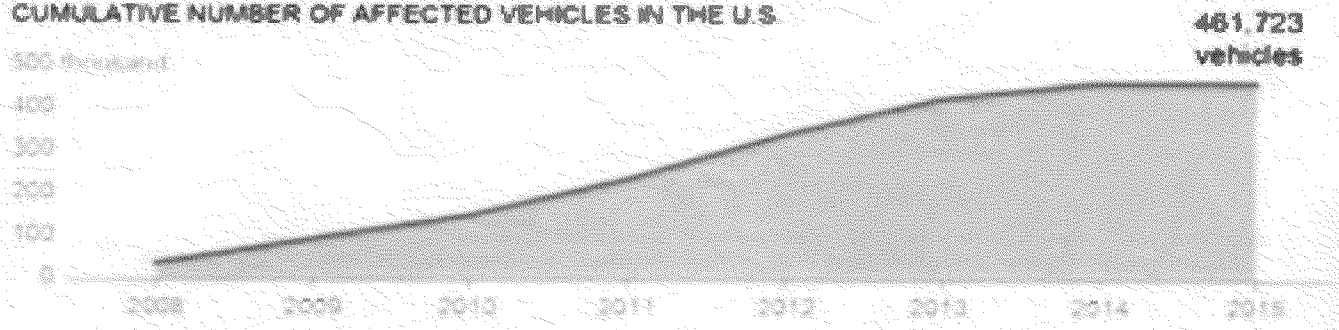
VW's conduct has contributed to significant degradation of air quality in urban environments and has been estimated to have contributed to respiratory and other health problems and death of dozens of people in the United States over the last seven years. On October 3, Associated Press ("AP") laid out the facts in the chart that follows:

VW FOIA, EPA 06/20/2017 2017-FFP_036730

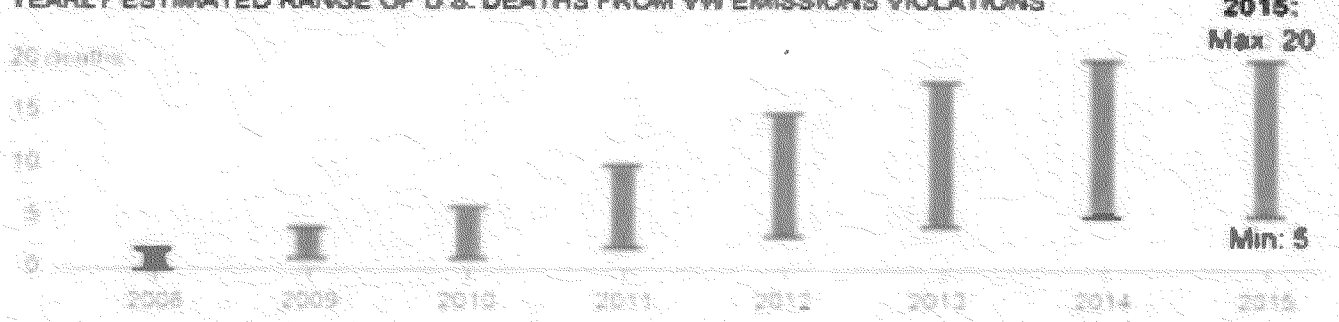
Calculating human toll of VW emissions problems

U.S. pollution resulting from Volkswagen's dodging of emissions tests is enough to have caused dozens of deaths since 2008. An AP analysis calculated upper and lower limits of pollution using the number of affected vehicles each year and average mileage. Scientists used that data in epidemiological computer models to estimate a range of deaths.

CUMULATIVE NUMBER OF AFFECTED VEHICLES IN THE U.S.

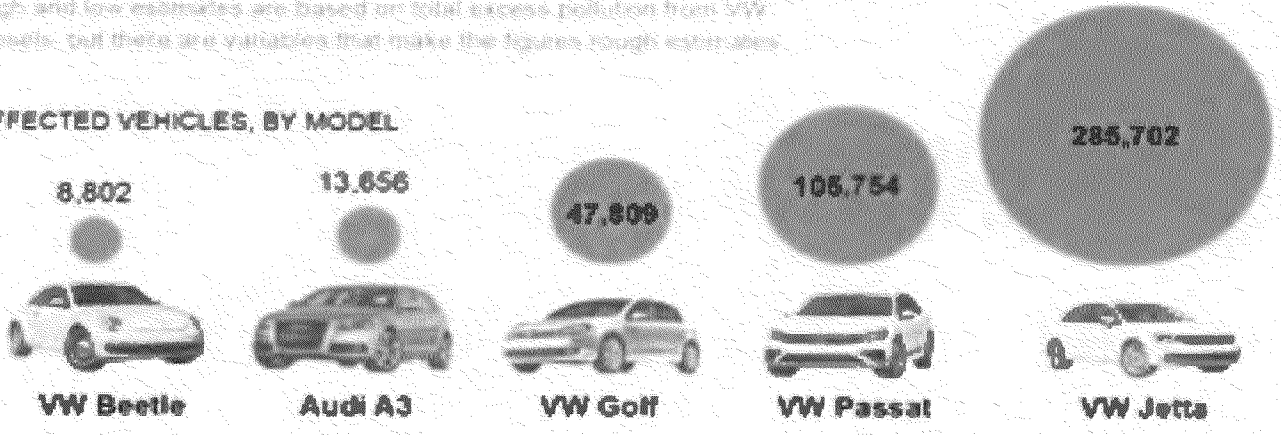


YEARLY ESTIMATED RANGE OF U.S. DEATHS FROM VW EMISSIONS VIOLATIONS



High and low estimates are based on total excess pollution from VW diesels, but there are variables that make the figures rough estimates.

AFFECTED VEHICLES, BY MODEL



NOTE: The total of 47,809 for VW Golf includes 2,510 VW Golf SportWagen vehicles. The total figure of 461,723 is derived from Kelley Blue Book vehicle registration data. The Environmental Protection Agency puts the total number of affected vehicles in the U.S. to be about 482,000.

SOURCES: AP analysis of data from the U.S. Environmental Protection Agency and Kelley Blue Book; AP Graphics Editor Adams Carrington; Mother Jones; Volkswagen Audi

VW FOIA, EPA 06/20/2017 2017-FFP_036731

As the AP article notes, the Class Vehicles released enough NOx over the course of seven years to significantly degrade the environment in urban areas.

The full name and contact of the parties giving notice are as follows: Maria Bourn, David Watson, Stephen Verner, Mark Schumacher and the Center for Auto Safety, each of whom may be contacted through their counsel, Hausfeld LLP, 600 Montgomery Street, 32nd Floor, San Francisco, CA 94111 (Tel.: 415-633-1908).

The parties give you notice of their intent to sue the VW entities identified above pursuant to 42 U.S.C. § 7604(a)(1) sixty days following the date of this notice in the United States District Court for the Eastern District of Virginia. Notice is deemed given on the postmark date. See 40 C.F.R. § 54.2(d)

If you believe that any portion of this notice is provided in error, or if you wish to discuss any portion of this notice, please do not hesitate to contact me.

Very truly yours,

Christopher L. Lebsock
Partner

VW FOIA, EPA 06/20/2017 2017-FFP_036732

BΦΦΦΦYAAS.XML

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA STREET
HOUSTON, TEXAS 77002-5096
(713) 651-9366
FAX (713) 654-6666
WWW.SUSMANGODFREY.COM

SUITE 5100
901 MAIN STREET
DALLAS, TEXAS 75202-3775
(214) 754-1900

SUITE 950
1901 AVENUE OF THE STARS
LOS ANGELES, CALIFORNIA 90067-6029
(310) 789-3100

SUITE 3800
1201 THIRD AVENUE
SEATTLE, WASHINGTON 98101-3000
(206) 516-3880

15TH FLOOR
560 LEXINGTON AVENUE
NEW YORK, NEW YORK 10022-6828
(212) 336-8330

ROBERT S. SAFI
DIRECT DIAL (713) 653-7850

E-MAIL RSAFI@SUSMANGODFREY.COM

November 6, 2015

VIA CERTIFIED MAIL

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
William Jefferson Clinton Federal Building
Washington, DC 20460

Volkswagen AG
Audi AG
Porsche AG
Volkswagen Group of America, Inc.
Porsche Cars North America, Inc.
Thru:

David Geanacopoulos
Executive Vice President Public Affairs
and General Counsel
Volkswagen Group of America, Inc.
2200 Ferdinand Porsche Drive
Herndon, VA 20171

Joseph Folz
Vice President, General Counsel and
Secretary
Porsche Cars North America, Inc.
One Porsche Drive
Atlanta, GA 30354

Stuart Johnson
General Manager
Engineering and Environmental Office
Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326

Walter J. Lewis
Manager, Regulatory Affairs
Porsche Cars North America, Inc.
980 Hammond Drive, Suite 1000
Atlanta, GA 30328

[State addressees listed at the end]

3963705v2/014996

Re: Notice of Clean Air Act Violations Pursuant to 42 U.S.C. § 7604(b)(1)(A)

Ladies and Gentlemen,

We represent Rich Hill, Elvis Foster, Robert Nesbitt, Joe Howbert, Callum Dorey, Don Cunningham, Angelyen Wood, Marcia Andru Moshe, Edmund Steppan, Mireya Perez, Kristen Van de Biezenbos, Ann Marie Stief, William Stief, Thomas C. Jorgensen, Kartik Pillutla, Kathryn Sue Vordenberg, Michael Brown, Carol Spindel, Jason Welch, Thomas Bassett, Joshua R. Geller, Michelle Geller, Fred M. Flores, Gary Butterwei, Terri Butterwei, Thomas Michael Carran, Michael Fuerstein, Grant Garcia, Howard Katz, Timothy P. Yerkes, Beth Glassman, Stephanie Waddoups, Mary Jones, Diego Alberto Diaz, Michael Santos, Mark Pomerantz, and Tiffany Ford, individually and on behalf of all others similarly situated (collectively, "Plaintiffs"), and write to provide notice of violations of the Clean Air Act ("CAA") by Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") to the Administrator of the EPA, to the States in which the violation occurs (in this case, all fifty States and the District of Columbia), and to the alleged violators of the CAA. This is notice is pursuant to 42 U.S.C. § 7604(b)(1)(A), and is made 60 days before Plaintiffs commence a civil action against VW to enforce the applicable emission standards or limitations and to recover civil penalties, costs of litigation (including reasonable attorney and expert witness fees), and all other relief that is proper in citizen suits under the CAA.

The allegations in this notice are based on the Notices of Violation issued by the United States Environmental Protection Agency ("EPA") on September 18, 2015 and November 2, 2015. As stated therein, the EPA has investigated and continues to investigate Volkswagen AG, Audi AG, Porsche AG, Volkswagen Group of America, Inc., and Porsche Cars North America, Inc., (collectively, "VW") for compliance with the CAA, 42 U.S.C. §§ 7401-7671q, and its implementing regulations. The EPA has determined that VW manufactured and installed defeat devices in certain model year 2009 through 2015 diesel light-duty vehicles equipped with 2.0 liter engines, and certain model year 2014 through 2016 diesel light-duty vehicles equipped with 3.0 liter engines. These defeat devices bypass, defeat, or render inoperative elements of the vehicles' emission control system that exist to comply with CAA emission standards. Therefore, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B). Additionally, the EPA has determined that, due to the existence of the defeat devices in these vehicles, these vehicles do not conform in all material respects to the vehicle specifications described in the applications for the certificates of conformity that

VW FOIA, EPA 06/20/2017 2017-FFP_036734

purportedly cover them. Therefore, VW also violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing these vehicles, or for causing any of the foregoing acts.

Law Governing Alleged Violations

This notice arises under Part A of Title II of the CAA, 42 U.S.C. §§ 7521-7554, and the regulations promulgated thereunder. In creating the CAA, Congress found, in part, that "the increasing use of motor vehicles . . . has resulted in mounting dangers to the public health and welfare." CAA § 101(a)(2), 42 U.S.C. § 7401(a)(2). Congress' purpose in creating the CAA, in part, was "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population," and "to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution." CAA § 101(b)(l)-(2), 42 U.S.C. § 740 l (b)(l)-(2). The CAA and the regulations promulgated thereunder aim to protect human health and the environment by reducing emissions of nitrogen oxides (NOx) and other pollutants from mobile sources of air pollution. Nitrogen oxides are a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds (VOCs) that produce ozone (smog) on hot summer days. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma. Children are at greatest risk of experiencing negative health impacts from exposure to ozone.

The allegations here concern light-duty motor vehicles for which 40 C.F.R. Part 86 sets emission standards and test procedures and section 203 of the CAA, 42 U.S.C. § 7522, sets compliance provisions. Light-duty vehicles must satisfy emission standards for certain air pollutants, including NOx. 40 C.F.R. § 86.1811-04. The EPA administers a certification program to ensure that every vehicle introduced into United States commerce satisfies applicable emission standards. Under this program, the EPA issues certificates of conformity (COCs), and thereby approves the introduction of vehicles into United States commerce.

To obtain a COC, a light-duty vehicle manufacturer must submit a COC application to the EPA for each test group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01. The COC application must include, among other things, a list of all auxiliary emission control devices (AECDs) installed on the vehicles. 40 C.F.R. § 86.1844-0l(d)(11). An AECD is "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of

VW FOIA, EPA 06/20/2017 2017-FFP_036735

activating, modulating, delaying, or deactivating the operation of any part of the emission control system." 40 C.F.R. § 86.1803-01. The COC application must also include "a justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device." 40 C.F.R. § 86.1844-01(d)(11).

A defeat device is an AECD that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) such conditions are substantially included in the Federal emission test procedure; (2) the need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) the AECD does not go beyond the requirements of engine starting; or (4) The AECD applies only for emergency vehicles . . . ." 40 C.F.R. § 86.1803-01.

Motor vehicles equipped with defeat devices, such as those at issue here, cannot be certified. EPA, *Advisory Circular Number 24: Prohibition on use of Emission Control Defeat Device* (Dec. 11, 1972); *see also* 40 C.F.R. §§ 86-1809-01, 86-1809-10, 86-1809-12. Electronic control systems which may receive inputs from multiple sensors and control multiple actuators that affect the emission control systems performance are AECDs. EPA, *Advisory Circular Number 24-2: Prohibition of Emission Control Defeat Devices - Optional Objective Criteria* (Dec. 6, 1978). "Such elements of design could be control system logic (i.e., computer software), and/or calibrations, and/or hardware items." *Id.*

"Vehicles are covered by a certificate of conformity only if they are in all material respects as described in the manufacturer's application for certification . . . ." 40 C.F.R. § 86.1848-10(c)(6). Similarly, a COC issued by EPA, including those issued to VW, state expressly, "[t]his certificate covers only those new motor vehicles or vehicle engines which conform, in all material respects, to the design specifications" described in the application for that COC. *See also* 40 C.F.R. §§ 86.1844-01 (listing required content for COC applications), 86.1848-01(b) (authorizing the EPA to issue COCs on any terms that are necessary or appropriate to assure that new motor vehicles satisfy the requirements of the CAA and its regulations).

The CAA makes it a violation "for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this subchapter, and where the person knows or should

VW FOIA, EPA 06/20/2017 2017-FFP_036736

know that such part or component is being offered for sale or installed for such use or put to such use."' CAA § 203(a)(3)(B), 42 U.S.C. § 7522(a)(3)(B); 40 C.F.R. § 86. 1854-12(a)(3)(ii). Additionally, manufacturers are prohibited from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing, any new motor vehicle unless that vehicle is covered by an EPA-issued COC. CAA § 203(a)(l), 42 U.S.C. § 7522(a)(l); 40 C.F.R. § 86.1854-1 2(a)(l). It is also a violation to cause any of the foregoing acts. CAA § 203(a), 42 U.S.C. § 7522(a); 40 C.F.R. § 86-1854-12(a).

2.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of these vehicles that sensed when the vehicle was being tested for compliance with EPA emission standards. The EPA calls this the "switch." The "switch" senses whether the vehicle is being tested or not based on various inputs including the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure. These inputs precisely track the parameters of the federal test procedure used for emission testing for EPA certification purposes. During EPA emission testing, the vehicles' ECM ran software which produced compliant emission results under an ECM calibration that VW referred to as the "dyno calibration" (referring to the equipment used in emissions testing, called a dynamometer). At all other times during normal vehicle operation, the "switch", was activated and the vehicle ECM software ran a separate "road calibration" which reduced the effectiveness of the emission control system (specifically the selective catalytic reduction or the lean Ox trap). As a result, emissions of Ox increased by a factor of 10 to 40 times above the EPA compliant levels, depending on the type of drive cycle (e.g., city, highway).

The California Air Resources Board (CARB) and the EPA were alerted to emissions problems with these vehicles in May 2014 when the West Virginia University's (WVU) Center for Alternative Fuels, Engines & Emissions published results of a study commissioned by the International Council on Clean Transportation that found significantly higher in-use emissions from two light duty diesel vehicles (a 2012 Jetta and a 2013 Passat). Over the course of the year following the publication of the WVU study, VW continued to assert to CARB and the EPA that the increased emissions from these vehicles could be attributed to various technical issues and unexpected in-use conditions. VW issued a voluntary recall in December 2014 to address the issue. CARB, in coordination with the EPA, conducted follow up testing of these vehicles both in the laboratory and during normal road operation to confirm the efficacy of the recall. When the

VW FOIA, EPA 06/20/2017 2017-FFP_036737

testing showed only a limited benefit to the recall, CARB broadened the testing to pinpoint the exact technical nature of the vehicles' poor performance, and to investigate why the vehicles' on board diagnostic system was not detecting the increased emissions. None of the potential technical issues suggested by VW explained the higher test results consistently confirmed during CARB's testing. It became clear that CARB and the EPA would not approve certificates of conformity for VW's 2016 model year diesel vehicles until VW could adequately explain the anomalous emissions and ensure the agencies that the 20 16 model year vehicles would not have similar issues. Only then did VW admit it had designed and installed a defeat device in these vehicles in the form of a sophisticated software algorithm that detected when a vehicle was undergoing emissions testing.

VW knew or should have known that its "road calibration" and "switch" together bypass, defeat, or render inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track the parameters of the federal test procedure and cause emission control systems to underperform when the software determined that the vehicle was not undergoing the federal test procedure.

VW's "road calibration" and "switch" are AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(l) of the CAA, 42 U.S.C. § 7522(a)(l), each time it sold, offered for sale, introduced into commerce, de livered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the hundreds of thousands of new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the "switch" and " road calibration."

The vehicles are identified by the table below. All vehicles are equipped with 2.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2009	9VWXV02.035N	VW Jetta, VW Jetta Sportwagen
2009	9VWXV02.0U5N	VW Jetta, VW Jetta Sportwagen
2010	AVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen,

VW FOIA, EPA 06/20/2017 2017-FFP_036738

		Audi A3
2011	BVWXV02.0U5N	VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2012	CVWXV02.0U4S	VW Passat
2013	DVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2013	DVWXV02.0U4S	VW Passat
2014	EVWXV02.0U5N	VW Beetle, VW Beetle Convertible, VW Golf, VW Jetta, VW Jetta Sportwagen, Audi A3
2014	EVWXV02.0U4S	VW Passat
2015	FVGA V02.0VAL	VW Beetle, VW Beetle Convertible, VW Golf, VW Golf Sportwagen, VW Jetta, VW Passat, Audi A3

3.0 Liter Diesel Engines

Each VW vehicle identified by the table below has AECDs that were not described in the application for the COC that purportedly covers the vehicle. Specifically, VW manufactured and installed software in the electronic control module (ECM) of each vehicle that causes the vehicle to perform differently when the vehicle is being tested for compliance with EPA emission standards than in normal operation and use.

When this software determines the vehicle has begun the FTP 75 Federal emission test procedure, it directs the vehicle to employ a low NOx temperature conditioning mode. A status bit in the software indicates that a "temperature conditioning" mode is active. In this low NOx temperature conditioning mode, the vehicle operates under a number of emission control parameters, including injection timing, exhaust gas recirculation rate, and common rail fuel pressure in such a way that the parameters yield low engine-out NOx emissions and high exhaust temperatures. The high exhaust temperatures heat the selective catalytic reduction system ("catalyst") and improve the catalyst's ability to reduce tailpipe NOx emissions. In this low NOx temperature conditioning mode, the combination of low engine-out NOx and improved catalyst performance results in tailpipe NOx emissions that are below the applicable emissions standard.

VW FOIA, EPA 06/20/2017 2017-FFP_036739

However, the software employs a "timer" that coincides with the low NOx temperature conditioning mode. At exactly one second after the completion of the initial phases of the FTP 75 Federal emissions test procedure (1,370 seconds, which is when the vehicle would normally be turned off), this software directs the vehicle to cease low NOx temperature conditioning mode. The "temperature conditioning" status bit switches to zero, and a second status bit indicates the activation of "transition to normal mode." In this "normal mode," the emission control system is immediately less effective. Compared to the low NOx temperature conditioning mode, the vehicle employs a different injection timing, exhaust gas recirculation rate, and common rail fuel pressure. This yields higher levels of NOx from the engine and reduced exhaust temperatures.

In addition, when the vehicle starts under conditions that the software determines *are not* the beginning of the FTP 75 Federal emission test procedure, the vehicle does not use the low NOx temperature conditioning mode at all. Instead, the emission control parameters are set consistent with the "normal mode." In sum, as soon as the vehicle senses that it is not being tested, it uses "normal mode." In "normal mode," tailpipe emissions of NOx are up to 9 times the applicable NOx standard levels, depending on model type and type of drive cycle (e.g., city, highway).

This notice is based on vehicle emission testing performed by the EPA's National Vehicle and Fuel Emissions Laboratory, California Air Resources Board's Hagen-Smit Laboratory, and Environment Canada's River Road Laboratory. This testing was performed since EPA's announcement on September 25, 2015, that it would perform additional testing "using driving cycles and conditions that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device." EPA, *EPA Conducted Confirmatory Testing* (Sept. 25, 2015).

VW knew or should have known that the software described above bypasses, defeats, or renders inoperative elements of the vehicle design related to compliance with the CAA emission standards. This is apparent given the design of these defeat devices. As described above, the software was designed to track federal test procedures and cause emission control systems to underperform when the software determined that the vehicle was not being tested.

VW's software described above includes one or more AECDs that were neither described nor justified in the applicable COC applications, and are illegal defeat devices. Therefore each vehicle identified by the table below does not conform in a material respect to the vehicle specifications described in the COC application. As such, VW violated section 203(a)(1) of the CAA, 42 U.S.C. § 7522(a)(1), each

VW FOIA, EPA 06/20/2017 2017-FFP_036740

time it sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing with respect to) one of the new motor vehicles within these test groups. Additionally, VW violated section 203(a)(3)(B) of the CAA, 42 U.S.C. § 7522(a)(3)(B), each time it manufactured and installed into these vehicles an ECM equipped with the software described above. The vehicles are identified by the table below. All vehicles are equipped with 3.0 liter diesel engines.

Model Year	EPA Test Group	Make and Model(s)
2014	EADXT03.02UG	VW Touareg
2015	FPRXT03.0CDD	Porsche Cayenne
2016	GVGAJ03.0NU4	Audi A6 Quattro, A 7 Quattro, A8, A8L, and Q5

Citizen Enforcement

The investigation into this matter is continuing. The above tables represent specific violations that the EPA and Plaintiffs believe, at this point, are sufficiently supported by evidence to warrant the allegations in this notice. The EPA and Plaintiffs may find additional violations as the investigation continues, including violations related to carbon dioxide emissions from diesel and gasoline-power VW vehicles, as indicated by VW's public announcement on November 3, 2015.

Not less than 60 days following this notice, Plaintiffs may commence a civil action pursuant to 42 U.S.C. §7604, which provides that the district courts of the United States have jurisdiction to enforce emission standards or limitations, to apply any appropriate civil penalties, and to award costs of litigation (including reasonable attorney and expert witness fees) to any party.

Sincerely,

Robert S. Safi

State Addressees:

Alabama Department of Environmental Management
Air Division

Alaska Department of Environmental Conservation
Division of Air Quality

3963705v2/014996

P.O. Box 301463
Montgomery, AL 36130-1463
ATTN: Ron Gore

410 Willoughby Ave., Suite 303,
P.O. Box 111800
Juneau, AK 99811-1800
ATTN: Denise Koch

American Samoa Environmental
Protection Agency
Air and Land Division
P.O. BOX PPA
Pago Pago, AS 96799
ATTN: William Sili

Arizona Department of
Environmental Quality
Air Quality Division
1110 West Washington Street
Phoenix, Arizona 85007
ATTN: Enforcement

Arkansas Department of Environmental
Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

California Air Resources Board
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
ATTN: Enforcement

Colorado Department of Public Health and
Environment
Air Pollution Control Division
4300 Cherry Creek Drive South
Denver, CO 80246
ATTN: Janet Lovell

Connecticut Department of
Environmental Protection
Air Division
79 Elm Street
Hartford, CT 06106-5127
ATTN: Enforcement

Delaware Dept. of Natural Resources and
Environmental Control
Division of Air Quality
655 South Bay Road Suite 5 N
Dover, DE 19901
ATTN: Frank Frisby

DC Department of the Environment
Air Quality Division
1200 First Street NE
Washington, DC 20002
ATTN: Enforcement

Florida Department of Environmental
Protection
Division of Air Resource Management
2600 Blair Stone Road, M.S. 5500
Tallahassee, Florida 32399-2400
ATTN: Justin Green

Georgia Department Environmental
Protection Division
Air Protection Branch
2 Martin Luther King Jr. Drive,
Suite 1456, East Tower
Atlanta, GA 30334
ATTN: Karen Hays

Guam Environment Protection Agency

Hawaii Department of Health

VW FOIA, EPA 06/20/2017 2017-FFP_036742

Air Pollution Division
P.O. Box 22439
GMF Barrigada, Guam 96921
ATTN: Conchita Taitano

Environmental Health Analytical Branch
2725 Waimano Home Road
Pearl City, Hawaii 96782
ATTN: Wanda Chang

Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706
ATTN: Tiffany Floyd

Illinois Pollution Control Board
Air Division
1021 North Grand Avenue East, P.O. Box 19274
Springfield, Illinois 62794-9274
ATTN: Tom Johnson

Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue, Room N1003
Indianapolis, Indiana 46204
ATTN: Enforcement

Iowa Department of Natural Resources
Air Quality Division
502 East 9th Street, 4th Floor
Des Moines, IA 50319-0034
ATTN: Enforcement

Kansas Department of Health and Environment
Air Division
1000 SW Jackson, Suite 31
Topeka, KS 66612-1366
ATTN: Rick Brunetti

Kentucky Environmental Quality Commission
Division for Air Quality
200 Fair Oaks Ln., 1st Floor
Frankfort, KY 40601
ATTN: Candy Montgomery

Louisiana Department of Environmental Quality
Air Permits, Engineering and Planning Division
602 N. Fifth Street
Baton Rouge, LA 70802
ATTN: Enforcement

Maine Department of Environmental Protection
Air Quality Division
17 State House Station, 28 Tyson Drive
Augusta, Maine 04333-0017
ATTN: Marc Cone

Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard, Suite 715
Baltimore, Maryland 21230-1720
ATTN: Enforcement

Massachusetts Department of Environmental Protection
Air Quality Division
1 Winter Street
Boston, Massachusetts 02108
ATTN: Paul Davis

VW FOIA, EPA 06/20/2017 2017-FFP_036743

Michigan Department of Environmental Quality
Air Division
P.O. Box 30260
Lansing, MI 48909-7760
ATTN: Lynn Fiedler

Minnesota Pollution Control Agency
Air Division
525 Lake Avenue South, Suite 400
Duluth, MN 55802
ATTN: Enforcement

Mississippi Department of Environmental Quality
Office of Pollution Control
P. O. Box 2261
Jackson, MS 39225
ATTN: Enforcement

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
ATTN: Kyra Moore

Montana Department of Environmental Quality
Air Program
1520 E 6th Ave
Helena, MT 59601
ATTN: Eric Merchant

Nebraska Department of Environmental Quality
Air Quality Division
1200 N Street, Suite 400, P.O. Box 98922
Lincoln, NE 68509-8922
ATTN: Shelley Schneider

Nevada Division of Environmental Protection
Bureau of Air Quality Planning
901 So. Stewart St., Suite 4001
Carson City, NV 89701
ATTN: Enforcement

New Hampshire Department of Environmental Services
Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
ATTN: Enforcement

New Jersey Department of Environmental Protection
Division of Air Quality
P.O. Box 402
Trenton, NJ 08625-0402
ATTN: Enforcement

New Mexico Environment Department
Air Division
P.O. Box 5469
Santa Fe, New Mexico 87502-5469
ATTN: Enforcement

New York State Department of Environmental Conservation
Chemical and Pollution Control Division
625 Broadway
Albany, New York 12233-0001
ATTN: Enforcement

NC Division of Pollution Prevention and Environmental Assistance
Environmental Assistance and Customer Service
1639 Mail Service Center
Raleigh, NC 27699-1639
ATTN: Theodore Bush

3963705v2/014996

ND Department of Health - Environmental Health Section
Division of Air Quality
918 E. Divide Ave, 2nd Floor
Bismarck, ND 58501
ATTN: Terry L. O'Clair

Division of Environmental Quality
Air Division
P.O. Box 501304
Saipan, MP 96950
ATTN: Enforcement

Ohio Air Quality Development Authority
Air Division
50 W. Broad Street, Suite 1718
Columbus, Ohio 43215
ATTN: Enforcement

Oklahoma Department of Environmental Quality
Air Quality Division
P.O. Box 1677, 707 North Robinson
Oklahoma City, Oklahoma 73101-1677
ATTN: Gary Collins

Oregon Department of Environmental Quality
Air Quality Division
811 SW 6th Avenue
Portland 97204-1390
ATTN: Enforcement

Pennsylvania Department of Environmental Protection
Air Programs
400 Market Street
Harrisburg, PA 17101
ATTN: Enforcement

Departamento de Recursos Naturales y Ambientales
Air Division
P.O. Box 366147
San Juan, Puerto Rico 00936
ATTN: Enforcement

Rhode Island Department of Environmental Management
Office of Air Resources
235 Promenade Street
Providence, RI 02908-5767
ATTN: Doug McVay

South Carolina Department of Health and Environmental Control
Air Quality Enforcement
2600 Bull Street
Columbia, SC 29201
ATTN: Randy Stewart

South Dakota Department of Environment and Natural Resources
Air Quality Division
523 E Capitol
Pierre, SD 57501
ATTN: Enforcement

Tennessee Department of Environment and Conservation
Division of Air Pollution Control
312 Rosa L. Parks Ave
Nashville, TN 37243
ATTN: Barry Stephens

Texas Commission on Environmental Quality (TCEQ)
Office of Air
P.O. Box 13087
Austin, TX 78711-3087
ATTN: Steve Hagle, P.E.

VW FOIA, EPA 06/20/2017 2017-FFP_036745

Utah Department of Environmental Quality
Division of Air Quality
195 North 1950 West
Salt Lake City, Utah 84116
ATTN: Bryce Bird

Vermont Department of Environmental Conservation
Air Quality & Climate Division
One National Life Drive, 2nd Floor
Montpelier, VT 05620-3802
ATTN: Heidi Hales

US Virgin Islands Division of Environmental Protection
Air Pollution Control Program
Cyril E. King Airport, Terminal Building, 2nd Fl.
St. Thomas, VI 00802
ATTN: Enforcement

Virginia Department of Environmental Quality
Air Division
P.O. Box 1105
Richmond, VA 23218
ATTN: Michael Dowd

Washington Department of Transportation's Environmental Services
Air Quality Division
P.O. Box 47300
Olympia, WA 98504-7300
ATTN: Enforcement

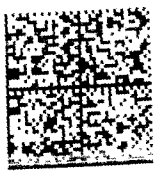
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
ATTN: Enforcement

Wisconsin Department of Natural Resources
Air Quality Division
101 S Webster Street, P.O. Box 7921
Madison WI
ATTN: Enforcement

Department of Environmental Quality
Air Quality Division
122 West 25th St, Herschler Building
Cheyenne 82002
ATTN: Cole Anderson

3963705v2/014996

SUSMAN GODFREY L.L.P.
A REGISTERED LIMITED LIABILITY PARTNERSHIP
SUITE 5100
1000 LOUISIANA
HOUSTON, TEXAS 77002-5096



US POSTAGE PITNEY BOWES

ZIP 77002 $ 000.90⁰
02 1W

Arkansas Department of Environmental Quality
Air Division
5301 Northshore Drive
North Little Rock, AR 72118-5317
ATTN: Stuart Spencer

To: David Geanacopoulos[david.geanacopoulos@vw.com]
From: Grundler, Christopher
Sent: Fri 12/11/2015 6:53:07 PM
Subject: Mueller Comments

Be careful, VW, of stopping saying sorry

Brooke Masters, Companies editor

December 11, 2015 4:39 pm

Volkswagen's new chief executive Matthias Müller used his first big press conference this week to strike an assertive tone.

Asked how he planned to deal with the US regulators who have charged that the German carmaker cheated on emissions tests, he said, "I don't think I will get down on my knees, I will be self-confident. Of course, I will apologise for things that have occurred." At another point, he proclaimed: "The future at VW belongs to the brave."

The event, conducted entirely in German in Volkswagen's home town of Wolfsburg, appeared designed to give the impression that the world's second-largest carmaker is drawing a line under the scandal. Although cheating software was installed in more than 11m vehicles worldwide, VW says it is working on cheap fixes for most of them. The company's share price, which dropped more than 40 per cent in September and October, has now recovered more than half of those losses.

But Mr Müller needs to be careful. At this stage, tone is everything. Former BP chief executive Tony Hayward learned the hard way the perils of being perceived as moving on too quickly. Back in May 2010, BP was struggling to contain the Deepwater Horizon oil spill, which killed 11 people and wreaked havoc on the US's gulf coast. While touring the clean up site, Mr Hayward imprudently complained to reporters, "No one wants this over more than I do, I'd like my life back". By July, he was out of a job.

Similarly, in 2011, Bob Diamond, then chief executive of Barclays, tempted fate by telling a UK parliamentary committee to stop being so obsessed with the financial crisis. "There was a period of remorse and apology; that period needs to be over," he insisted. In the following year, Barclays became the first bank to settle in the global Libor scandal. As public outrage mounted over traders who rigged lending rates for bottles of champagne, UK banking regulators stepped in, and Mr Diamond was the one whose time was over.

Their bold media strategies reminded me of a theory proposed by one of my history professors, about the role of the telegraph and railroad in sparking the US civil war. For generations, politicians in far-flung states such as Georgia had run for office promising to do battle with those nasty Yankees, and then gone off Washington to work happily with their Northern counterparts. News of what they were doing would take weeks, or months, to trickle back to their constituents.

Instantaneous communication and rapid transport made it harder to say different things to different audiences — setting the US on the road to war.

Mr Müller has a similar problem. VW's workers may be happy, even eager, to draw a line under the mess and get back to building cars. They are likely to have listened eagerly as he promised a new plan to build more electric vehicles.

But the VW chief has another audience to worry about: regulators, who are far from finished with VW. The US Environmental Protection Agency still has two open cases against the carmaker and is already unhappy that VW brushed back questions about excess nitrogen oxide emissions for more than a year. The carmaker came clean only after the EPA refused to certify its latest models for sale in the US. The EPA will want reassurance that this cannot happen again.

A successful VW recovery is likely to require a bit more apology and a bit less bravery than we have seen so far.

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington)

734.214.4207 (Ann Arbor)
www.epa.gov/otaq

Begin forwarded message:

From: "Bressler, Lindsey" <Bressler.Lindsey@epa.gov>
Date: December 11, 2015 at 1:40:47 PM EST
To: "Gong, Kristiene" <Gong.Kristiene@epa.gov>, "Valentine, Julia" <Valentine.Julia@epa.gov>, "Fogarty, Johnpc" <Fogarty.Johnpc@epa.gov>, "Allen, Laura" <Allen.Laura@epa.gov>, "Conger, Nick" <Conger.Nick@epa.gov>, "Senn, John" <Senn.John@epa.gov>, "Millett, John" <Millett.John@epa.gov>, "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>, "Hull, George" <Hull.George@epa.gov>, "Grantham, Nancy" <Grantham.Nancy@epa.gov>, "StClair, Christie" <StClair.Christie@epa.gov>, "Davis, Jay" <Davis.Jay@epa.gov>, "Cohen, Janet" <cohen.janet@epa.gov>, "Brooks, Phillip" <Brooks.Phillip@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Grundler, Christopher" <grundler.christopher@epa.gov>, "Purchia, Liz" <Purchia.Liz@epa.gov>, "Werner, Jacqueline" <Werner.Jacqueline@epa.gov>, "Belser, Evan" <Belser.Evan@epa.gov>, "Kaul, Meetu" <Kaul.Meetu@epa.gov>, "Cook, Leila" <cook.leila@epa.gov>, "Smith, Roxanne" <Smith.Roxanne@epa.gov>, "Orquina, Jessica" <Orquina.Jessica@epa.gov>, "Hart, Daniel" <Hart.Daniel@epa.gov>, "Bunker, Byron" <bunker.byron@epa.gov>
Subject: Volkswagen Clips 12/11/2015

Be careful, VW, of stopping saying sorry

Brooke Masters, Companies editor

December 11, 2015 4:39 pm

Volkswagen's new chief executive Matthias Müller used his first big press conference this week to strike an assertive tone.

Asked how he planned to deal with the US regulators who have charged that the German carmaker cheated on emissions tests, he said, "I don't think I will get down on my knees, I will be self-confident. Of course, I will apologise for things that have occurred." At another point, he proclaimed: "The future at VW belongs to the brave."

The event, conducted entirely in German in Volkswagen's home town of Wolfsburg, appeared designed to give the impression that the world's second-largest carmaker is drawing a line under the scandal. Although cheating software was installed in more than 11m vehicles worldwide, VW says it is working on cheap fixes for most of them. The company's share price, which dropped more than 40 per cent in September and October, has now recovered more than half of those losses.

But Mr Müller needs to be careful. At this stage, tone is everything. Former BP chief executive Tony Hayward learned the hard way the perils of being perceived as moving on too quickly. Back in May 2010, BP was struggling to contain the Deepwater Horizon oil spill, which killed 11 people and wreaked havoc on the US's gulf coast. While touring the clean up site, Mr Hayward imprudently complained to reporters, "No one wants this over more than I do, I'd like my life back". By July, he was out of a job.

Similarly, in 2011, Bob Diamond, then chief executive of Barclays, tempted fate by telling a UK parliamentary committee to stop being so obsessed with the financial crisis. "There was a period of remorse and apology; that period needs to be over," he insisted. In the following year, Barclays became the first bank to settle in the global Libor scandal. As public outrage mounted over traders who rigged lending rates for bottles of champagne, UK banking regulators stepped in, and Mr Diamond was the one whose time was over.

Their bold media strategies reminded me of a theory proposed by one of my history professors, about the role of the telegraph and railroad in sparking the US civil war. For generations, politicians in far-flung states such as Georgia had run for office promising to do battle with those nasty Yankees, and then gone off Washington to work happily with their Northern counterparts. News of what they were doing would take weeks, or months, to trickle back to their constituents.

Instantaneous communication and rapid transport made it harder to say different things to different audiences — setting the US on the road to war.

Mr Müller has a similar problem. VW's workers may be happy, even eager, to draw a line under the mess and get back to building cars. They are likely to have listened eagerly as he promised a new plan to build more electric vehicles.

But the VW chief has another audience to worry about: regulators, who are far from finished with VW. The US Environmental Protection Agency still has two open cases against the carmaker and is already unhappy that VW brushed back questions about excess nitrogen oxide emissions for more than a year. The carmaker came clean only after the EPA refused to certify its latest models for sale in the US. The EPA will want reassurance that this cannot happen again.

A successful VW recovery is likely to require a bit more apology and a bit less bravery than we have seen so far.

To: Grundler, Christopher[grundler.christopher@epa.gov]
From: Geanacopoulos, David
Sent: Fri 12/11/2015 7:12:02 PM
Subject: RE: Mueller Comments

Thank you, Chris,

This will help with delivering the right advice.

Best regards,

David

From: Grundler, Christopher [mailto:grundler.christopher@epa.gov]
Sent: Friday, December 11, 2015 1:53 PM
To: Geanacopoulos, David
Subject: Mueller Comments

Be careful, VW, of stopping saying sorry

Brooke Masters, Companies editor

December 11, 2015 4:39 pm

Volkswagen's new chief executive Matthias Müller used his first big press conference this week to strike an assertive tone.

Asked how he planned to deal with the US regulators who have charged that the German

carmaker cheated on emissions tests, he said, "I don't think I will get down on my knees, I will be self-confident. Of course, I will apologise for things that have occurred." At another point, he proclaimed: "The future at VW belongs to the brave."

The event, conducted entirely in German in Volkswagen's home town of Wolfsburg, appeared designed to give the impression that the world's second-largest carmaker is drawing a line under the scandal. Although cheating software was installed in more than 11m vehicles worldwide, VW says it is working on cheap fixes for most of them. The company's share price, which dropped more than 40 per cent in September and October, has now recovered more than half of those losses.

But Mr Müller needs to be careful. At this stage, tone is everything. Former BP chief executive Tony Hayward learned the hard way the perils of being perceived as moving on too quickly. Back in May 2010, BP was struggling to contain the Deepwater Horizon oil spill, which killed 11 people and wreaked havoc on the US's gulf coast. While touring the clean up site, Mr Hayward imprudently complained to reporters, "No one wants this over more than I do, I'd like my life back". By July, he was out of a job.

Similarly, in 2011, Bob Diamond, then chief executive of Barclays, tempted fate by telling a UK parliamentary committee to stop being so obsessed with the financial crisis. "There was a period of remorse and apology; that period needs to be over," he insisted. In the following year, Barclays became the first bank to settle in the global Libor scandal. As public outrage mounted over traders who rigged lending rates for bottles of champagne, UK banking regulators stepped in, and Mr Diamond was the one whose time was over.

Their bold media strategies reminded me of a theory proposed by one of my history professors, about the role of the telegraph and railroad in sparking the US civil war. For generations, politicians in far-flung states such as Georgia had run for office promising to do battle with those nasty Yankees, and then gone off Washington to work happily with their Northern counterparts. News of what they were doing would take weeks, or months, to trickle back to their constituents.

Instantaneous communication and rapid transport made it harder to say different things to different audiences — setting the US on the road to war.

Mr Müller has a similar problem. VW's workers may be happy, even eager, to draw a line under the mess and get back to building cars. They are likely to have listened eagerly as he promised a new plan to build more electric vehicles.

But the VW chief has another audience to worry about: regulators, who are far from finished with VW. The US Environmental Protection Agency still has two open cases against the carmaker and is already unhappy that VW brushed back questions about excess nitrogen oxide emissions for more than a year. The carmaker came clean only after the EPA refused to certify its latest models for sale in the US. The EPA will want reassurance that this cannot happen again.

A successful VW recovery is likely to require a bit more apology and a bit less bravery than we have seen so far.

Christopher Grundler, Director

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202.564.1682 (Washington)

734.214.4207 (Ann Arbor)

www.epa.gov/otaq

Begin forwarded message:

From: "Bressler, Lindsey" <Bressler.Lindsey@epa.gov>
Date: December 11, 2015 at 1:40:47 PM EST
To: "Gong, Kristiene" <Gong.Kristiene@epa.gov>, "Valentine, Julia" <Valentine.Julia@epa.gov>, "Fogarty, Johnpc" <Fogarty.Johnpc@epa.gov>, "Allen, Laura" <Allen.Laura@epa.gov>, "Conger, Nick" <Conger.Nick@epa.gov>, "Senn, John" <Senn.John@epa.gov>, "Millett, John" <Millett.John@epa.gov>, "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>, "Hull, George" <Hull.George@epa.gov>, "Grantham, Nancy" <Grantham.Nancy@epa.gov>, "StClair, Christie" <StClair.Christie@epa.gov>, "Davis, Jay" <Davis.Jay@epa.gov>, "Cohen, Janet" <cohen.janet@epa.gov>, "Brooks, Phillip" <Brooks.Phillip@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Grundler, Christopher" <grundler.christopher@epa.gov>, "Purchia, Liz" <Purchia.Liz@epa.gov>,

"Werner, Jacqueline" <Werner.Jacqueline@epa.gov>, "Belser, Evan" <Belser.Evan@epa.gov>, "Kaul, Meetu" <Kaul.Meetu@epa.gov>, "Cook, Leila" <cook.leila@epa.gov>, "Smith, Roxanne" <Smith.Roxanne@epa.gov>, "Orquina, Jessica" <Orquina.Jessica@epa.gov>, "Hart, Daniel" <Hart.Daniel@epa.gov>, "Bunker, Byron" <bunker.byron@epa.gov>
Subject: Volkswagen Clips 12/11/2015

Be careful, VW, of stopping saying sorry

Brooke Masters, Companies editor

December 11, 2015 4:39 pm

Volkswagen's new chief executive Matthias Müller used his first big press conference this week to strike an assertive tone.

Asked how he planned to deal with the US regulators who have charged that the German carmaker cheated on emissions tests, he said, "I don't think I will get down on my knees, I will be self-confident. Of course, I will apologise for things that have occurred." At another point, he proclaimed: "The future at VW belongs to the brave."

The event, conducted entirely in German in Volkswagen's home town of Wolfsburg, appeared designed to give the impression that the world's second-largest carmaker is drawing a line under the scandal. Although cheating software was installed in more than 11m vehicles worldwide, VW says it is working on cheap fixes for most of them. The company's share price, which dropped more than 40 per cent in September and October, has now recovered more than half of those losses.

But Mr Müller needs to be careful. At this stage, tone is everything. Former BP chief executive Tony Hayward learned the hard way the perils of being perceived as moving on too quickly. Back in May 2010, BP was struggling to contain the Deepwater Horizon oil spill, which killed 11 people and wreaked havoc on the US's gulf coast. While touring the clean up site, Mr Hayward imprudently complained to reporters, "No one wants this over more than I do, I'd like my life back". By July, he was out of a job.

Similarly, in 2011, Bob Diamond, then chief executive of Barclays, tempted fate by telling a UK parliamentary committee to stop being so obsessed with the financial crisis. "There was a period of remorse and apology; that period needs to be over," he insisted. In the following year, Barclays became the first bank to settle in the global Libor scandal. As public outrage mounted over traders who rigged lending rates for bottles of champagne, UK banking regulators stepped in, and Mr Diamond was the one whose time was over.

Their bold media strategies reminded me of a theory proposed by one of my history professors, about the role of the telegraph and railroad in sparking the US civil war. For generations, politicians in far-flung states such as Georgia had run for office promising to do battle with those nasty Yankees, and then gone off Washington to work happily with their Northern counterparts. News of what they were doing would take weeks, or months, to trickle back to their constituents.

Instantaneous communication and rapid transport made it harder to say different things to different audiences — setting the US on the road to war.

Mr Müller has a similar problem. VW's workers may be happy, even eager, to draw a line under the mess and get back to building cars. They are likely to have listened eagerly as he promised a new plan to build more electric vehicles.

But the VW chief has another audience to worry about: regulators, who are far from finished with VW. The US Environmental Protection Agency still has two open cases against the carmaker and is already unhappy that VW brushed back questions about excess nitrogen oxide emissions for more than a year. The carmaker came clean only after the EPA refused to certify its latest models for sale in the US. The EPA will want reassurance that this cannot happen again.

A successful VW recovery is likely to require a bit more apology and a bit less bravery than we have seen so far.

To: 'a.gusarov@autorc.ru'['a.gusarov@autorc.ru']; 'acelas@tin.it'['acelas@tin.it']; Adam, Thomas, Dr. (I/EA-524)[Thomas1.Adam@AUDI.DE]; 'adolfo.perujo@ec.europa.eu'['adolfo.perujo@ec.europa.eu']; 'aeeda@depollauto.fr'['aeeda@depollauto.fr']; 'aganguli@siam.in'['aganguli@siam.in']; 'alain.e.petit@renault.com'['alain.e.petit@renault.com']; 'aldo.bassi@sintesiab.it'['aldo.bassi@sintesiab.it']; 'alessandro.marotta@jrc.ec.europa.eu'['alessandro.marotta@jrc.ec.europa.eu']; 'alexander.bergmann@avl.com'['alexander.bergmann@avl.com']; 'alin.rosca@rarom.ro'['alin.rosca@rarom.ro']; 'alois.krasenbrink@jrc.it'['alois.krasenbrink@jrc.it']; 'ambujsharma@hotmail.com'['ambujsharma@hotmail.com']; 'amourfi_cn@sina.com'['amourfi_cn@sina.com']; 'anders.roj@volvo.com'['anders.roj@volvo.com']; andrea.demaria@fptindustrial.com[andrea.demaria@fptindustrial.com]; 'Andreas.EA.Eder@bmw.de'['Andreas.EA.Eder@bmw.de']; 'antonio.erario@mit.gov.it'['antonio.erario@mit.gov.it']; 'apetrofs@volvocars.com'['apetrofs@volvocars.com']; 'ARijnders@rdw.nl'['ARijnders@rdw.nl']; 'arjan.dijkhuizen@toyota-europe.com'['arjan.dijkhuizen@toyota-europe.com']; 'arnaud.duvielguerbigny@aegpl.be'['arnaud.duvielguerbigny@aegpl.be']; 'aurelia.buzgan@rarom.ro'['aurelia.buzgan@rarom.ro']; 'b07@mfa.gr'['b07@mfa.gr']; 'beatrice.lopez@utac.com'['beatrice.lopez@utac.com']; Behlau, Kai (EGNT/2)[kai.behlau@volkswagen.de]; Bergmann, Markus, Dr. (I/EA-524)[Markus.Bergmann@AUDI.DE]; 'bernd.fusshoeller@delphi.com'['bernd.fusshoeller@delphi.com']; 'bertrand.mercier@mpsa.com'['bertrand.mercier@mpsa.com']; 'Bradish.Tracey@epamail.epa.gov'['Bradish.Tracey@epamail.epa.gov']; 'bungo.kawaguchi@toyota-europe.com'['bungo.kawaguchi@toyota-europe.com']; adrien.burrows@dft.gsi.gov.uk[adrien.burrows@dft.gsi.gov.uk]; Carli, Stefan, Dr. (K-GQA/2)[Stefan.Carli@volkswagen.de]; 'Cecile.Favre@aecc.be'['Cecile.Favre@aecc.be']; 'celine.vallaude@utac.com'['celine.vallaude@utac.com']; cha1052@ts2020.kr[cha1052@ts2020.kr]; 'Charmley.William@epamail.epa.gov'['Charmley.William@epamail.epa.gov']; 'chenqs@tsinghua.edu.cn'['chenqs@tsinghua.edu.cn']; 'chosier@ford.com'['chosier@ford.com']; 'christian.bach@empa.ch'['christian.bach@empa.ch']; 'Christian.Gruen@ateel.lu'['Christian.Gruen@ateel.lu']; 'christian.hartmann@maha.de'['christian.hartmann@maha.de']; 'Christian.Vavra@maha.de'['Christian.Vavra@maha.de']; 'christoph.albus@bmvbs.bund.de'['christoph.albus@bmvbs.bund.de']; 'Christoph.Lueginger@bmw.de'['Christoph.Lueginger@bmw.de']; 'Christoph.MC.Mayer@bmw.de'['Christoph.MC.Mayer@bmw.de']; colinjii@ts2020.kr[colinjii@ts2020.kr]; 'cornetti@iol.it'['cornetti@iol.it']; 'costanza.testino@libero.it'['costanza.testino@libero.it']; 'covadonga.astorga-llorens@jrc.ec.europa.eu'['covadonga.astorga-llorens@jrc.ec.europa.eu']; D.VARTHOLOMAIOS@denso.be[D.VARTHOLOMAIOS@denso.be]; 'daniel.scherret@de.opel.com'['daniel.scherret@de.opel.com']; 'danitza.fedeli@delphi.com'['danitza.fedeli@delphi.com']; 'de_theux_frederic@cat.com'['de_theux_frederic@cat.com']; 'detlef.stendel@volkswagen.de'['detlef.stendel@volkswagen.de']; 'didier.pingal@utac.com'['didier.pingal@utac.com']; 'director@araiindia.com'['director@araiindia.com']; 'Dirk.Bosteels@aecc.eu'['Dirk.Bosteels@aecc.eu']; 'dirk.d.baeuchle@daimler.com'['dirk.d.baeuchle@daimler.com']; 'dleveratto@oica.net'['dleveratto@oica.net']; 'donald.nagy@gm.com'['donald.nagy@gm.com']; 'e.bastiaensen@immamotorcycles.org'['e.bastiaensen@immamotorcycles.org']; 'ed.crupi@ec.gc.ca'['ed.crupi@ec.gc.ca']; 'efernandez@appluscorp.com'['efernandez@appluscorp.com']; 'elisa.dumitrescu@unep.org'['elisa.dumitrescu@unep.org']; 'eric.donati@mpsa.com'['eric.donati@mpsa.com']; Ex. 7 ernst_peter.weidmann@daimler.com[ernst_peter.weidmann@daimler.com]; 'erwin.segers@honda-eu.com'['erwin.segers@honda-eu.com']; 'espena@vegvesen.no'['espena@vegvesen.no']; 'euan.macdonald@logos-eu.com'['euan.macdonald@logos-eu.com']; 'eva.iverfeldt@scania.com'['eva.iverfeldt@scania.com']; 'fakmadza@hyundai-europe.com'['fakmadza@hyundai-europe.com']; 'fcagnolati@landi.it'['fcagnolati@landi.it']; 'Felix.Reutimann@bafu.admin.ch'['Felix.Reutimann@bafu.admin.ch']; 'felix.wellmann@daimler.com'['felix.wellmann@daimler.com'];

'ferenc.pekar@ec.europa.eu'['ferenc.pekar@ec.europa.eu'];
Annette.feucht@bmw.de[Annette.feucht@bmw.de];
flavioa.mariani@gmail.com[flavioa.mariani@gmail.com]; 'gascar@korea.ac.kr'['gascar@korea.ac.kr'];
'georges.verdon@bluewin.ch'['georges.verdon@bluewin.ch'];
'gerben.passier@tno.nl'['gerben.passier@tno.nl'];
'Giorgio.billi@fptindustrial.com'['Giorgio.billi@fptindustrial.com'];
'giorgio.martini@jrc.ec.europa.eu'['giorgio.martini@jrc.ec.europa.eu'];
'giorgio.martini@jrc.it'['giorgio.martini@jrc.it']; 'giovanni.de-santi@ec.europa.eu'['giovanni.de-
santi@ec.europa.eu']; 'giovanni.durbano@bafu.admin.ch'['giovanni.durbano@bafu.admin.ch'];
'giovanni.margaria@iveco.com'['giovanni.margaria@iveco.com'];
'gk.sharma@natrip.in'['gk.sharma@natrip.in'];
'greg.archer@transportenvironment.org'['greg.archer@transportenvironment.org'];
'guenter.hoermandinger@ec.europa.eu'['guenter.hoermandinger@ec.europa.eu'];
'hager@hol.gr'['hager@hol.gr']; hans.holdik@bmvi.bund.de[hans.holdik@bmvi.bund.de]; 'hans-
rudolf.hein@bridgestone.eu'['hans-rudolf.hein@bridgestone.eu']; 'hathai@tisi.go.th'['hathai@tisi.go.th'];
heather.hamje@concawe.org[heather.hamje@concawe.org];
'heiko.esser@ateel.lu'['heiko.esser@ateel.lu'];
'Heinz.Berger@astra.admin.ch'['Heinz.Berger@astra.admin.ch']; 'Heinz.Steven@t-
online.de'['Heinz.Steven@t-online.de']; heinz.steven@o2online.de[heinz.steven@o2online.de];
'henk.baarbe@minienm.nl'['henk.baarbe@minienm.nl']; 'henk.j.dekker@tno.nl'['henk.j.dekker@tno.nl'];
'heyuntang@catarc.ac.cn'['heyuntang@catarc.ac.cn']; 'highband@ts2020.kr'['highband@ts2020.kr'];
'hirachan@nrcs.org.za'['hirachan@nrcs.org.za']; Werner.Hofegger@avl.com[Werner.Hofegger@avl.com];
'hschmidt@tuev-nord.de'['hschmidt@tuev-nord.de']; 'hted@bis.org.in'['hted@bis.org.in'];
'hua.lukarlsson@scania.com'['hua.lukarlsson@scania.com']; 'h-yamada@ntsel.go.jp'['h-
yamada@ntsel.go.jp']; 'hypark@katech.re.kr'['hypark@katech.re.kr'];
'ian.hodgson@ec.europa.eu'['ian.hodgson@ec.europa.eu'];
'ian.marshall@aeat.co.uk'['ian.marshall@aeat.co.uk']; 'iangv@iangv.org'['iangv@iangv.org'];
'iddo@sidekickprojects.nl'['iddo@sidekickprojects.nl']; 'ih@acea.be'['ih@acea.be'];
ikeda@ntceb.be[ikeda@ntceb.be]; 'ikeda@ntceb.be'['ikeda@ntceb.be'];
'info@federmetano.it'['info@federmetano.it'];
'isabelle.guerin@renault.com'['isabelle.guerin@renault.com']; 'ishii@ntsel.go.jp'['ishii@ntsel.go.jp'];
'j.bozewicz@tdt.pl'['j.bozewicz@tdt.pl']; 'jacek.rostkowski@ec.gc.ca'['jacek.rostkowski@ec.gc.ca'];
'jackson.cleophas@epa.gov'['jackson.cleophas@epa.gov'];
'jacques.dartoy@total.com'['jacques.dartoy@total.com'];
'jacques.marmy@iru.org'['jacques.marmy@iru.org']; 'janghyokko@syu.ac.kr'['janghyokko@syu.ac.kr'];
'jasic@jasic.org'['jasic@jasic.org']; javier.lebrato@ngvaeurope.eu[javier.lebrato@ngvaeurope.eu];
'jcsarbach@fiev.fr'['jcsarbach@fiev.fr']; 'jean-francois.roy@ec.gc.ca'['jean-francois.roy@ec.gc.ca'];
'jens.huegel@iru.org'['jens.huegel@iru.org']; 'jiaquanli2008@163.com'['jiaquanli2008@163.com'];
'jkubsh@meca.org'['jkubsh@meca.org']; 'jmandel@emamail.org'['jmandel@emamail.org'];
'johan.renders@ec.europa.eu'['johan.renders@ec.europa.eu'];
'jon.andersson@ricardo.com'['jon.andersson@ricardo.com'];
'jon.real@infrastructure.gov.au'['jon.real@infrastructure.gov.au'];
'jps@cambustion.com'['jps@cambustion.com'];
'jseisler@cleanfuelsconsulting.org'['jseisler@cleanfuelsconsulting.org'];
'juhani.laurikko@vtt.fi'['juhani.laurikko@vtt.fi']; 'jwlee@kotsa.or.kr'['jwlee@kotsa.or.kr']; 'ka-
koba@shinsa.ntsel.go.jp'['ka-koba@shinsa.ntsel.go.jp'];
'kamal.charafeddine@porsche.de'['kamal.charafeddine@porsche.de'];
'karale.dirspa@araiindia.com'['karale.dirspa@araiindia.com'];
'karsten.strobl@de.gm.com'['karsten.strobl@de.gm.com']; 'katrieng@ts2020.kr'['katrieng@ts2020.kr'];
'kkgandhi@siam.in'['kkgandhi@siam.in']; 'klaus.burger@maha.de'['klaus.burger@maha.de'];
klaus.land@daimler.com[klaus.land@daimler.com]; Kolesa, Konrad, Dr. (I/EA-
52)[Konrad.Kolesa@AUDI.DE]; 'komarov@niiat.ru'['komarov@niiat.ru'];
'kurt.engeljehringer@avl.com'['kurt.engeljehringer@avl.com'];
martin.lange@uba.de[martin.lange@uba.de]; 'laroo.chris@epa.gov'['laroo.chris@epa.gov'];
'Laroo.Chris@epamail.epa.gov'['Laroo.Chris@epamail.epa.gov'];
'laura.bigi@mpsa.com'['laura.bigi@mpsa.com'];

'lennart.erlandsson@avl.com'['lennart.erlandsson@avl.com']; 'les.hill@horiba.com'['les.hill@horiba.com'];
'lianne.noseworthy@ec.gc.ca'['lianne.noseworthy@ec.gc.ca']; 'liuxin@tju.edu.cn'['liuxin@tju.edu.cn'];
'liwl@petrochina.com.cn'['liwl@petrochina.com.cn']; 'llezhnev@nami.ru'['llezhnev@nami.ru'];
'lubos.trnka@tuv-sud.cz'['lubos.trnka@tuv-sud.cz']; 'luhongyu@catarc.ac.cn'['luhongyu@catarc.ac.cn'];
'm.seifert@svgw.ch'['m.seifert@svgw.ch']; 'm.vaysblum@autorc.ru'['m.vaysblum@autorc.ru'];
'Maciej.SZYMANSKI@ec.europa.eu'['Maciej.SZYMANSKI@ec.europa.eu'];
'mafh@tsinghua.edu.cn'['mafh@tsinghua.edu.cn'];
'magnus.lindgren@trafikverket.se'['magnus.lindgren@trafikverket.se'];
'manuel.schuster@daimler.com'['manuel.schuster@daimler.com'];
'marc.kwanten@mobilit.fgov.be'['marc.kwanten@mobilit.fgov.be'];
'marc.steen@ec.europa.eu'['marc.steen@ec.europa.eu']; 'maria.spiliopoulou-
kaparia@ec.europa.eu'['maria.spiliopoulou-kaparia@ec.europa.eu'];
'martin.gerstl@de.bosch.com'['martin.gerstl@de.bosch.com'];
'martin.koubek@dot.gov'['martin.koubek@dot.gov'];
'martin.openshaw@aftonchemical.com'['martin.openshaw@aftonchemical.com'];
'martin.schiess@bafu.admin.ch'['martin.schiess@bafu.admin.ch'];
'martin.sommer@porsche.de'['martin.sommer@porsche.de'];
'massimo.carriero@jrc.it'['massimo.carriero@jrc.it']; masui-s559h@mlit.go.jp[masui-s559h@mlit.go.jp];
'matthias.hartmann@bmw.de'['matthias.hartmann@bmw.de'];
'matthias.maedge@ngvaeurope.eu'['matthias.maedge@ngvaeurope.eu']; Naegeli, Matthias
(EAMG/1)[matthias.naegeli@volkswagen.de];
'Matthias.Tappe@de.bosch.com'['Matthias.Tappe@de.bosch.com'];
'maurizio.parca@bridgestone.eu'['maurizio.parca@bridgestone.eu'];
'mguenthe@ford.com'['mguenthe@ford.com'];
'michael.frank@de.bosch.com'['michael.frank@de.bosch.com'];
'michael.hygrell@volvo.com'['michael.hygrell@volvo.com'];
'michel.loccufier@mobilit.fgov.be'['michel.loccufier@mobilit.fgov.be'];
'mky@chrysler.com'['mky@chrysler.com']; morita-s263@mlit.go.jp[morita-s263@mlit.go.jp];
'nakhawa.ecl@araiindia.com'['nakhawa.ecl@araiindia.com']; 'nalinee@tisi.go.th'['nalinee@tisi.go.th'];
'Nam.Ed@epamail.epa.gov'['Nam.Ed@epamail.epa.gov']; 'nan@fstyr.dk'['nan@fstyr.dk'];
'narusawa@ntsel.go.jp'['narusawa@ntsel.go.jp']; Nico.Schuetze@bmw.de[Nico.Schuetze@bmw.de];
'niikuni@ntsel.go.jp'['niikuni@ntsel.go.jp']; nbear@ford.com[nbear@ford.com];
'nikolaus.steininger@ec.europa.eu'['nikolaus.steininger@ec.europa.eu'];
'nlebigot@ccfa.fr'['nlebigot@ccfa.fr']; 'nls8@chrysler.com'['nls8@chrysler.com'];
'noriyuki_ichikawa@mail.toyota.co.jp'['noriyuki_ichikawa@mail.toyota.co.jp'];
'oberg2@volvocars.com'['oberg2@volvocars.com'];
'olechiw.michael@epa.gov'['olechiw.michael@epa.gov'];
oliver.eberhardt@bmub.bund.de[oliver.eberhardt@bmub.bund.de];
'oliver.moersch@daimler.com'['oliver.moersch@daimler.com']; 'p.flanker@denso.nl'['p.flanker@denso.nl'];
'p.laurent@clepa.be'['p.laurent@clepa.be']; 'paibanez@mityc.es'['paibanez@mityc.es'];
'panagiota.dilara@jrc.it'['panagiota.dilara@jrc.it']; 'patrik.soltic@empa.ch'['patrik.soltic@empa.ch'];
'paul.adams@volvo.com'['paul.adams@volvo.com'];
'per.ohlund@transportstyrelsen.se'['per.ohlund@transportstyrelsen.se'];
p.flanker@denso.nl[p.flanker@denso.nl]; 'peter.scherm@vdma.org'['peter.scherm@vdma.org'];
'peter.smeds@trafikverket.se'['peter.smeds@trafikverket.se']; 'peter@theicct.org'['peter@theicct.org'];
'pg@acea.be'['pg@acea.be']; 'philip.r.horton@gm.com'['philip.r.horton@gm.com'];
'pierre.bonnel@jrc.it'['pierre.bonnel@jrc.it']; pierre.cognet1@mpsa.com[pierre.cognet1@mpsa.com];
'pilar.perez@ngvaeurope.eu'['pilar.perez@ngvaeurope.eu']; 'pjhy98@korea.kr'['pjhy98@korea.kr'];
'pollak.ivan@kti.hu'['pollak.ivan@kti.hu']; 'PPRICE40@ford.com'['PPRICE40@ford.com'];
'ptinakon@hotmail.com'['ptinakon@hotmail.com']; 'qinkongjian@catarc.ac.cn'['qinkongjian@catarc.ac.cn'];
'ragnarsson@eaa.be'['ragnarsson@eaa.be'];
'rajendra.petkar@tatatechnologies.com'['rajendra.petkar@tatatechnologies.com'];
'ralph.kellermann@diplo.de'['ralph.kellermann@diplo.de']; Ramacher, Bjoern, Dr. (K-
GQA/4)[bjoern.ramacher@volkswagen.de];
'ravchoda@immamotorcycles.org'['ravchoda@immamotorcycles.org'];
raymond.petrovan@de.opel.com[raymond.petrovan@de.opel.com];

'rdey@ccsglobalgroup.com'['rdey@ccsglobalgroup.com']; 'rene.nulens@toyota-europe.com'['rene.nulens@toyota-europe.com']; 'rjohannsen@tuev-nord.de'['rjohannsen@tuev-nord.de']; 'rlabza@hyundai-europe.com'['rlabza@hyundai-europe.com']; 'rob.cox@ipieca.org'['rob.cox@ipieca.org']; rob.cuelenaere@tno.nl[rob.cuelenaere@tno.nl]; 'robert.thielgen@ateel.lu'['robert.thielgen@ateel.lu']; 'Romain.Hubert@unece.org'['Romain.Hubert@unece.org']; 'romain.lamberty@snch.lu'['romain.lamberty@snch.lu']; 'rsantafe@idiada.com'['rsantafe@idiada.com']; 'rudi.valgaeren@eur.bosal.com'['rudi.valgaeren@eur.bosal.com']; 's.piccolo@federchimica.it'['s.piccolo@federchimica.it']; 'saenzejc@inta.es'['saenzejc@inta.es']; 'saluck@tisi.go.th'['saluck@tisi.go.th']; 'samarendra.tripathy@renault.com'['samarendra.tripathy@renault.com']; 'Sanchez.James@epamail.epa.gov'['Sanchez.James@epamail.epa.gov']; 'Schrodt.Thomas@epamail.epa.gov'['Schrodt.Thomas@epamail.epa.gov']; 'Seiler@vda.de'['Seiler@vda.de']; 'serge.dubuc@t-online.de'['serge.dubuc@t-online.de']; 'shirish.a.shimpi@cummins.com'['shirish.a.shimpi@cummins.com']; silvia.ricchiuto@fiat.com[silvia.ricchiuto@fiat.com']; 'simlaoz@mfa.gov.tr'['simlaoz@mfa.gov.tr']; 'simon.davies@dft.gsi.gov.uk'['simon.davies@dft.gsi.gov.uk']; 'Simon.Karl@epamail.epa.gov'['Simon.Karl@epamail.epa.gov']; 'singh.ecl@araiindia.com'['singh.ecl@araiindia.com']; somnuek.j@pttplc.com[somnuek.j@pttplc.com]; 'spark@korea.ac.kr'['spark@korea.ac.kr']; 'spetrovic@mas.bg.ac.rs'['spetrovic@mas.bg.ac.rs']; 'srmarathe@araiindia.com'['srmarathe@araiindia.com']; 'stanislaw.radzimirski@its.waw.pl'['stanislaw.radzimirski@its.waw.pl']; Stendel, Detlef (K-GQA/1)[detlef.stendel@volkswagen.de]; 'stephan.hartmann@volkswagen.de'['stephan.hartmann@volkswagen.de']; stephan.redmann@bmvi.bund.de[stephan.redmann@bmvi.bund.de]; 'sylvie.gingras@bnq.qc.ca'['sylvie.gingras@bnq.qc.ca']; 't.hisler@ccfa.fr'['t.hisler@ccfa.fr']; 'Takakazu.Fukuoka@toyota-europe.com'['Takakazu.Fukuoka@toyota-europe.com']; Takashi_Fujiwara@n.t.rd.honda.co.jp[Takashi_Fujiwara@n.t.rd.honda.co.jp]; Tatsumori_A_Matsushita@hm.honda.co.jp[Tatsumori_A_Matsushita@hm.honda.co.jp]; 'tce@jama-e.be'['tce@jama-e.be']; 'technique@ccfa.fr'['technique@ccfa.fr']; 'techsec@clepa.be'['techsec@clepa.be']; 'thachapongt@yahoo.com'['thachapongt@yahoo.com']; thaniu@jari.or.jp[thaniu@jari.or.jp]; 'thaniu@jari.or.jp'['thaniu@jari.or.jp']; 'thomas.goldbach@gm.com'['thomas.goldbach@gm.com']; thomas.vogel@de.opel.com[thomas.vogel@de.opel.com]; 'thorsten.leischner@daimler.com'['thorsten.leischner@daimler.com']; 'TKOSMEHL@ford.com'['TKOSMEHL@ford.com']; 'tmayer4@ford.com'['tmayer4@ford.com']; toba@jasic.org[toba@jasic.org]; 'toba@jasic.org'['toba@jasic.org']; 'toni.lehn@delphi.com'['toni.lehn@delphi.com']; toshihisa_yamaguchi@hm.honda.co.jp[toshihisa_yamaguchi@hm.honda.co.jp]; 'tstoffels@rdw.nl'['tstoffels@rdw.nl']; 'ueda-j2kt@mlit.go.jp'['ueda-j2kt@mlit.go.jp']; 'uhlik.krisztian@kti.hu'['uhlik.krisztian@kti.hu']; 'uklein@ford.com'['uklein@ford.com']; 'ulrich.beutke@mtu-online.com'['ulrich.beutke@mtu-online.com']; 'ulrich.gottwick@de.bosch.com'['ulrich.gottwick@de.bosch.com']; 'uwe.thien@magnasteyr.com'['uwe.thien@magnasteyr.com']; 'volker.blum@daimler.com'['volker.blum@daimler.com']; 'volker.rothe@de.opel.com'['volker.rothe@de.opel.com']; 'vustymenko@insat.org.ua'['vustymenko@insat.org.ua']; wouter.vandermeulen@daimler.com[wouter.vandermeulen@daimler.com]; 'Werner.Tober@ifa.tuwien.ac.at'['Werner.Tober@ifa.tuwien.ac.at']; 'william.coleman@volkswagen.de'['william.coleman@volkswagen.de']; 'Wim.van.der.Borght@toyota-europe.com'['Wim.van.der.Borght@toyota-europe.com']; 'winfried.hartung@de.gm.com'['winfried.hartung@de.gm.com']; 'woitsch@dekra-automobil.cz'['woitsch@dekra-automobil.cz']; 'wolfgang.schindler@avl.com'['wolfgang.schindler@avl.com']; 'wuxf@craes.org.cn'['wuxf@craes.org.cn']; y-katsumata@mail.nissan.co.jp[y-katsumata@mail.nissan.co.jp]; 'y-katsumata@mail.nissan.co.jp'['y-katsumata@mail.nissan.co.jp']; 'youlinhua@catarc.ac.cn'['youlinhua@catarc.ac.cn']; 'yphou@tongji.edu.cn'['yphou@tongji.edu.cn']; 'yssong@katech.re.kr'['yssong@katech.re.kr']; 'yu.jia@uaes.com'['yu.jia@uaes.com']; 'yuanying@craes.org.cn'['yuanying@craes.org.cn'];

'zisis@auth.gr'['zisis@auth.gr']
Cc: Annegret Leichtle[annegret.leichtle@gmx.de];
stephan.redmann@bmvi.bund.de[stephan.redmann@bmvi.bund.de]
From: Kolesa, Konrad, Dr. (I/EA-52)
Sent: Sun 12/13/2015 6:49:51 PM
Subject: Invitation IWG WLTP meeting #13 in Geneva 11-12-01.2016
Invitation IWG WLTP meeting #13.docx

Dear Members of WLTP IWG,

please find enclosed the invitation for the 13th Meeting of Informal Working Group WLTP

in Geneva 11-12 January 2016. The invitation and the preliminary agenda will be uploaded soon to the UN/ECE Webserver under

https://www2.unece.org/wiki/display/trans/WLTP+13th+session

With best regards

Konrad Kolesa

Technical Secretary IWG WLTP

With best regards

Konrad Kolesa
Executive Manager

Emission Certification and Vehicle Test Benches

AUDI AG
I/EA-52
85045 Ingolstadt
Tel. +49-841-89-32175

Mobile +49-841-89-53970
mailto:konrad.kolesa@audi.de
www.audi.com

Sitz/Domicile: Ingolstadt

Registergericht/Court of Registry: Amtsgericht Ingolstadt

HRB Nr./Commercial Register No.: 1

Vorstand/Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulrich Hackenberg, Bernd Martens, Thomas Sigi, Axel Strotbek, Dietmar Voggenreiter, Hubert Waltl

Wichtiger Hinweis: Die vorgenannten Angaben werden jeder E-Mail automatisch hinzugefügt und lassen keine Rückschlüsse auf den Rechtscharakter der E-Mail zu.

Important Notice: The above information is automatically added to this e-mail. This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding upon AUDI AG.

Working Paper No. WLTP-13-01-e
(13th WLTP IG Meeting, 11 - 12 January 2016)

INVITATION TO THE 13th MEETING OF THE GRPE INFORMAL WORKING GROUP ON WORLDWIDE HARMONIZED LIGHT VEHICLES TEST PROCEDURES (WLTP)

This is to inform you that the 13th informal working group meeting on WLTP will take place in Geneva, Switzerland, and is scheduled for 1 ½ days as follows:

Date: 11. January 2016
Time: 14:30 – 17:30
Location: Palais des Nations, Room XII

Date: 12 January 2016
Time: 9:30 – 12.30 14.30 – 17.30
Location: Palais des Nations, Room XII

Please give a feedback to WLTP IWG leading team if you will attend the meeting.

Delegates are kindly requested to register online with the new registration system on the UNECE website:
(https://www2.unece.org/uncdb/logon.faces?meeting_name=GRPE%2072st%20session,%2011-15%20January%202016)

Upon arrival at the Palais des Nations, delegates should obtain an identification badge at the UNOG Security and Safety Section, located at the Pregny Gate (14, Avenue de la Paix).

In case of difficulty, please contact the secretariat by telephone (ext. 74323).
For a map of the Palais des Nations and other useful information, please go to: www.unece.org/meetings/practical.htm.
Agenda and working documents for the meeting will be uploaded to the UN webpage prior to the meeting:

https://www2.unece.org/wiki/display/trans/WLTP+13th+session

On behalf of the Chair of WLTP IWG Stephan Redmann

Konrad Kolesa
(Technical Secretary IWG WLTP)

To: Bill Rodgers (william.Rodgers@vw.com)[william.Rodgers@vw.com]
Cc: Snyder, Jim[Snyder.Jim@epa.gov]
From: Mazaitis, Vincent
Sent: Mon 12/14/2015 1:11:12 PM
Subject: HAUT-Q7A_12-8-15
HAUT-Q7A_12-8-15.pdf

Good morning Bill,

Please find enclosed, the Subject information. If you have any questions or concerns, please contact me.

There were problems with inputting the Evap test into Verify. They have been corrected and the Evap should be going to Verify now.

The total Evap value (UNOFFICIAL!) was 0.354498.

Thank you,

Vince Mazaitis

(734)214-4864

Cert

NVFEL Laboratory Test Data

CVS

Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2016-0051-005 Vehicle ID: HAUT-Q7A

Test Information

Test Date:	12/8/2015	MFR Name:	Volkswagen Group of
Key Start / Hot Soak:	08:38:18 / 10:01	MFR Codes:	VGA 10015
Fuel Container ID / FTAG:	F00021 / 25278	Config #:	00
Fuel Type:	61 Tier 2 Cert Test Fuel	Transmission:	Auto
Test Procedure:	21 Federal fuel 2-day exhaust (w/can loa	Shift Schedule:	A0EPA0005
FE Calculation Method:	Gasoline	Beginning Odometer:	005615.0 MI
Pretest Remarks:		Drive Schedule:	ftp3bag
Drive Axle:	FWD	Soak Period:	17.6 hours

Bag Data

	HC-FID (ppmC)	CO (ppm)	NOx (ppm)	CO2 (%)	CH4 (ppm)	NMHC (ppmC)
Phase 1						
Sample	9.653	41.307	0.894	0.960	2.827	
Ambient	2.650	0.687	0.010	0.048	2.123	
Net Concentration	7.195	40.669	0.884	0.916	0.856	6.275
Remarks:						
Phase 2						
Sample	2.597	7.098	0.432	0.586	2.088	
Ambient	2.704	0.808	0.025	0.048	2.164	
Net Concentration	0.011	6.325	0.408	0.540	0.018	-0.009
Remarks:						
Phase 3						
Sample	3.171	7.766	0.461	0.831	2.127	
Ambient	2.970	1.023	0.021	0.048	2.185	
Net Concentration	0.385	6.807	0.441	0.786	0.077	0.302
Remarks:						
Phase 4						
Sample						
Ambient						
Net Concentration						
Remarks:						

Results

	HC-FID (gpm)	CO (gpm)	NOx (gpm)	CO2 (gpm)	CH4 (gpm)	NMHC / NMOG (gpm)	Vol MPG (mpg)
Phase 1	0.106	1.206	0.039	426.8	0.015	0.092 / 0.096	20.775
Phase 2	0.000	0.299	0.029	401.0	0.000	0.000 / 0.000	22.202
Phase 3	0.006	0.201	0.019	364.5	0.001	0.004 / 0.005	24.430
						NMOG=1.04 x NMHC	
Weighted	0.02356	0.45996	0.02826	396.315	0.00363	0.0203 / 0.0211	

Fuel Economy

	Gasoline MPG
Phase 1	20.75
Phase 2	22.18
Phase 3	24.41
Weighted	22.44

Dyno Settings

Dyno #:	D002
Inertia:	5250
EPA Set Co A:	11.82
EPA Set Co B:	0.1158
EPA Set Co C:	0.02583
Front / Rear:	32 / 35
FWD	
Emiss-Bench:	D002

NVFEL Laboratory Test Data

CVS

Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2016-0051-005 Vehicle ID: HAUT-Q7A

Results	HC-FID (grams)	CO (grams)	NOx (grams)	CO2 (grams)	CH4 (grams)	NMHC (grams)	Meth Response
Phase 1	0.380	4.340	0.140	1535.4	0.052	0.332	1.074
Phase 2	0.001	1.159	0.111	1553.8	0.002	0.000	
Phase 3	0.020	0.725	0.070	1315.1	0.005	0.016	

Test Conditions	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	29.06	29.07	29.07	
Avg Cell Temp (degF)	74.90	75.04	75.04	
Dew Point (degF)	48.79	48.84	48.73	
Specific Humidity (grains/lbm)	52.69	52.77	52.57	
NOx Corr Factor	0.9051	0.9054	0.9046	
CO2 Dilution Factor	13.880	22.841	16.104	
CFV Vmix (scf @68F)	3236.39	5557.79	3231.20	
CVS Flow Rate Avg (scfm)	382.78	382.42	382.24	
Fan Placement	One Small Fan - Up - Front			
Phase Time (secs)	507.31	871.99	507.21	
Distance (miles)	3.597	3.875	3.608	
Bag Analysis Time (secs)	142.5	141.6	142.1	

	FTP B1	FTP B2	FTP B3	FTP-W	MFR
IWR % diff	-1.332	2.229	-0.773	0.697	-
ASCR % diff	-0.601	1.175	-0.125	0.610	-
EER	0.308	1.221	0.554	0.820	-

To: Anthony.Cooke@VW.com[Anthony.Cooke@VW.com]
Cc: Cook, Leila[cook.leila@epa.gov]; Van Eaton, Josh (ENRD)[Josh.Van.Eaton@usdoj.gov]
From: Belser, Evan
Sent: Mon 12/14/2015 2:17:27 PM
Subject: Inquiry Regarding Citizen Suit

Mr. Cooke,

Lee Cook let me know of your inquiry about the Center for Auto Safety's prospective citizen suit. Any questions about this or any matters concerning litigation in this matter are best directed to Josh Van Eaton at the Department of Justice (or me if it's somehow an EPA-specific inquiry). Further, Josh and I would want to ensure VW's counsel is involved as appropriate.

Josh Van Eaton, Trial Attorney

Environmental Enforcement Section

(202) 514-5474

Josh.van.eaton@usdoj.gov

Regards,
Evan

Evan Belser

Chief, Mobile Source Enforcement Branch, Air Enforcement Division

Office of Enforcement and Compliance Assurance

United States Environmental Protection Agency

202-564-6850

To: Rodgers, William (EEO)[William.Rodgers@vw.com]
From: Snyder, Jim
Sent: Tue 12/15/2015 7:05:07 PM
Subject: RE: 2017 Audi Q7 Confirmatory Test

Yes.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Tuesday, December 15, 2015 2:02 PM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Thomas, Richard (EEO) <Richard.Thomas@vw.com>; Giles, Michael (EEO) <michael.giles@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: 2017 Audi Q7 Confirmatory Test

Hi Jim,

Per our conversation, were you able to verify that the recent EPA confirmatory FTP-evap test will not be considered for fuel economy label purposes?

Thanks,

Bill Rodgers

EEO

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Rodgers, William (EEO)
Sent: Tue 12/15/2015 7:08:27 PM
Subject: RE: 2017 Audi Q7 Confirmatory Test

Thanks

From: Snyder, Jim [mailto:Snyder.Jim@epa.gov]
Sent: Tuesday, December 15, 2015 2:05 PM
To: Rodgers, William (EEO) <William.Rodgers@vw.com>
Subject: RE: 2017 Audi Q7 Confirmatory Test

Yes.

From: Rodgers, William (EEO) [mailto:William.Rodgers@vw.com]
Sent: Tuesday, December 15, 2015 2:02 PM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Thomas, Richard (EEO) <Richard.Thomas@vw.com>; Giles, Michael (EEO) <michael.giles@vw.com>; Allen, Gregory (EEO) <Gregory.Allen@vw.com>
Subject: 2017 Audi Q7 Confirmatory Test

Hi Jim,

Per our conversation, were you able to verify that the recent EPA confirmatory FTP-evap test will not be considered for fuel economy label purposes?

Thanks,

Bill Rodgers

EEO

To: 'a.gusarov@autorc.ru'['a.gusarov@autorc.ru']; 'acelas@tin.it'['acelas@tin.it']; Adam, Thomas, Dr. (I/EA-524)[Thomas1.Adam@AUDI.DE]; 'adolfo.perujo@ec.europa.eu'['adolfo.perujo@ec.europa.eu']; 'aeeda@depollauto.fr'['aeeda@depollauto.fr']; 'aganguli@siam.in'['aganguli@siam.in']; 'alain.e.petit@renault.com'['alain.e.petit@renault.com']; 'aldo.bassi@sintesiab.it'['aldo.bassi@sintesiab.it']; 'alessandro.marotta@jrc.ec.europa.eu'['alessandro.marotta@jrc.ec.europa.eu']; 'alexander.bergmann@avl.com'['alexander.bergmann@avl.com']; 'alin.rosca@rarom.ro'['alin.rosca@rarom.ro']; 'alois.krasenbrink@jrc.it'['alois.krasenbrink@jrc.it']; 'ambujsharma@hotmail.com'['ambujsharma@hotmail.com']; 'amourfi_cn@sina.com'['amourfi_cn@sina.com']; 'anders.roj@volvo.com'['anders.roj@volvo.com']; andrea.demaria@fptindustrial.com[andrea.demaria@fptindustrial.com]; 'Andreas.EA.Eder@bmw.de'['Andreas.EA.Eder@bmw.de']; 'antonio.erario@mit.gov.it'['antonio.erario@mit.gov.it']; 'apetrofs@volvocars.com'['apetrofs@volvocars.com']; 'ARijnders@rdw.nl'['ARijnders@rdw.nl']; 'arjan.dijkhuizen@toyota-europe.com'['arjan.dijkhuizen@toyota-europe.com']; 'arnaud.duvielguerbigny@aegpl.be'['arnaud.duvielguerbigny@aegpl.be']; 'aurelia.buzgan@rarom.ro'['aurelia.buzgan@rarom.ro']; 'b07@mfa.gr'['b07@mfa.gr']; 'beatrice.lopez@utac.com'['beatrice.lopez@utac.com']; Behlau, Kai (EGNT/2)[kai.behlau@volkswagen.de]; Bergmann, Markus, Dr. (I/EA-524)[Markus.Bergmann@AUDI.DE]; 'bernd.fusshoeller@delphi.com'['bernd.fusshoeller@delphi.com']; 'bertrand.mercier@mpsa.com'['bertrand.mercier@mpsa.com']; 'Bradish.Tracey@epamail.epa.gov'['Bradish.Tracey@epamail.epa.gov']; 'bungo.kawaguchi@toyota-europe.com'['bungo.kawaguchi@toyota-europe.com']; adrien.burrows@dft.gsi.gov.uk[adrien.burrows@dft.gsi.gov.uk]; Carli, Stefan, Dr. (K-GQA/2)[Stefan.Carli@volkswagen.de]; 'Cecile.Favre@aecc.be'['Cecile.Favre@aecc.be']; 'celine.vallaude@utac.com'['celine.vallaude@utac.com']; cha1052@ts2020.kr[cha1052@ts2020.kr]; 'Charmley.William@epamail.epa.gov'['Charmley.William@epamail.epa.gov']; 'chenqs@tsinghua.edu.cn'['chenqs@tsinghua.edu.cn']; 'chosier@ford.com'['chosier@ford.com']; 'christian.bach@empa.ch'['christian.bach@empa.ch']; 'Christian.Gruen@ateel.lu'['Christian.Gruen@ateel.lu']; 'christian.hartmann@maha.de'['christian.hartmann@maha.de']; 'Christian.Vavra@maha.de'['Christian.Vavra@maha.de']; 'christoph.albus@bmvbs.bund.de'['christoph.albus@bmvbs.bund.de']; 'Christoph.Lueginger@bmw.de'['Christoph.Lueginger@bmw.de']; 'Christoph.MC.Mayer@bmw.de'['Christoph.MC.Mayer@bmw.de']; colinjii@ts2020.kr[colinjii@ts2020.kr]; 'cornetti@iol.it'['cornetti@iol.it']; 'costanza.testino@libero.it'['costanza.testino@libero.it']; 'covadonga.astorga-llorens@jrc.ec.europa.eu'['covadonga.astorga-llorens@jrc.ec.europa.eu']; D.VARTHOLOMAIOS@denso.be[D.VARTHOLOMAIOS@denso.be]; 'daniel.scherret@de.opel.com'['daniel.scherret@de.opel.com']; 'danitza.fedeli@delphi.com'['danitza.fedeli@delphi.com']; 'de_theux_frederic@cat.com'['de_theux_frederic@cat.com']; 'detlef.stendel@volkswagen.de'['detlef.stendel@volkswagen.de']; 'didier.pingal@utac.com'['didier.pingal@utac.com']; 'director@araiindia.com'['director@araiindia.com']; 'Dirk.Bosteels@aecc.eu'['Dirk.Bosteels@aecc.eu']; 'dirk.d.baeuchle@daimler.com'['dirk.d.baeuchle@daimler.com']; 'dleveratto@oica.net'['dleveratto@oica.net']; 'donald.nagy@gm.com'['donald.nagy@gm.com']; 'e.bastiaensen@immamotorcycles.org'['e.bastiaensen@immamotorcycles.org']; 'ed.crupi@ec.gc.ca'['ed.crupi@ec.gc.ca']; 'efernandez@appluscorp.com'['efernandez@appluscorp.com']; 'elisa.dumitrescu@unep.org'['elisa.dumitrescu@unep.org']; 'eric.donati@mpsa.com'['eric.donati@mpsa.com']; **Ex. 7** ernst_peter.weidmann@daimler.com[ernst_peter.weidmann@daimler.com]; 'erwin.segers@honda-eu.com'['erwin.segers@honda-eu.com']; 'espena@vegvesen.no'['espena@vegvesen.no']; 'euan.macdonald@logos-eu.com'['euan.macdonald@logos-eu.com']; 'eva.iverfeldt@scania.com'['eva.iverfeldt@scania.com']; 'fakmadza@hyundai-europe.com'['fakmadza@hyundai-europe.com']; 'fcagnolati@landi.it'['fcagnolati@landi.it']; 'Felix.Reutimann@bafu.admin.ch'['Felix.Reutimann@bafu.admin.ch']; 'felix.wellmann@daimler.com'['felix.wellmann@daimler.com'];

'ferenc.pekar@ec.europa.eu'['ferenc.pekar@ec.europa.eu'];
Annette.feucht@bmw.de[Annette.feucht@bmw.de];
flavioa.mariani@gmail.com[flavioa.mariani@gmail.com]; 'gascar@korea.ac.kr'['gascar@korea.ac.kr'];
'georges.verdon@bluewin.ch'['georges.verdon@bluewin.ch'];
'gerben.passier@tno.nl'['gerben.passier@tno.nl'];
'Giorgio.billi@fptindustrial.com'['Giorgio.billi@fptindustrial.com'];
'giorgio.martini@jrc.ec.europa.eu'['giorgio.martini@jrc.ec.europa.eu'];
'giorgio.martini@jrc.it'['giorgio.martini@jrc.it']; 'giovanni.de-santi@ec.europa.eu'['giovanni.de-santi@ec.europa.eu']; 'giovanni.durbano@bafu.admin.ch'['giovanni.durbano@bafu.admin.ch'];
'giovanni.margaria@iveco.com'['giovanni.margaria@iveco.com'];
'gk.sharma@natrip.in'['gk.sharma@natrip.in'];
'greg.archer@transportenvironment.org'['greg.archer@transportenvironment.org'];
'guenter.hoermandinger@ec.europa.eu'['guenter.hoermandinger@ec.europa.eu'];
'hager@hol.gr'['hager@hol.gr']; hans.holdik@bmvi.bund.de[hans.holdik@bmvi.bund.de]; 'hans-rudolf.hein@bridgestone.eu'['hans-rudolf.hein@bridgestone.eu']; 'hathai@tisi.go.th'['hathai@tisi.go.th'];
heather.hamje@concawe.org[heather.hamje@concawe.org];
'heiko.esser@ateel.lu'['heiko.esser@ateel.lu'];
'Heinz.Berger@astra.admin.ch'['Heinz.Berger@astra.admin.ch']; 'Heinz.Steven@t-online.de'['Heinz.Steven@t-online.de']; heinz.steven@o2online.de[heinz.steven@o2online.de];
'henk.baarbe@minienm.nl'['henk.baarbe@minienm.nl']; 'henk.j.dekker@tno.nl'['henk.j.dekker@tno.nl'];
'heyuntang@catarc.ac.cn'['heyuntang@catarc.ac.cn']; 'highband@ts2020.kr'['highband@ts2020.kr'];
'hirachan@nrcs.org.za'['hirachan@nrcs.org.za']; Werner.Hofegger@avl.com[Werner.Hofegger@avl.com];
'hschmidt@tuev-nord.de'['hschmidt@tuev-nord.de']; 'hted@bis.org.in'['hted@bis.org.in'];
'hua.lukarlsson@scania.com'['hua.lukarlsson@scania.com']; 'h-yamada@ntsel.go.jp'['h-yamada@ntsel.go.jp']; 'hypark@katech.re.kr'['hypark@katech.re.kr'];
'ian.hodgson@ec.europa.eu'['ian.hodgson@ec.europa.eu'];
'ian.marshall@aeat.co.uk'['ian.marshall@aeat.co.uk']; 'iangv@iangv.org'['iangv@iangv.org'];
'iddo@sidekickprojects.nl'['iddo@sidekickprojects.nl']; 'ih@acea.be'['ih@acea.be'];
ikeda@ntceb.be[ikeda@ntceb.be]; 'ikeda@ntceb.be'['ikeda@ntceb.be'];
'info@federmetano.it'['info@federmetano.it'];
'isabelle.guerin@renault.com'['isabelle.guerin@renault.com']; 'ishii@ntsel.go.jp'['ishii@ntsel.go.jp'];
'j.bozewicz@tdt.pl'['j.bozewicz@tdt.pl']; 'jacek.rostkowski@ec.gc.ca'['jacek.rostkowski@ec.gc.ca'];
'jackson.cleophas@epa.gov'['jackson.cleophas@epa.gov'];
'jacques.dartoy@total.com'['jacques.dartoy@total.com'];
'jacques.marmy@iru.org'['jacques.marmy@iru.org']; 'janghyokko@syu.ac.kr'['janghyokko@syu.ac.kr'];
'jasic@jasic.org'['jasic@jasic.org']; javier.lebrato@ngvaeurope.eu[javier.lebrato@ngvaeurope.eu];
'jcsarbach@fiev.fr'['jcsarbach@fiev.fr']; 'jean-francois.roy@ec.gc.ca'['jean-francois.roy@ec.gc.ca'];
'jens.huegel@iru.org'['jens.huegel@iru.org']; 'jiaquanli2008@163.com'['jiaquanli2008@163.com'];
'jkubsh@meca.org'['jkubsh@meca.org']; 'jmandel@emamail.org'['jmandel@emamail.org'];
'johan.renders@ec.europa.eu'['johan.renders@ec.europa.eu'];
'jon.andersson@ricardo.com'['jon.andersson@ricardo.com'];
'jon.real@infrastructure.gov.au'['jon.real@infrastructure.gov.au'];
'jps@cambustion.com'['jps@cambustion.com'];
'jseisler@cleanfuelsconsulting.org'['jseisler@cleanfuelsconsulting.org'];
'juhani.laurikko@vtt.fi'['juhani.laurikko@vtt.fi']; 'jwlee@kotsa.or.kr'['jwlee@kotsa.or.kr']; 'ka-koba@shinsa.ntsel.go.jp'['ka-koba@shinsa.ntsel.go.jp'];
'kamal.charafeddine@porsche.de'['kamal.charafeddine@porsche.de'];
'karale.dirspa@araiindia.com'['karale.dirspa@araiindia.com'];
'karsten.strobl@de.gm.com'['karsten.strobl@de.gm.com']; 'katrieng@ts2020.kr'['katrieng@ts2020.kr'];
'kkgandhi@siam.in'['kkgandhi@siam.in']; 'klaus.burger@maha.de'['klaus.burger@maha.de'];
klaus.land@daimler.com[klaus.land@daimler.com]; 'komarov@niiat.ru'['komarov@niiat.ru'];
'kurt.engeljehringer@avl.com'['kurt.engeljehringer@avl.com'];
martin.lange@uba.de[martin.lange@uba.de]; 'laroo.chris@epa.gov'['laroo.chris@epa.gov'];
'Laroo.Chris@epamail.epa.gov'['Laroo.Chris@epamail.epa.gov'];
'laura.bigi@mpsa.com'['laura.bigi@mpsa.com'];
'lennart.erlandsson@avl.com'['lennart.erlandsson@avl.com']; 'les.hill@horiba.com'['les.hill@horiba.com'];

'lianne.noseworthy@ec.gc.ca'['lianne.noseworthy@ec.gc.ca']; 'liuxin@tju.edu.cn'['liuxin@tju.edu.cn'];
'liwl@petrochina.com.cn'['liwl@petrochina.com.cn']; 'llezhnev@nami.ru'['llezhnev@nami.ru'];
'lubos.trnka@tuv-sud.cz'['lubos.trnka@tuv-sud.cz']; 'luhongyu@catarc.ac.cn'['luhongyu@catarc.ac.cn'];
'm.seifert@svgw.ch'['m.seifert@svgw.ch']; 'm.vaysblum@autorc.ru'['m.vaysblum@autorc.ru'];
'Maciej.SZYMANSKI@ec.europa.eu'['Maciej.SZYMANSKI@ec.europa.eu'];
'mafh@tsinghua.edu.cn'['mafh@tsinghua.edu.cn'];
'magnus.lindgren@trafikverket.se'['magnus.lindgren@trafikverket.se'];
'manuel.schuster@daimler.com'['manuel.schuster@daimler.com'];
'marc.kwanten@mobilit.fgov.be'['marc.kwanten@mobilit.fgov.be'];
'marc.steen@ec.europa.eu'['marc.steen@ec.europa.eu']; 'maria.spiliopoulou-
kaparia@ec.europa.eu'['maria.spiliopoulou-kaparia@ec.europa.eu'];
'martin.gerstl@de.bosch.com'['martin.gerstl@de.bosch.com'];
'martin.koubek@dot.gov'['martin.koubek@dot.gov'];
'martin.openshaw@aftonchemical.com'['martin.openshaw@aftonchemical.com'];
'martin.schiess@bafu.admin.ch'['martin.schiess@bafu.admin.ch'];
'martin.sommer@porsche.de'['martin.sommer@porsche.de'];
'massimo.carriero@jrc.it'['massimo.carriero@jrc.it']; masui-s559h@mlit.go.jp[masui-s559h@mlit.go.jp];
'matthias.hartmann@bmw.de'['matthias.hartmann@bmw.de'];
'matthias.maedge@ngvaeurope.eu'['matthias.maedge@ngvaeurope.eu']; Naegeli, Matthias
(EAMG/1)[matthias.naegeli@volkswagen.de];
'Matthias.Tappe@de.bosch.com'['Matthias.Tappe@de.bosch.com'];
'maurizio.parca@bridgestone.eu'['maurizio.parca@bridgestone.eu'];
'mguenthe@ford.com'['mguenthe@ford.com'];
'michael.frank@de.bosch.com'['michael.frank@de.bosch.com'];
'michael.hygrell@volvo.com'['michael.hygrell@volvo.com'];
'michel.loccufier@mobilit.fgov.be'['michel.loccufier@mobilit.fgov.be'];
'mky@chrysler.com'['mky@chrysler.com']; morita-s263@mlit.go.jp[morita-s263@mlit.go.jp];
'nakhawa.ecl@araiindia.com'['nakhawa.ecl@araiindia.com']; 'nalinee@tisi.go.th'['nalinee@tisi.go.th'];
'Nam.Ed@epamail.epa.gov'['Nam.Ed@epamail.epa.gov']; 'nan@fstyr.dk'['nan@fstyr.dk'];
'narusawa@ntsel.go.jp'['narusawa@ntsel.go.jp']; Nico.Schuetze@bmw.de[Nico.Schuetze@bmw.de];
'niikuni@ntsel.go.jp'['niikuni@ntsel.go.jp']; nbear@ford.com[nbear@ford.com];
'nikolaus.steininger@ec.europa.eu'['nikolaus.steininger@ec.europa.eu'];
'nlebigot@ccfa.fr'['nlebigot@ccfa.fr']; 'nls8@chrysler.com'['nls8@chrysler.com'];
'noriyuki_ichikawa@mail.toyota.co.jp'['noriyuki_ichikawa@mail.toyota.co.jp'];
'oberg2@volvocars.com'['oberg2@volvocars.com'];
'olechiw.michael@epa.gov'['olechiw.michael@epa.gov'];
oliver.eberhardt@bmub.bund.de[oliver.eberhardt@bmub.bund.de];
'oliver.moersch@daimler.com'['oliver.moersch@daimler.com']; 'p.flanker@denso.nl'['p.flanker@denso.nl'];
'p.laurent@clepa.be'['p.laurent@clepa.be']; 'paibanez@mityc.es'['paibanez@mityc.es'];
'panagiota.dilara@jrc.it'['panagiota.dilara@jrc.it']; 'patrik.soltic@empa.ch'['patrik.soltic@empa.ch'];
'paul.adams@volvo.com'['paul.adams@volvo.com'];
'per.ohlund@transportstyrelsen.se'['per.ohlund@transportstyrelsen.se'];
p.flanker@denso.nl[p.flanker@denso.nl]; 'peter.scherm@vdma.org'['peter.scherm@vdma.org'];
'peter.smeds@trafikverket.se'['peter.smeds@trafikverket.se']; 'peter@theicct.org'['peter@theicct.org'];
'pg@acea.be'['pg@acea.be']; 'philip.r.horton@gm.com'['philip.r.horton@gm.com'];
'pierre.bonnel@jrc.it'['pierre.bonnel@jrc.it']; pierre.cognet1@mpsa.com[pierre.cognet1@mpsa.com];
'pilar.perez@ngvaeurope.eu'['pilar.perez@ngvaeurope.eu']; 'pjhy98@korea.kr'['pjhy98@korea.kr'];
'pollak.ivan@kti.hu'['pollak.ivan@kti.hu']; 'PPRICE40@ford.com'['PPRICE40@ford.com'];
'ptinakon@hotmail.com'['ptinakon@hotmail.com']; 'qinkongjian@catarc.ac.cn'['qinkongjian@catarc.ac.cn'];
'ragnarsson@eaa.be'['ragnarsson@eaa.be'];
'rajendra.petkar@tatatechnologies.com'['rajendra.petkar@tatatechnologies.com'];
'ralph.kellermann@diplo.de'['ralph.kellermann@diplo.de']; Ramacher, Bjoern, Dr. (K-
GQA/4)[bjoern.ramacher@volkswagen.de];
'ravchoda@immamotorcycles.org'['ravchoda@immamotorcycles.org'];
raymond.petrovan@de.opel.com[raymond.petrovan@de.opel.com];
'rdey@ccsglobalgroup.com'['rdey@ccsglobalgroup.com']; 'rene.nulens@toyota-

europe.com'['rene.nulens@toyota-europe.com']; 'rjohannsen@tuev-nord.de'['rjohannsen@tuev-nord.de'];
'rlabza@hyundai-europe.com'['rlabza@hyundai-europe.com']; 'rob.cox@ipieca.org'['rob.cox@ipieca.org'];
rob.cuelenaere@tno.nl[rob.cuelenaere@tno.nl]; 'robert.thielgen@ateel.lu'['robert.thielgen@ateel.lu'];
'Romain.Hubert@unece.org'['Romain.Hubert@unece.org'];
'romain.lamberty@snch.lu'['romain.lamberty@snch.lu']; 'rsantafe@idiada.com'['rsantafe@idiada.com'];
'rudi.valgaeren@eur.bosal.com'['rudi.valgaeren@eur.bosal.com'];
's.piccolo@federchimica.it'['s.piccolo@federchimica.it']; 'saenzejc@inta.es'['saenzejc@inta.es'];
'saluck@tisi.go.th'['saluck@tisi.go.th'];
'samarendra.tripathy@renault.com'['samarendra.tripathy@renault.com'];
'Sanchez.James@epamail.epa.gov'['Sanchez.James@epamail.epa.gov'];
'Schrodt.Thomas@epamail.epa.gov'['Schrodt.Thomas@epamail.epa.gov'];
'Seiler@vda.de'['Seiler@vda.de']; 'serge.dubuc@t-online.de'['serge.dubuc@t-online.de'];
'shirish.a.shimpi@cummins.com'['shirish.a.shimpi@cummins.com'];
silvia.ricchiuto@fiat.com'[silvia.ricchiuto@fiat.com']; 'simlaoz@mfa.gov.tr'['simlaoz@mfa.gov.tr'];
'simon.davies@dft.gsi.gov.uk'['simon.davies@dft.gsi.gov.uk'];
'Simon.Karl@epamail.epa.gov'['Simon.Karl@epamail.epa.gov'];
'singh.ecl@araiindia.com'['singh.ecl@araiindia.com']; somnuek.j@pttplc.com[somnuek.j@pttplc.com];
'spark@korea.ac.kr'['spark@korea.ac.kr']; 'spetrovic@mas.bg.ac.rs'['spetrovic@mas.bg.ac.rs'];
'srmarathe@araiindia.com'['srmarathe@araiindia.com'];
'stanislaw.radzimirski@its.waw.pl'['stanislaw.radzimirski@its.waw.pl']; Stendel, Detlef (K-
GQA/1)[detlef.stendel@volkswagen.de];
'stephan.hartmann@volkswagen.de'['stephan.hartmann@volkswagen.de'];
stephan.redmann@bmvi.bund.de[stephan.redmann@bmvi.bund.de];
'sylvie.gingras@bnq.qc.ca'['sylvie.gingras@bnq.qc.ca']; 't.hisler@ccfa.fr'['t.hisler@ccfa.fr'];
'Takakazu.Fukuoka@toyota-europe.com'['Takakazu.Fukuoka@toyota-europe.com'];
Takashi_Fujiwara@n.t.rd.honda.co.jp[Takashi_Fujiwara@n.t.rd.honda.co.jp];
Tatsumori_A_Matsushita@hm.honda.co.jp[Tatsumori_A_Matsushita@hm.honda.co.jp]; 'tce@jama-
e.be'['tce@jama-e.be']; 'technique@ccfa.fr'['technique@ccfa.fr']; 'techsec@clepa.be'['techsec@clepa.be'];
'thachapongt@yahoo.com'['thachapongt@yahoo.com']; thaniu@jari.or.jp[thaniu@jari.or.jp];
'thaniu@jari.or.jp'['thaniu@jari.or.jp']; 'thomas.goldbach@gm.com'['thomas.goldbach@gm.com'];
thomas.vogel@de.opel.com[thomas.vogel@de.opel.com];
'thorsten.leischner@daimler.com'['thorsten.leischner@daimler.com'];
'TKOSMEHL@ford.com'['TKOSMEHL@ford.com']; 'tmayer4@ford.com'['tmayer4@ford.com'];
toba@jasic.org[toba@jasic.org]; 'toba@jasic.org'['toba@jasic.org'];
'toni.lehn@delphi.com'['toni.lehn@delphi.com'];
toshihisa_yamaguchi@hm.honda.co.jp[toshihisa_yamaguchi@hm.honda.co.jp];
'tstoffels@rdw.nl'['tstoffels@rdw.nl']; 'ueda-j2kt@mlit.go.jp'['ueda-j2kt@mlit.go.jp'];
'uhlik.krisztian@kti.hu'['uhlik.krisztian@kti.hu']; 'uklein@ford.com'['uklein@ford.com']; 'ulrich.beutke@mtu-
online.com'['ulrich.beutke@mtu-online.com'];
'ulrich.gottwick@de.bosch.com'['ulrich.gottwick@de.bosch.com'];
'uwe.thien@magnasteyr.com'['uwe.thien@magnasteyr.com'];
'volker.blum@daimler.com'['volker.blum@daimler.com'];
'volker.rothe@de.opel.com'['volker.rothe@de.opel.com'];
'vustymenko@insat.org.ua'['vustymenko@insat.org.ua'];
wouter.vandermeulen@daimler.com[wouter.vandermeulen@daimler.com];
'Werner.Tober@ifa.tuwien.ac.at'['Werner.Tober@ifa.tuwien.ac.at'];
'william.coleman@volkswagen.de'['william.coleman@volkswagen.de']; 'Wim.van.der.Borght@toyota-
europe.com'['Wim.van.der.Borght@toyota-europe.com'];
'winfried.hartung@de.gm.com'['winfried.hartung@de.gm.com']; 'woitsch@dekra-
automobil.cz'['woitsch@dekra-automobil.cz'];
'wolfgang.schindler@avl.com'['wolfgang.schindler@avl.com']; 'wuxf@craes.org.cn'['wuxf@craes.org.cn'];
y-katsumata@mail.nissan.co.jp[y-katsumata@mail.nissan.co.jp]; 'y-katsumata@mail.nissan.co.jp'['y-
katsumata@mail.nissan.co.jp']; 'youlinhua@catarc.ac.cn'['youlinhua@catarc.ac.cn'];
'yphou@tongji.edu.cn'['yphou@tongji.edu.cn']; 'yssong@katech.re.kr'['yssong@katech.re.kr'];
'yu.jia@uaes.com'['yu.jia@uaes.com']; 'yuanying@craes.org.cn'['yuanying@craes.org.cn'];
'zisis@auth.gr'['zisis@auth.gr']

Cc: stephan.redmann@bmvi.bund.de[stephan.redmann@bmvi.bund.de]
From: Kolesa, Konrad, Dr. (I/EA-52)
Sent: Wed 12/16/2015 1:36:24 PM
Subject: Agenda for IWG WLTP meeting #13 in Geneva 11-12-01.2016
WLTP-13-02e - 15122015_Agenda_Draft_rev2.doc

Dear members of IWG WLTP

on behalf of the chair I send you the draft agenda for the 13th meeting of IWG WLTP.

Upload to UN/ECE server will follow soon.

K. Kolesa

Technical secretary IWG WLTP

With best regards

Konrad Kolesa
Executive Manager

Emission Certification and Vehicle Test Benches

AUDI AG
I/EA-52
85045 Ingolstadt
Tel. +49-841-89-32175

Mobile +49-841-89-53970
mailto:konrad.kolesa@audi.de
www.audi.com

Sitz/Domicile: Ingolstadt

Registergericht/Court of Registry: Amtsgericht Ingolstadt

HRB Nr./Commercial Register No.: 1

Vorstand/Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulrich Hackenberg, Bernd Martens, Thomas Sigi, Axel Strotbek, Dietmar Voggenreiter, Hubert Waltl

Wichtiger Hinweis: Die vorgenannten Angaben werden jeder E-Mail automatisch hinzugefügt und lassen keine Rückschlüsse auf den Rechtscharakter der E-Mail zu.

Important Notice: The above information is automatically added to this e-mail. This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding upon AUDI AG.

Von: Kolesa, Konrad, Dr. (I/EA-52)
Gesendet: Sonntag, 13. Dezember 2015 19:50
An: 'a.gusarov@autorc.ru'; 'acelas@tin.it'; 'Thomas1.Adam@AUDI.DE'; 'adolfo.perujo@ec.europa.eu'; 'aeeda@depollauto.fr'; 'aganguli@siam.in'; 'alain.e.petit@renault.com'; 'aldo.bassi@sintesiab.it'; 'alessandro.marotta@jrc.ec.europa.eu'; 'alexander.bergmann@avl.com'; 'alin.rosca@rarom.ro'; 'alois.krasenbrink@jrc.it'; 'ambujsharma@hotmail.com'; 'amourfi_cn@sina.com'; 'anders.roj@volvo.com'; 'andrea.demaria@fptindustrial.com'; 'Andreas.EA.Eder@bmw.de'; 'antonio.erario@mit.gov.it'; 'apetrofs@volvocars.com'; 'ARijnders@rdw.nl'; 'arjan.dijkhuizen@toyota-europe.com'; 'arnaud.duvielguerbigny@aegpl.be'; 'aurelia.buzgan@rarom.ro'; 'b07@mfa.gr'; 'beatrice.lopez@utac.com'; Behlau, Kai (EGNT/2); Bergmann, Markus, Dr. (I/EA-524); 'bernd.fusshoeller@delphi.com'; 'bertrand.mercier@mpsa.com'; 'Bradish.Tracey@epamail.epa.gov'; 'bungo.kawaguchi@toyota-europe.com'; 'adrien.burrows@dft.gsi.gov.uk'; Carli, Stefan, Dr. (K-GQA/2); 'Cecile.Favre@aecc.be'; 'celine.vallaude@utac.com'; 'cha1052@ts2020.kr'; 'Charmley.William@epamail.epa.gov'; 'chenqs@tsinghua.edu.cn'; 'chosier@ford.com'; 'christian.bach@empa.ch'; 'Christian.Gruen@ateel.lu'; 'christian.hartmann@maha.de'; 'Christian.Vavra@maha.de'; 'christoph.albus@bmvbs.bund.de'; 'Christoph.Lueginger@bmw.de'; 'Christoph.MC.Mayer@bmw.de'; 'colinjii@ts2020.kr'; 'cornetti@iol.it'; 'costanza.testino@libero.it'; 'covadonga.astorga-llorens@jrc.ec.europa.eu'; 'D.VARTHOLOMAIOS@denso.be'; 'daniel.scherret@de.opel.com'; 'danitza.fedeli@delphi.com'; 'de_theux_frederic@cat.com'; 'detlef.stendel@volkswagen.de'; 'didier.pingal@utac.com'; 'director@araiindia.com'; 'Dirk.Bosteels@aecc.eu'; 'dirk.d.baeuchle@daimler.com'; 'dleveratto@oica.net'; 'donald.nagy@gm.com'; 'e.bastiaensen@immamotorcycles.org'; 'ed.crupi@ec.gc.ca'; 'efernandez@appluscorp.com'; 'elisa.dumitrescu@unep.org'; 'eric.donati@mpsa.com'; **Ex. 7** 'ernst_peter.weidmann@daimler.com'; 'erwin.segers@honda-eu.com'; 'espena@vegvesen.no'; 'euan.macdonald@logos-eu.com'; 'eva.iverfeldt@scania.com'; 'fakmadza@hyundai-europe.com'; 'fcagnolati@landi.it'; 'Felix.Reutimann@bafu.admin.ch'; 'felix.wellmann@daimler.com'; 'ferenc.pekar@ec.europa.eu'; 'Annette.feucht@bmw.de'; 'flavioa.mariani@gmail.com'; 'gascar@korea.ac.kr'; 'georges.verdon@bluewin.ch'; 'gerben.passier@tno.nl'; 'Giorgio.billi@fptindustrial.com'; 'giorgio.martini@jrc.ec.europa.eu'; 'giorgio.martini@jrc.it'; 'giovanni.de-santi@ec.europa.eu'; 'giovanni.durbano@bafu.admin.ch'; 'giovanni.margaria@iveco.com'; 'gk.sharma@natrip.in'; 'greg.archer@transportenvironment.org'; 'guenter.hoermandinger@ec.europa.eu'; 'hager@hol.gr'; 'hans.holdik@bmvi.bund.de'; 'hans-rudolf.hein@bridgestone.eu'; 'hathai@tisi.go.th'; 'heather.hamje@concawe.org'; 'heiko.esser@ateel.lu'; 'Heinz.Berger@astra.admin.ch'; 'Heinz.Steven@t-online.de'; 'heinz.steven@o2online.de'; 'henk.baarbe@minienm.nl'; 'henk.j.dekker@tno.nl'; 'heyuntang@catarc.ac.cn'; 'highband@ts2020.kr'; 'hirachan@nrcs.org.za'; 'Werner.Hofegger@avl.com'; 'hschmidt@tuev-nord.de'; 'hted@bis.org.in'; 'hua.lukarlsson@scania.com'; 'h-yamada@ntsel.go.jp'; 'hypark@katech.re.kr'; 'ian.hodgson@ec.europa.eu'; 'ian.marshall@aeat.co.uk'; 'iangv@iangv.org'; 'iddo@sidekickprojects.nl'; 'ih@acea.be'; 'ikeda@ntceb.be'; 'ikeda@ntceb.be'; 'info@federmetano.it'; 'isabelle.guerin@renault.com'; 'ishii@ntsel.go.jp'; 'j.bozewicz@tdt.pl'; 'jacek.rostkowski@ec.gc.ca'; 'jackson.cleophas@epa.gov'; 'jacques.dartoy@total.com'; 'jacques.marmy@iru.org'; 'janghyokko@syu.ac.kr'; 'jasic@jasic.org'; 'javier.lebrato@ngvaeurope.eu'; 'jcsarbach@fiev.fr'; 'jean-francois.roy@ec.gc.ca'; 'jens.huegel@iru.org'; 'jiaquanli2008@163.com'; 'jkubsh@meca.org';

'jmandel@emamail.org'; 'johan.renders@ec.europa.eu'; 'jon.andersson@ricardo.com'; 'jon.real@infrastructure.gov.au'; 'jps@cambustion.com'; 'jseisler@cleanfuelsconsulting.org'; 'juhani.laurikko@vtt.fi'; 'jwlee@kotsa.or.kr'; 'ka-koba@shinsa.ntsel.go.jp'; 'kamal.charafeddine@porsche.de'; 'karale.dirspa@araiindia.com'; 'karsten.strobl@de.gm.com'; 'katrieng@ts2020.kr'; 'kkgandhi@siam.in'; 'klaus.burger@maha.de'; 'klaus.land@daimler.com'; Kolesa, Konrad, Dr. (I/EA-52); 'komarov@niiat.ru'; 'kurt.engeljehringer@avl.com'; 'martin.lange@uba.de'; 'laroo.chris@epa.gov'; 'Laroo.Chris@epamail.epa.gov'; 'laura.bigi@mpsa.com'; 'lennart.erlandsson@avl.com'; 'les.hill@horiba.com'; 'lianne.noseworthy@ec.gc.ca'; 'liuxin@tju.edu.cn'; 'liwl@petrochina.com.cn'; 'llezhnev@nami.ru'; 'lubos.trnka@tuv-sud.cz'; 'luhongyu@catarc.ac.cn'; 'm.seifert@svgw.ch'; 'm.vaysblum@autorc.ru'; 'Maciej.SZYMANSKI@ec.europa.eu'; 'mafh@tsinghua.edu.cn'; 'magnus.lindgren@trafikverket.se'; 'manuel.schuster@daimler.com'; 'marc.kwanten@mobilit.fgov.be'; 'marc.steen@ec.europa.eu'; 'maria.spiliopoulou-kaparia@ec.europa.eu'; 'martin.gerstl@de.bosch.com'; 'martin.koubek@dot.gov'; 'martin.openshaw@aftonchemical.com'; 'martin.schiess@bafu.admin.ch'; 'martin.sommer@porsche.de'; 'massimo.carriero@jrc.it'; 'masui-s559h@mlit.go.jp'; 'matthias.hartmann@bmw.de'; 'matthias.maedge@ngvaeurope.eu'; Naegeli, Matthias (EAMG/1); 'Matthias.Tappe@de.bosch.com'; 'maurizio.parca@bridgestone.eu'; 'mguenthe@ford.com'; 'michael.frank@de.bosch.com'; 'michael.hygrell@volvo.com'; 'michel.loccufier@mobilit.fgov.be'; 'mky@chrysler.com'; 'morita-s263@mlit.go.jp'; 'nakhawa.ecl@araiindia.com'; 'nalinee@tisi.go.th'; 'Nam.Ed@epamail.epa.gov'; 'nan@fstyr.dk'; 'narusawa@ntsel.go.jp'; 'Nico.Schuetze@bmw.de'; 'niikuni@ntsel.go.jp'; 'nbear@ford.com'; 'nikolaus.steininger@ec.europa.eu'; 'nlebigot@ccfa.fr'; 'nls8@chrysler.com'; 'noriyuki_ichikawa@mail.toyota.co.jp'; 'oberg2@volvocars.com'; 'olechiw.michael@epa.gov'; 'oliver.eberhardt@bmub.bund.de'; 'oliver.moersch@daimler.com'; 'p.flanker@denso.nl'; 'p.laurent@clepa.be'; 'paibanez@mityc.es'; 'panagiota.dilara@jrc.it'; 'patrik.soltic@empa.ch'; 'paul.adams@volvo.com'; 'per.ohlund@transportstyrelsen.se'; 'p.flanker@denso.nl'; 'peter.scherm@vdma.org'; 'peter.smeds@trafikverket.se'; 'peter@theicct.org'; 'pg@acea.be'; 'philip.r.horton@gm.com'; 'pierre.bonnel@jrc.it'; 'pierre.cognet1@mpsa.com'; 'pilar.perez@ngvaeurope.eu'; 'pjhy98@korea.kr'; 'pollak.ivan@kti.hu'; 'PPRICE40@ford.com'; 'ptinakon@hotmail.com'; 'qinkongjian@catarc.ac.cn'; 'ragnarsson@eaa.be'; 'rajendra.petkar@tatatechnologies.com'; 'ralph.kellermann@diplo.de'; Ramacher, Bjoern, Dr. (K-GQA/4); 'ravchoda@immamotorcycles.org'; 'raymond.petrovan@de.opel.com'; 'rdey@ccsglobalgroup.com'; 'rene.nulens@toyota-europe.com'; 'rjohannsen@tuev-nord.de'; 'rlabza@hyundai-europe.com'; 'rob.cox@ipieca.org'; 'rob.cuelenaere@tno.nl'; 'robert.thielgen@ateel.lu'; 'Romain.Hubert@unece.org'; 'romain.lamberty@snch.lu'; 'rsantafe@idiada.com'; 'rudi.valgaeren@eur.bosal.com'; 's.piccolo@federchimica.it'; 'saenzejc@inta.es'; 'saluck@tisi.go.th'; 'samarendra.tripathy@renault.com'; 'Sanchez.James@epamail.epa.gov'; 'Schrodt.Thomas@epamail.epa.gov'; 'Seiler@vda.de'; 'serge.dubuc@t-online.de'; 'shirish.a.shimpi@cummins.com'; 'silvia.ricchiuto@fiat.com"; 'simlaoz@mfa.gov.tr'; 'simon.davies@dft.gsi.gov.uk'; 'Simon.Karl@epamail.epa.gov'; 'singh.ecl@araiindia.com'; 'somnuek.j@pttplc.com'; 'spark@korea.ac.kr'; 'spetrovic@mas.bg.ac.rs'; 'srmarathe@araiindia.com'; 'stanislaw.radzimirski@its.waw.pl'; Stendel, Detlef (K-GQA/1); 'stephan.hartmann@volkswagen.de'; 'stephan.redmann@bmvi.bund.de'; 'sylvie.gingras@bnq.qc.ca'; 't.hisler@ccfa.fr'; 'Takakazu.Fukuoka@toyota-europe.com'; 'Takashi_Fujiwara@n.t.rd.honda.co.jp'; 'Tatsumori_A_Matsushita@hm.honda.co.jp'; 'tce@jama-e.be'; 'technique@ccfa.fr'; 'techsec@clepa.be'; 'thachapongt@yahoo.com'; 'thaniu@jari.or.jp'; 'thaniu@jari.or.jp'; 'thomas.goldbach@gm.com'; 'thomas.vogel@de.opel.com'; 'thorsten.leischner@daimler.com'; 'TKOSMEHL@ford.com'; 'tmayer4@ford.com'; 'toba@jasic.org'; 'toba@jasic.org'; 'toni.lehn@delphi.com'; 'toshihisa_yamaguchi@hm.honda.co.jp'; 'tstoffels@rdw.nl'; 'ueda-j2kt@mlit.go.jp'; 'uhlik.krisztian@kti.hu'; 'uklein@ford.com'; 'ulrich.beutke@mtu-online.com'; 'ulrich.gottwick@de.bosch.com'; 'uwe.thien@magnasteyr.com'; 'volker.blum@daimler.com'; 'volker.rothe@de.opel.com'; 'vustymenko@insat.org.ua'; 'wouter.vandermeulen@daimler.com'; 'Werner.Tober@ifa.tuwien.ac.at'; 'william.coleman@volkswagen.de'; 'Wim.van.der.Borght@toyota-europe.com'; 'winfried.hartung@de.gm.com'; 'woitsch@dekra-automobil.cz'; 'wolfgang.schindler@avl.com'; 'wuxf@craes.org.cn'; 'y-katsumata@mail.nissan.co.jp'; 'y-katsumata@mail.nissan.co.jp'; 'youlinhua@catarc.ac.cn'; 'yphou@tongji.edu.cn'; 'yssong@katech.re.kr'; 'yu.jia@uaes.com'; 'yuanying@craes.org.cn'; 'zisis@auth.gr'

Cc: 'Annegret Leichtle'; 'stephan.redmann@bmvi.bund.de'

Betreff: Invitation IWG WLTP meeting #13 in Geneva 11-12-01.2016

Dear Members of WLTP IWG,

please find enclosed the invitation for the 13th Meeting of Informal Working Group WLTP

in Geneva 11-12 January 2016. The invitation and the preliminary agenda will be uploaded soon to the UN/ECE Webserver under

https://www2.unece.org/wiki/display/trans/WLTP+13th+session

With best regards

Konrad Kolesa

Technical Secretary IWG WLTP

With best regards

Konrad Kolesa
Executive Manager

Emission Certification and Vehicle Test Benches

AUDI AG
I/EA-52
85045 Ingolstadt
Tel. +49-841-89-32175

Mobile +49-841-89-53970
mailto:konrad.kolesa@audi.de
www.audi.com

Sitz/Domicile: Ingolstadt

Registergericht/Court of Registry: Amtsgericht Ingolstadt

HRB Nr./Commercial Register No.: 1

Vorstand/Board of Management: Rupert Stadler (Vorsitzender/Chairman), Ulrich Hackenberg, Bernd Martens, Thomas Sigi, Axel Strotbek, Dietmar Voggenreiter, Hubert Waltl

Wichtiger Hinweis: Die vorgenannten Angaben werden jeder E-Mail automatisch hinzugefügt und lassen keine Rückschlüsse auf den Rechtscharakter der E-Mail zu.

Important Notice: The above information is automatically added to this e-mail. This addition does not constitute a representation that the content of this e-mail is legally relevant and/or is intended to be legally binding upon AUDI AG.

WLTP-13-02e

A G E N D A

of the 13th WLTP IWG Meeting

Location:	Geneva, Suisse
	Palais de Nations Room XII
Date & Time:	January 11th –12th 2016
	14:30 – 17:30, 9:30 – 17:30

1. Welcome & organization

2. Adoption of agenda & minutes

- Minutes 12th IWG WLTP meeting (WLTP-12-33e)

3. Review of Open Issues Table Phase 1B

- OIT update since 12th IWG meeting (WLTP-13-xyz) by **N. Ichikawa**
- Summary of the remaining issues from Phase 1b and transfer to Phase 2 item list (WLTP-13-xyz) by **N. Ichikawa**.

4. GTR - GRPE working document (GRPE/2016/3)

- Overview on GTR development

  - Progress report by Drafting Coordinator, **S. Dubuc** (WLTP-13-xyz)

  - Introduction of main changes to GTR No 15

  - Review of Changes since Finalization of GTR 15 Phase 1B

- GTR Part A

  - Brief oral introduction of changes to GTR No 15 by Technical GTR Sponsors (**Japan**, **EC**)

VW FOIA, EPA 06/20/2017 2017-FFP_036780

5. GTR - GRPE Informal document (GRPE-72-xyz)

(amendments /corrections to GRPE working document)

- Proposal (WLTP-13-xyz) on editorial amendments by **B. Coleman** (OICA)
- Discussion and **adoption**

6. Technical report to GTR No 15 (GRPE-72-xyz)

- Introduction of amendments to Technical report by **I. Riemersma** on behalf of EU Commission (WLTP-13-xyz)

7. Round Robin Exercises

- Reports on the European and Asian exercise by **C. Vallaude** and **Haniu-san** (WLTP-13-xyz / -xyz)

8. WLTP Phase 2

- Introduction of mandate document (WP.29-167-29) by **EC** / **Japan**
- Organization of phase 2 (WLTP-13-xyz)
- Discussion of Working Areas and Roadmap (WLTP-13-xyz)
- Working issues to be decided upon – Requests of Contracting Parties
- Separation/overlap of WLTP & EVE issues.
  - EVE status report by **EVE IWG**
- Taskforce proposal (WLTP-13-xyz)

9. Meeting schedule

- 14th WLTP IWG Meeting, March/April 2016, date & location TBD

10. AoB

Stephan Redmann

(Chair of WLTP IWG)

VW FOIA, EPA 06/20/2017 2017-FFP_036781

To: David.Geanacopoulos@vw.com[David.Geanacopoulos@vw.com]
Cc: Bunker, Byron[bunker.byron@epa.gov]
From: Zaremski, Sara
Sent: Wed 12/16/2015 6:55:11 PM
Subject: Data Disclosure Notice
VW_DisclosureLetter_To_CommerceCommittee_Final 12162015.pdf

Mr. Geanacopoulos,

Attached please find notification of EPA's intention to provide the Honorable Fred Upton, Chairman of the Committee on Energy and Commerce in the United States House of Representatives VW's Confidential Business Information (CBI) versions of the full applications for certification submitted for each of the affected test groups. A copy of this letter has also been mailed to you.

Sincerely,

Sara Zaremski

U.S. EPA - OTAQ

Compliance Division

Center Director, Data Analysis and Information Center

2000 Traverwood Drive

Ann Arbor, MI 48105

phone: (734)214-4362

Cell: (734) 223-0957

email: zaremski.sara@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
2565 PLYMOUTH ROAD
ANN ARBOR, MICHIGAN 48105-2498

OFFICE OF
AIR AND RADIATION

December 16, 2015

Mr. David Geanacopoulos
Executive Vice President
General Counsel & Secretary, Government Affairs
Volkswagen Group of America
2200 Ferdinand Porsche Drive
Herndon, VA 20171

Dear Mr. Geanacopoulos:

On September 29, 2015, the Environmental Protection Agency (EPA) received a letter from the Honorable Fred Upton, Chairman of the Committee on Energy and Commerce in the United States House of Representatives, requesting information relating to their investigation of "the facts and circumstances surrounding VW's use of software in vehicle emissions control systems to affect Clean Air Act related compliance and emissions test results…."

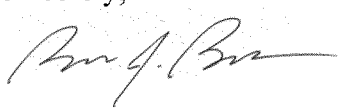
Included in this letter was a specific request for "A detailed description of all testing EPA requires and reviews prior to granting a certificate of conformity, EPA's process of evaluating this information, and what review or testing is conducted by EPA, or on its behalf, to validate information provided by manufacturers." EPA intends to provide the Committee with VW's Confidential Business Information (CBI) versions of the full applications for certification submitted for each of the affected test groups.

Although the applications were labeled as CBI by VW, pursuant to 40 CFR 2.209 (a), "[i]nformation which…is not available to the public may nonetheless be disclosed to the persons, and in the circumstances, described by paragraphs (b) through (g) of this section." Paragraph (b) of this section, 2.209(b)(1), states that "[u]pon receipt of a written request by the Speaker of the House, President of the Senate, chairman of a committee or subcommittee, or the Comptroller General, as appropriate, EPA will disclose business information to either House of Congress, to a committee or subcommittee of Congress, or to the Comptroller General…."

Additionally, 2.209(b)(2) states in part that "[i]f the request is for business information claimed as confidential or determined to be confidential, the EPA office processing the request shall provide notice to each affected business of the type of information disclosed and to whom it is disclosed. Notice shall be given at least ten days prior to disclosure, except where it is not

possible to provide notice ten days in advance of any date established by the requesting body for responding to the request." This letter serves as the required notice to VW of EPA's intent to disclose the aforementioned CBI to the Committee on Energy and Commerce. EPA intends on disclosing this information on or about December 28, 2015.

Sincerely,



Byron Bunker
Director, Compliance Division
Office of Transportation and Air Quality
Office of Air and Radiation
U.S. Environmental Protection Agency

May 27, 1998 VPCD-98-08 (LDV/LDT/SM/ICI)

Dear Manufacturer:

SUBJECT: Reminder to Include in the Application for Certification a Description of AECDs Which May Reduce the Effectiveness of the Emission Control System

The purpose of this letter is to remind manufacturers to include certain types of calibration information and statements of compliance in their application for certification.

Additionally, to make more efficient use of our resources, we request that manufacturers submit certificate requests approximately 30 to 60 days prior to the time when the certificate is needed. The certificate request should include all the necessary information needed for EPA to issue a certificate of conformity, including the complete application for certification; a copy of the fee filing form, OBD approval letters; test results; an error-free EPA summary sheet; and other supporting information as needed.

Information Currently Required by §86.094-21(b)(1)(i)

The provisions of 40 CFR 86.094-21(b)(1)(i) require that each application for certification include 1) a detailed description of each Auxiliary Emission Control Device[1] (AECD), 2) a detailed justification of each AECD which results in a reduction in the effectiveness of the emission control system; and 3) a statement of compliance that the engine family is designed within the intermediate temperature cold testing defeat device guidance provided in §86.094-16. The detailed description of the AECD should include parameters sensed and controlled, and the expected effect the AECD has on emissions (both on- and off-cycle). All AECDs that reduce the effectiveness of the emission control system and therefore require a justification include "lean-on-cruise" and "air-conditioner-on" strategies. This information should be supplied in a form that can be easily understood by an engineer skilled in automotive emissions control, e.g. not in computer language.

[1] §86.082-2 defines an AECD to mean "any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system." Vehicle computer control strategies are thus considered to be AECDs.

Additionally, we request that large volume manufacturers include a defeat device statement in their application for certification, if possible, similar to the statement required of small volume manufacturers in 40 CFR 86.094-14(c)(11)(ii)(D)(3)); although such a statement is not actually required by regulation.

SFTP Information Required by §86.1708-99 and §86.1709-99

The provisions of §86.1708-99(e)(3)&(4) and §86.1709-99(e)(3)&(4) specifically require manufacturers to submit information related to any "air conditioner-on" and "lean-on-cruise" calibrations. These requirements will apply beginning in model year 2001, to manufacturers who have opted in to the National Low Emissions Vehicle (NLEV) program, for engine families certified to the NLEV Supplemental Federal Test Procedure (SFTP) emission standards.

EPA would like to meet with individual manufacturers to review the appropriateness of their SFTP emission control strategy prior to certification. Please contact your certification representative to schedule a meeting. We request that manufacturers supply an advance copy of the material that will be presented, approximately one or two weeks prior to the meeting, so that we can prepare for the meeting.

If you have any questions about this letter, please contact your certification team representative.

Sincerely,

Jane Armstrong, Director
Vehicle Programs and Compliance Division
Office of Mobile Sources

VW FOIA, EPA 06/20/2017 2017-FFP_036786

To: Pidgeon, Bill[pidgeon.bill@epa.gov]; Snyder, Jim[Snyder.Jim@epa.gov]; Liebner, Bernd[liebner.bernd@epa.gov]
Cc: Tamborra, Nick (EEO)[Nick.Tamborra@vw.com]
From: Glas, Tobias
Sent: Fri 12/18/2015 1:28:11 PM
Subject: FW: IUVP submission
WTF.docx

Hi Bill, hi Jim, hi Bernd,

I had problems to submit test results into CDX in the last days and couldn't figure out why. So far I did not get any help from the helpdesk either.

Therefore I have a bunch of test results (passing and some not passing the emission standards) that are not submitted yet.

My contract in the US is up and I am moving back to Germany next week so my successor will take care of it.

For all In-Use related / Surveillance topics, please contact my manager Nick Tamborra.

I always enjoyed working with you and wish you happy holidays.

Tobias

From: Glas, Tobias
Sent: Tuesday, December 08, 2015 4:12 PM
To: 'evcishelpdesk@epacdx.net' <evcishelpdesk@epacdx.net>
Subject: IUVP submission

Hi,

I tried to submit a IUVP result and it got rejected with a fault that I never saw before.

Can you help me to figure out what went wrong?

Thanks for your help.

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Good, David[good.david@epa.gov]
Cc: Kata, Leonard (EEO)[Leonard.Kata@vw.com]; Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Fri 12/18/2015 2:17:27 PM
Subject: 2016 e-Golf Charging units

Hi Dave;

As we discussed last week I am providing two values for our 2016 e-Golf battery charging time dependent upon the installed charging capability. All the e-Golf SEL Premium models are equipped with the 7.2 kW charging and have a battery charge time of 3.7 hours at 240 volts. The e-Golf SE model comes standard with a 3.6 kW charger and optionally with the 7.2 kW charger. The charge time for the 3.6 kW charging is 7 hours at 240 volts. I tried to add the note below to the Verify label index #086 to reflect the two charge times, however it was not accepted because Verify requires that a Request For Certificate (RFC) or Request to Update CSI (RUC) be submitted before a Fuel Economy Label dataset can be submitted. We (EEO) are not in a position to do that at the present time due to the authorization/assignments of CROMERR signers within the Volkswagen Group. If you can provide the contractor with these notes and include them on the fuel economy guide web site that would be appreciated, and once we work out the CROMERR issue I will update the label index to include these notes:

3.7 hrs at 240 volts (7.2 kW charger)

7.0 hrs at 240 volts (3.6 kW charger)

It will be possible for the fuel economy label to carry the proper battery charging time depending upon the model and/or option code for the 7.2 kW charger for the e-Golf SE models.

If you have any questions, please let me know.

Best regards,

Richard

Richard E. Thomas

Senior Emission Certification Specialist

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: 248 754 4213

Fax: 248 754 4207

mailto: Richard.Thomas@VW.com

To: Good, David[good.david@epa.gov]
Cc: Ex. 7 Snyder, Jim[Snyder.Jim@epa.gov]
From: Ex. 7
Sent: Fri 12/18/2015 2:17:27 PM
Subject: 2016 e-Golf Charging units

Hi Dave;

As we discussed last week I am providing two values for our 2016 e-Golf battery charging time dependent upon the installed charging capability. All the e-Golf SEL Premium models are equipped with the 7.2 kW charging and have a battery charge time of 3.7 hours at 240 volts. The e-Golf SE model comes standard with a 3.6 kW charger and optionally with the 7.2 kW charger. The charge time for the 3.6 kW charging is 7 hours at 240 volts. I tried to add the note below to the Verify label index #086 to reflect the two charge times, however it was not accepted because Verify requires that a Request For Certificate (RFC) or Request to Update CSI (RUC) be submitted before a Fuel Economy Label dataset can be submitted. We (EEO) are not in a position to do that at the present time due to the authorization/assignments of CROMERR signers within the Volkswagen Group. If you can provide the contractor with these notes and include them on the fuel economy guide web site that would be appreciated, and once we work out the CROMERR issue I will update the label index to include these notes:

3.7 hrs at 240 volts (7.2 kW charger)

7.0 hrs at 240 volts (3.6 kW charger)

It will be possible for the fuel economy label to carry the proper battery charging time depending upon the model and/or option code for the 7.2 kW charger for the e-Golf SE models.

If you have any questions, please let me know.

Best regards,

Ex. 7

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone: Ex. 7

Fax:

mailto:

To: Glas, Tobias[Tobias.Glas@vw.com]; Pidgeon, Bill[pidgeon.bill@epa.gov]; Snyder, Jim[Snyder.Jim@epa.gov]; Liebner, Bernd[liebner.bernd@epa.gov]
From: Ex. 7
Sent: Fri 12/18/2015 2:38:09 PM
Subject: RE: IUVP submission

Good morning Bill, Jim, Bernd,

As Tobias mentioned, he will be returning to Germany next week and I can serve as a point of contact for now. My information is below. Beginning Jan 11th, Garett Horton will be returning from his assignment in Germany and the current plan is for Garett to take over Tobias's role. I will keep you informed of the transition.

Thanks and enjoy the holiday season,

Ex. 7

Ex. 7

Engineering and Environmental Office

Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326
Phone:
Cell: (2
FAX: (
E-Mail:
Ex. 7

From: Glas, Tobias
Sent: Friday, December 18, 2015 8:28 AM
To: Pidgeon, Bill (pidgeon.bill@epa.gov) <pidgeon.bill@epa.gov>; Snyder, Jim (Snyder.Jim@epa.gov) <Snyder.Jim@epa.gov>; Liebner, Bernd <liebner.bernd@epa.gov>
Cc: Ex. 7 @vw.com>
Subject: FW: IUVP submission

Hi Bill, hi Jim, hi Bernd,

I had problems to submit test results into CDX in the last days and couldn't figure out why. So far I did not get any help from the helpdesk either.

Therefore I have a bunch of test results (passing and some not passing the emission standards) that are not submitted yet.

My contract in the US is up and I am moving back to Germany next week so my successor will take care of it.

For all In-Use related / Surveillance topics, please contact my manager Nick Tamborra.

I always enjoyed working with you and wish you happy holidays.

Tobias

From: Glas, Tobias
Sent: Tuesday, December 08, 2015 4:12 PM
To: 'evcishelpdesk@epacdx.net' <evcishelpdesk@epacdx.net>
Subject: IUVP submission

Hi,

I tried to submit a IUVP result and it got rejected with a fault that I never saw before.

Can you help me to figure out what went wrong?

Thanks for your help.

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Ex. 7
Cc: Ex. 7 Snyder, Jim[Snyder.Jim@epa.gov]
From: Good, David
Sent: Fri 12/18/2015 3:34:03 PM
Subject: RE: 2016 e-Golf Charging units

Ex. 7

I sent the e-Golf revision to DOE for posting on the web today. No guarantee that it will get posted until next year. This is DOE staff's last work day until Jan 4, 2016.

Dave

From: Ex. 7
Sent: Friday, December 18, 2015 9:17 AM
To: Good, David
Cc: Ex. 7 Snyder, Jim
Subject: 2016 e-Golf Charging units
Importance: High

Hi Dave;

As we discussed last week I am providing two values for our 2016 e-Golf battery charging time dependent upon the installed charging capability. All the e-Golf SEL Premium models are equipped with the 7.2 kW charging and have a battery charge time of 3.7 hours at 240 volts. The e-Golf SE model comes standard with a 3.6 kW charger and optionally with the 7.2 kW charger. The charge time for the 3.6 kW charging is 7 hours at 240 volts. I tried to add the note below to the Verify label index #086 to reflect the two charge times, however it was not accepted because Verify requires that a Request For Certificate (RFC) or Request to Update CSI (RUC) be submitted before a Fuel Economy Label dataset can be submitted. We (EEO) are not in a position to do that at the present time due to the authorization/assignments of CROMERR signers within the Volkswagen Group. If you can provide the contractor with these notes and include them on the fuel economy guide web site that would be appreciated, and once we work out the CROMERR issue I will update the label index to include these notes:

3.7 hrs at 240 volts (7.2 kW charger)

7.0 hrs at 240 volts (3.6 kW charger)

It will be possible for the fuel economy label to carry the proper battery charging time depending upon the model and/or option code for the 7.2 kW charger for the e-Golf SE models.

If you have any questions, please let me know.

Best regards,

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone:

Fax:

mailto:

Ex. 7

To: Ex. 7 @vw.com]
From: Sohacki, Lynn
Sent: Fri 12/18/2015 4:22:09 PM
Subject: RE: Notification of EPA in-use class W116/W117

Thanks for confirming.

I'm glad Dennis is enjoying his retirement and that he looks cool with his new beard!

Lynn

From: Ex. 7 @vw.com]
Sent: Friday, December 18, 2015 11:08 AM
To: Sohacki, Lynn <sohacki.lynn@epa.gov>; Glas, Tobias <Tobias.Glas@vw.com>
Subject: RE: Notification of EPA in-use class W116/W117

Yes, that is perfect.

From: Sohacki, Lynn [mailto:sohacki.lynn@epa.gov]
Sent: Friday, December 18, 2015 10:57 AM
To: Ex. 7 @vw.com>; Glas, Tobias <Tobias.Glas@vw.com>
Subject: RE: Notification of EPA in-use class W116/W117

Hi, Ex. 7

Thanks for the email. We will put you down as our point of contact for Audi and VW in-use communications.

Until I hear differently, you will be the point of contact as a replacement for both Tobias and Dennis, is that right?

Enjoy the holidays!

Lynn

From: Ex. 7 @vw.com]
Sent: Friday, December 18, 2015 9:47 AM
To: Glas, Tobias <Tobias.Glas@vw.com>; Sohacki, Lynn <sohacki.lynn@epa.gov>
Subject: RE: Notification of EPA in-use class W116/W117

Good morning Lynn,

As Tobias mentioned, he will be returning to Germany next week and I can serve as a point of contact for now. My information is below. Beginning Jan 11th, Garett Horton will be returning from his assignment in Germany and the current plan is for Garett to take over Tobias's role. I will keep you informed of the transition.

For now, could you please do me a favor and update your contact person on record from Dennis Reineke to myself. We can then change to Garett once his assignment supporting In-Use testing is finalized. After a long career with VW, Dennis was able to retire earlier in 2015 and is now enjoying his time off and growing a pretty cool looking beard!

Thanks and enjoy the holiday season,

Ex. 7

Ex. 7

Engineering and Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road
Auburn Hills, MI 48326
Phone:
Cell: (
FAX: (
E-Mail:

Ex. 7

From: Glas, Tobias
Sent: Friday, December 18, 2015 8:21 AM
To: Sohacki, Lynn (sohacki.lynn@epa.gov) <sohacki.lynn@epa.gov>
Cc: Ex. 7 @vw.com>
Subject: FW: Notification of EPA in-use class W116/W117

Hello Lynn,

Thank you for the information.

My contract is up so I am moving back to Germany next week.

Please contact my manager Nick Tamborra for all In-Use and Surveillance topics in the future.

It was always a pleasure to work with you, I wish you all the best and happy holidays ! ☺

Tobias

From: Sohacki, Lynn [mailto:sohacki.lynn@epa.gov]
Sent: Thursday, December 17, 2015 4:59 PM
To: Glas, Tobias <Tobias.Glas@vw.com>
Subject: Notification of EPA in-use class W116/W117

Hi, Tobias.

I recently sent a letter to your company as notification of an upcoming in-use class. Attached, please find a copy of that letter for your convenience. Let me know if you have any questions.

Thank you,

Lynn Sohacki

Compliance Division

Environmental Protection Agency

734-214-4851

734-214-4869 fax

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ex. 7
Ex. 7
Ex. 7
From: Ex. 7
Sent: Fri 12/18/2015 6:30:21 PM
Subject: VW Group - MY2016 Decision Request / Running Changes to add Beetle Dune / Beetle Dune Convertible

Hello Jim,

Today we submitted the following 4 decision requests and related Running changes, for the addition of 2 new carlines and FEDV vehicle configurations, as shown below.

Note, the engines and transmission are as already certified for other models in this testgroup:

Test Group	Vehicle ID	Cfg.	Purpose	Carline
	Engine / Transmission			
GVGAV02.0VPD	WW411-4-0167/16B	0	FEDV	Beetle
Dune	CPRA / SA6			
GVGAV02.0VPD	WW411-4-0167/16B	0	FEDV	Beetle Dune
Convertible	CPRA / SA6			
GVGAV02.0VBD	WW411-4-0168/16B	0	FEDV	Beetle
Dune	CPKA / SA6			
GVGAV02.0VBD	WW411-4-0168/16B	0	FEDV	Beetle Dune
Convertible	CPKA / SA6			

Related running change letters and revised applications have been submitted for both of the above applications.

Please advise of your decision at your earliest convenience. We will request a revised certificate after the holidays, once we still are set up for the new system.

Thanks,

Ex. 7

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone:

Fax:

mailto:

Ex. 7

To: Ex. 7 @vw.com]
Cc: Glas, Tobias[Tobias.Glas@vw.com]; Snyder, Jim[Snyder.Jim@epa.gov]; Liebner, Bernd[liebner.bernd@epa.gov]
From: Pidgeon, Bill
Sent: Fri 12/18/2015 7:54:55 PM
Subject: RE: IUVP submission

Hi Ex. 7

Thank you for the introduction and contact information.

I am assuming that VW will continue to work with the help desk to resolve the problems with the IUVP data entry problems that Tobias discussed.

I handle IUVP waiver requests and IUVP policy issues, in contrast to the IUVP Help Desk, who are the Verify technical experts for database issues, like problems with data entry. However, I am the first point of contact for data entry problems caused by the "Earliest or Latest Allowed Submission Dates." For the 2014MY, the latest allowed submission date is 1/30/2016, so I'm assuming the problem is being caused by a technical issue that will require guidance from the Help Desk.

Best wishes,

Bill

****

William M. Pidgeon
Mechanical Engineer
U.S. Environmental Protection Agency
Compliance Division, N69
2000 Traverwood Drive
Ann Arbor, MI 48105-2195
pidgeon.bill@epa.gov

Phone: 734-214-4416
Fax: 734-214-4869

From: Ex. 7 @vw.com]
Sent: Friday, December 18, 2015 9:38 AM

To: Glas, Tobias <Tobias.Glas@vw.com>; Pidgeon, Bill <pidgeon.bill@epa.gov>; Snyder, Jim <Snyder.Jim@epa.gov>; Liebner, Bernd <liebner.bernd@epa.gov>
Subject: RE: IUVP submission

Good morning Bill, Jim, Bernd,

As Tobias mentioned, he will be returning to Germany next week and I can serve as a point of contact for now. My information is below. Beginning Jan 11th, Garett Horton will be returning from his assignment in Germany and the current plan is for Garett to take over Tobias's role. I will keep you informed of the transition.

Thanks and enjoy the holiday season,

Ex. 7

Ex. 7

Engineering and Environmental Office

Volkswagen Group of America, Inc.
3800 Hamlin Road
Auburn Hills, MI 48326
Phone
Cell: (
FAX:
E-Mai

Ex. 7

From: Glas, Tobias
Sent: Friday, December 18, 2015 8:28 AM
To: Pidgeon, Bill (pidgeon.bill@epa.gov) <pidgeon.bill@epa.gov>; Snyder, Jim (Snyder.Jim@epa.gov) <Snyder.Jim@epa.gov>; Liebner, Bernd <liebner.bernd@epa.gov>
Cc: Ex. 7 @vw.com>
Subject: FW: IUVP submission

Hi Bill, hi Jim, hi Bernd,

I had problems to submit test results into CDX in the last days and couldn't figure out why. So far I did not get any help from the helpdesk either.

Therefore I have a bunch of test results (passing and some not passing the emission standards) that are not submitted yet.

My contract in the US is up and I am moving back to Germany next week so my successor will take care of it.

For all In-Use related / Surveillance topics, please contact my manager Nick Tamborra.

I always enjoyed working with you and wish you happy holidays.

Tobias

From: Glas, Tobias
Sent: Tuesday, December 08, 2015 4:12 PM
To: 'evcishelpdesk@epacdx.net' <evcishelpdesk@epacdx.net>
Subject: IUVP submission

Hi,

I tried to submit a IUVP result and it got rejected with a fault that I never saw before.

Can you help me to figure out what went wrong?

Thanks for your help.

Tobias Glas

Engineering & Environmental Office

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

United States of America

Phone: (248) 754-4211

Cell: (248) 494-1537

Fax: (248) 754-4207

E-Mail: Tobias.Glas@vw.com

To: Ex. 7
Cc: Ex. 7

From: Snyder, Jim
Sent: Fri 12/18/2015 9:47:21 PM
Subject: RE: VW Group - MY2016 Decision Request / Running Changes to add Beetle Dune / Beetle Dune Convertible

I see the waiver requests now that I looked for them but I didn't receive an email notification for some reason.

From: Ex. 7
Sent: Friday, December 18, 2015 1:30 PM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Cc: Ex. 7 Ex. 7

Subject: VW Group - MY2016 Decision Request / Running Changes to add Beetle Dune / Beetle Dune Convertible

Hello Jim,

Today we submitted the following 4 decision requests and related Running changes, for the addition of 2 new carlines and FEDV vehicle configurations, as shown below.

Note, the engines and transmission are as already certified for other models in this testgroup:

Test Group	Vehicle ID	Cfg.	Purpose	Carline
	Engine / Transmission			
GVGAV02.0VPD	WW411-4-0167/16B	0	FEDV	Beetle Dune
	CPRA / SA6			
GVGAV02.0VPD	WW411-4-0167/16B	0	FEDV	Beetle Dune Convertible
	CPRA / SA6			

GVGAV02.0VBD Dune	WW411-4-0168/16B CPKA / SA6	0	FEDV	Beetle
GVGAV02.0VBD Convertible	WW411-4-0168/16B CPKA / SA6	0	FEDV	Beetle Dune

Related running change letters and revised applications have been submitted for both of the above applications.

Please advise of your decision at your earliest convenience. We will request a revised certificate after the holidays, once we still are set up for the new system.

Thanks,

Ex. 7

Engineering & Environmental Office (EEO)

Volkswagen Group of America, Inc.

3800 Hamlin Road

Auburn Hills, MI 48326

Phone:

Fax:

mailto:

Ex. 7

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Allen, Gregory (EEO)
Sent: Fri 12/18/2015 9:47:24 PM
Subject: Automatic reply: VW Group - MY2016 Decision Request / Running Changes to add Beetle Dune / Beetle Dune Convertible

Hello,

I am currently out of the office for the holidays. I will be returning to the office on Monday, January 4th.

I will not have access to e-mail or phone during this time.

Thank You and Happy Holidays

Greg Allen

VWGoA EEO

To: Snyder, Jim[Snyder.Jim@epa.gov]
From: Thomas, Richard (EEO)
Sent: Fri 12/18/2015 9:47:24 PM
Subject: Automatic reply: VW Group - MY2016 Decision Request / Running Changes to add Beetle Dune / Beetle Dune Convertible

Thanks for your mail....the offices are closed for the Winter Break and will reopen on Monday January 4th 2016.

To: Allnutt, David[Allnutt.David@epa.gov]; Anderson, Lea[anderson.lea@epa.gov]; Anderson, Steve[Anderson.Steve@epa.gov]; Aranda, Amber[aranda.amber@epa.gov]; Averback, Jonathan[Averback.Jonathan@epa.gov]; Belser, Evan[Belser.Evan@epa.gov]; Bianco, Karen[Bianco.Karen@epa.gov]; Bogoshian, Matthew[Bogoshian.Matt@epa.gov]; Branning, Amy[Branning.Amy@epa.gov]; Bunker, Byron[bunker.byron@epa.gov]; Chapman, Apple[Chapman.Apple@epa.gov]; Choi, Jake[Choi.Jake@epa.gov]; Cozad, David[Cozad.David@epa.gov]; Crum, Lynda[Crum.Lynda@epa.gov]; Crystal, Roy[crystal.roy@epa.gov]; Davis, Julian[davis.julian@epa.gov]; Dickinson, David[Dickinson.David@epa.gov]; Dierker, Carl[Dierker.Carl@epa.gov]; Dolph, Becky[Dolph.Becky@epa.gov]; Doster, Brian[Doster.Brian@epa.gov]; Dubey, Susmita[dubey.susmita@epa.gov]; Dubois, Roland[Dubois.Roland@epa.gov]; Frey, Bert[frey.bertram@epa.gov]; Froikin, Sara[Froikin.Sara@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Graham, Cheryl[Graham.Cheryl@epa.gov]; Harrison, Ben[Harrison.Ben@epa.gov]; Hoffman, Howard[hoffman.howard@epa.gov]; Hogan, Stephanie[Hogan.Stephanie@epa.gov]; Holmes, Carol[Holmes.Carol@epa.gov]; Igoe, Sheila[Igoe.Sheila@epa.gov]; Jordan, Scott[Jordan.Scott@epa.gov]; Kaplan, Robert[kaplan.robert@epa.gov]; Kataoka, Mark[Kataoka.Mark@epa.gov]; Klepp, Robert[Klepp.Robert@epa.gov]; Knapp, Kristien[Knapp.Kristien@epa.gov]; Lee, Michael[lee.michaelg@epa.gov]; Lovett, Lauren[Lovett.Lauren@epa.gov]; Mackey, Cyndy[Mackey.Cyndy@epa.gov]; Manners, Mary[manners.mary@epa.gov]; Marks, Matthew[Marks.Matthew@epa.gov]; Matthews, Julie[Matthews.Juliane@epa.gov]; McConkey, Diane[Mcconkey.Diane@epa.gov]; Mclean, Kevin[Mclean.Kevin@epa.gov]; Moore, Bruce[Moore.Bruce@epa.gov]; Morgan, Jeanette[Morgan.Jeanette@epa.gov]; Muller, Sheldon[Muller.Sheldon@epa.gov]; Niebling, William[Niebling.William@epa.gov]; Nguyen, Quoc[Nguyen.Quoc@epa.gov]; Adair, Jocelyn[Adair.Jocelyn@epa.gov]; Odendahl, Steve[Odendahl.Steve@epa.gov]; Okoye, Winifred[Okoye.Winifred@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Pastorkovich, Anne-Marie[Pastorkovich.Anne-Marie@epa.gov]; Roberts, Martha[Roberts.Martha@epa.gov]; Rodman, Sonja[Rodman.Sonja@epa.gov]; Rowland, John[Rowland.John@epa.gov]; Schaaf, Eric[Schaaf.Eric@epa.gov]; Schmidt, Lorie[Schmidt.Lorie@epa.gov]; Senn, John[Senn.John@epa.gov]; Shenkman, Ethan[Shenkman.Ethan@epa.gov]; Silverman, Steven[silverman.steven@epa.gov]; Smith, Kristi[Smith.Kristi@epa.gov]; Snyder, Doug[Snyder.Doug@epa.gov]; Srinivasan, Gautam[Srinivasan.Gautam@epa.gov]; Stahle, Susan[Stahle.Susan@epa.gov]; Starfield, Lawrence[Starfield.Lawrence@epa.gov]; Stern, Allyn[Stern.Allyn@epa.gov]; Tate, Ragan[Tate.Ragan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Tierney, Jan[tierney.jan@epa.gov]; Ting, Kaytrue[Ting.Kaytrue@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Versace, Paul[Versace.Paul@epa.gov]; Vetter, Rick[Vetter.Rick@epa.gov]; Walker, Mike[Walker.Mike@epa.gov]; Ward, W. Robert[Ward.Robert@epa.gov]; Werner, Jacqueline[Werner.Jacqueline@epa.gov]; Wilcox, Geoffrey[wilcox.geoffrey@epa.gov]; Williams, Brent[Williams.Brent@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Williamson, Timothy[Williamson.Tim@epa.gov]; Zenick, Elliott[Zenick.Elliott@epa.gov]; Wills, Jennifer[Wills.Jennifer@epa.gov]; Conger, Nick[Conger.Nick@epa.gov]; Blake, Wendy[Blake.Wendy@epa.gov]; Schramm, Daniel[Schramm.Daniel@epa.gov]; Vergeront, Julie[Vergeront.Julie@epa.gov]; Tozzi, Lauren[Tozzi.Lauren@epa.gov]; Coursen, David[Coursen.David@epa.gov]; Pilchen, Zach[Pilchen.Zach@epa.gov]; Skinner-Thompson, Jonathan[Skinner-Thompson.Jonathan@epa.gov]; Vijayan, Abi[Vijayan.Abi@epa.gov]; Roder, Aileen[Roder.Aileen@epa.gov]; Walker, Denise[Walker.Denise@epa.gov]; Caballero, Kathryn[Caballero.Kathryn@epa.gov]; Thompson, Christopher[Thompson.Christopher@epa.gov]; Williams, Christopher[Williams.Christopher@epa.gov]; Matthew, Dayna[Matthew.Dayna@epa.gov]; Reid, Lauren[Reid.Lauren@epa.gov]; Hammons, Jeffrey[Hammons.Jeffrey@epa.gov]; Morris, Rachel[Morris.Rachel@epa.gov]; Nguyen, DucH[Nguyen.DucH@epa.gov]; Jordan, Deborah[Jordan.Deborah@epa.gov]; Charlton, Tom[Charlton.Tom@epa.gov]; Kulschinsky, Edward[Kulschinsky.Edward@epa.gov]; Portmess, Jessica[Portmess.Jessica@epa.gov]; Kaminer, Joan[Kaminer.Joan@epa.gov]; Kryman, Matthew[Kryman.Matthew@epa.gov]; Greenglass, Nora[Greenglass.Nora@epa.gov]; Spina, Providence[Spina.Providence@epa.gov]; Firestine, Natalie[firestine.natalie@epa.gov]; Bond, Alexander[Bond.Alexander@epa.gov]
From: Turley, Jennifer

Sent: Tue 12/22/2015 4:17:04 PM
Subject: Air & Radiation Law News for December 22, 2015

Air & Radiation Law News

for December 22, 2015

Bloomberg BNA **Daily Environment Report™**

Air Pollution

California to Act on VW Recall Plan by Jan. 14

California environmental regulators intend to act by Jan. 14 on Volkswagen's proposed recall plan to fix two-liter diesel vehicles outfitted with illegal emissions-cheating technology. The California Air Resources Board originally...

Air Pollution

Ontario Updating Guidance on Air Emissions Standards

The Ontario government has published for public comment proposed updates of its technical guidance on how industrial facilities meet the province's air pollution standards and related technical guidance

documents on modeling of air...

Climate Policy

Inhofe Questions CEQ's Authority With Vacant Chair

Sen. James Inhofe (R-Okla.), chairman of the Environment and Public Works Committee, is questioning the legal authority of the White House Council on Environmental Quality given it has gone without a Senate-confirmed leader for more than...

Climate Regulation

Lawsuits Key After Obama Vetoes Power Plant Resolutions

The Environmental Protection Agency is opposed to expedited judicial review of its Clean Power Plan as bids to block the agency's carbon dioxide rules return to the courts following President Barack Obama's veto of congressional...

Coal Mining

Half of World's Coal May Go Unmined to Meet Climate Target

Coal, the fuel that powered the industrial revolution, is in hiding....

Energy

DOE Seeks Comments on Siting for Nuclear Waste Storage

The Energy Department is seeking public comment on its siting process for long-term nuclear waste storage repositories for commercial and defense-generated nuclear waste....

International Climate

Energy Sector Not Ready for Paris Deal's Carbon Cuts

Energy companies are least prepared to meet carbon-cutting targets recently agreed upon in Paris by nearly 200 nations, according to an analysis by index provider MSCI Inc....

Oil & Gas

TransCanada Files Pipeline Routing Changes

TransCanada Corp. has filed an amended application and cost estimate with Canada's National Energy Board for its Energy East project to move oil from the Alberta oil sands to the country's Atlantic Coast citing concerns about environmentally...

Renewable Energy

How an Australian Mining Town Became a Solar Power Trailblazer

Broken Hill spawned the world's largest mining company and generated more than $75 billion in wealth. Now as its minerals ebb, Australia's longest-lived mining city is looking to tap a more abundant resource....

Renewable Energy

Sun Sets on Nevada Home Solar Subsidy

It's about to get more expensive for homeowners to go solar in Nevada....

BNA INSIGHTS

EPA Next Generation Compliance: A Sea Change or Modest Modernization Effort?

The United States Environmental Protection Agency's Office of Enforcement and Compliance Assurance has embarked upon a multifaceted Next Generation Compliance Initiative that, if fully implemented, has the potential to increase...

INTERVIEW

See Current Bloomberg BNA Interview: NRC Preparing for Modular Reactors, Reducing Staff in 2016

Inside EPA's **Risk Policy Report**, 12/22/2015

http://insideepa.com/newsletters/risk-policy-report

Latest News

Industries Warn Of Costs From Proposed EPA Air Testing Method Changes

Groups representing a host of industries are warning that EPA's proposed changes to numerous testing regulations, methods and performance specifications for air pollution will be too expensive to implement, and are asking the agency to instead retain some existing requirements such as those for detecting volatile organic compounds (VOCs).

EPA Cautions Low Gas Prices Could Dampen Vehicle Efficiency Estimates

EPA is cautioning that sharply lower gasoline prices could undercut its preliminary findings about improved fuel efficiency among light-duty vehicles, sending a mixed message for the prospects that the administration will retain its car and light truck fuel economy and greenhouse gas standards just as officials are preparing to launch a mid-term review.

News Briefs

Obama Vetoes Resolutions Designed To Kill ESPS, NSPS

President Obama has followed through on his threat to veto two resolutions designed to disallow EPA rules on reducing new and existing power plants' greenhouse gas emissions.

Greenwire

CLEAN POWER PLAN:

EPA critics throw down gauntlet in legal fight

Robin Bravender, E&E reporter

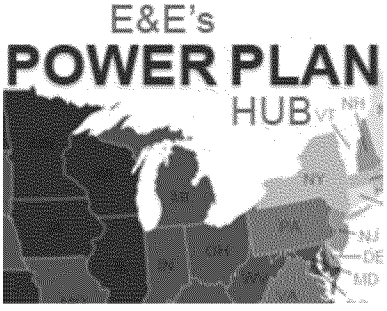
Published: Monday, December 21, 2015

The many foes of U.S. EPA's Clean Power Plan are preparing to attack the Obama administration on a host of legal fronts as the court battle over the embattled rule gets underway.

States, industries and other groups challenging the rule to clamp down on power plants' greenhouse gas emissions laid out their legal strategies in documents sent to a federal appeals court last week.

Among their key accusations: EPA illegally issued duplicative rules for coal-fired power plants; the rule infringes on states' rights; the agency intrudes on federal energy regulators' turf; and EPA doesn't have the authority to force states to transform their energy systems to favor certain sources of electricity.

The themes are familiar.



States and industry groups raised similar concerns when they asked the U.S. Court of Appeals for the District of Columbia Circuit earlier this year to halt EPA's proposed rule. That effort failed, but the same groups -- plus many more -- are now challenging the final Clean Power Plan in the same court. EPA's opponents have asked the judges to halt the rule while the litigation moves forward, and the court is expected to decide early next year whether to block the rule.

In these latest filings, EPA's critics are previewing the arguments they'll make when the judges dig into the merits of the case.

Central to their arguments is the contention that EPA's climate rule illegally regulates power plants under two sections of the Clean Air Act.

The Clean Power Plan regulates existing power plants under Section 111(d) of the clean air law. But two versions of that section were signed into law, one from the Senate and one from the House. Critics of the EPA rule contend that one version bars EPA from issuing standards under 111(d) for sources of pollution already covered by other regulations. A 2011 Obama administration rule regulates power plants under Section 112 of the clean air law, so foes of the climate rules say the 111(d) regulation is unlawful.

That issue was the first one raised in several of the court filings last week, including those submitted by North Dakota, the National Mining Association, the National Rural Electric Cooperative Association, the American Coalition for Clean Coal Electricity and a coalition of 24 states led by West Virginia.

Although EPA's opponents see that argument as a winner, the Obama administration and its allies argue the other version of Section 111(d) -- the one that originated in the Senate -- says only that EPA cannot redundantly regulate a pollutant. That would allow its greenhouse gas rule. They also say the two versions are ambiguous and that the agency deserves deference from the court in interpreting unclear statutory language.

Challengers have a host of other arguments planned, including questioning EPA's authority to regulate "beyond the fence line" of power plants.

Electric utility groups including the Utility Air Regulatory Group and the American Public Power Association plan to attack EPA's authority to "require the curtailment or closure of affected facilities and replacement of their generation by EPA-preferred sources such as wind, solar, geothermal and hydroelectric power, rather than relying on feasible improvements in emissions performance of existing fossil fuel-fired" utilities, according to the list of issues they submitted.

The National Mining Association will question whether EPA "has the authority to force states to transform their energy economies to favor only certain sources of electricity, under the guise of regulating power plants."

Several petitioners, including Murray Energy Corp., plan to argue that EPA's rule intrudes on the Federal Energy Regulatory Commission's authority to regulate the interstate electricity market.

The coalition of states led by West Virginia also raised a number of state-specific legal questions. Among them: Was EPA's treatment of nuclear energy sources in Arkansas illegal? Does the rule unlawfully limit fuel diversity in New Jersey, thereby presenting reliability and cost concerns? Was Texas illegally punished in the area of wind energy under the rule? And did EPA fail to consider the impact of the rule throughout Wyoming on the greater sage grouse and other "sensitive species"?

The conservative group Energy & Environment Legal Institute plans to question whether EPA allowed personnel "with conflicts of interest to draft the rule and failed to recuse decisionmakers with 'unalterably closed minds' from reaching the determination to implement the final rule."

EPA and its supporters in the lawsuit, meanwhile, have long insisted that the rule will withstand the court's scrutiny.

"I fully feel that once we get to the merits of this case, the agency is going to be in good shape," EPA general counsel Avi Garbow said earlier this fall. "We are quite proud of what we've done with the Clean Power Plan, and now the eyes are on the lawyers in many respects to ensure that we can defend it."

NEWSMAKER:

Crusading scientist showed link between ocean's decline, GHGs

Emily Yehle, E&E reporter

Published: Monday, December 21, 2015

It was the summer of 2006, and Italy was on its way to winning soccer's World Cup.

In a small Iceland town, more than 20 ocean experts from nine countries were gathered in a conference room to discuss marine carbon measurements and modeling. The European-heavy group decided to take a break to watch a game.

But Richard Feely stayed behind, huddled over data as his colleagues crowded around the television. It caught no one by surprise: A senior scientist at the National Oceanic and Atmospheric Administration, Feely is known for his intense focus on ocean chemistry.

"He's very dedicated to finding out how the ocean works," said Scott Doney, who was at the Iceland meeting and chairs the Woods Hole Oceanographic Institution's Marine Chemistry and Geochemistry Department. "He needs to know the answer. He thinks it's really important."

Feely's research has brought ocean acidification and its consequences to public attention. Scientists once didn't consider acidification a major threat, and some saw it as a positive: The more carbon dioxide the oceans absorbed, the less stayed in the atmosphere.

But in 2004, Feely and his colleagues laid bare the consequences in two landmark papers published back-to-back in *Science*. The papers brought together chemists and biologists to show not only how much man-

made carbon dioxide was absorbed into the ocean but also how that affected shell-forming organisms.

Chris Sabine, the lead author of one of those papers, said Feely connected the dots between disciplines -- a rare feat. The result got media interest and, eventually, a mandate from Congress to research ocean acidification.

Sabine calls the 68-year-old Feely "the face of ocean acidification."

"It's a combination of being an outstanding scientist, being very concerned about the world and how human activity is impacting it -- and, even more on a personal level, that he is very ... giving and fatherly," Sabine said.

"If the guy were a jerk, nobody would listen him, but he's not. He's a nice guy, and you know he has your best interests at heart," he said.

In discussing the fate of the oceans, Feely can be sobering.

Mankind, he said, is releasing carbon dioxide into the atmosphere -- and thus into the oceans -- far faster than any geological process. That is alarming in the wake of recent research tying Earth's greatest extinction event 252 million years ago to volcanic eruptions that made the oceans more acidic.

Without action, Feely said, we may be on a man-made path to similarly wipe out most marine life. As the ocean absorbs carbon dioxide, it lowers the water's pH and the saturation of calcium carbonate minerals that some species use to build shells.

The first consequences are already happening: Shellfish are dying, corals are disappearing and food webs may be changing.

Yet most of the public remains unaware of the problem.

"I'm worried that the understanding of the significance of that is not large enough to affect the political process," Feely said.

That concern has fueled his career. More than most scientists, Feely has ventured outside the lab, giving lectures that he admits may leave his audience "overwhelmed with the significance of the problem."

In 2008, he spoke at the annual meeting of the Pacific Coast Shellfish Growers Association. At the time, one of the area's largest oyster hatcheries was losing almost all its larvae, baffling industry and state officials.

Feely suggested that acidic waters might be the problem. The year before, he had led the first-ever survey to measure the amount of carbon dioxide along the Pacific Coast. Researchers found that the coast was particularly acidic -- the result of naturally carbon-rich upwellings joining carbon dioxide from man-made emissions.

Feely was right, and the shellfish industry took action, asking Congress to fund a monitoring system along the coast. Sen. Maria Cantwell (D-Wash.) successfully pushed through $500,000 in federal funding; today, seven monitoring stations provide data to farmers and scientists.

Feely and other scientists showed hatcheries how to raise water's pH by adding sodium carbonate. Larvae again made it to adulthood, and now hatcheries have automated systems.

"To me, that's a perfect example of how government is supposed to work," Feely said. "That's what encouraged me. I know we can do it if we get people together to do it."

Cousteau's influence

When Feely began his research into what is now called ocean acidification, few scientists were on the same path.

As a child in Minnesota, Feely loved watching videos of Jacques Cousteau and "fell in love with the idea of being an oceanographer." A love of nature -- and afternoons spent swimming, fishing and hiking -- set him on a path that eventually led to a career that has cracked open the risks of ocean acidification.

Feely began with a bachelor's degree in chemistry at the University of St. Thomas, moving on to Texas A&M University to get his doctorate in oceanography. He first studied the dirt of the ocean, but a professor soon urged him to find something more likely to get him a job. In 1974, he moved to Seattle and began a chemical oceanography program at NOAA.

Soon, Feely began noticing excess carbon during research cruises. In the early 1990s, he helped launch a 10-year global survey of the world's oceans. The project involved 12 labs and almost 100 research cruises. Sabine, who was also a researcher on the project, called it "the most intense geochemical survey that had ever been done."

The project involved the analysis of tens of thousands of seawater samples. The resulting 2004 papers in *Science* kicked off a growing interest and awareness in the scientific community. In the past year alone, scientists have published hundreds of papers on the subject.

Sabine remembers "riding the media wave" in the months after the studies were published. Suddenly, he and Feely were fielding questions from both journalists and lawmakers. They testified in front of Congress and conducted numerous briefings on Capitol Hill.

The eventual result was the Federal Ocean Acidification Research and Monitoring Act, or the FOARAM Act. Passed in 2009, it led to the creation of NOAA's Ocean Acidification Program.

Sabine credited Feely's "strong push and outgoing proactive nature" for the law's passage and NOAA's central role in it.

Today, 11 agencies tackle ocean acidification, setting priorities across the government, and the National Science Foundation has directed about $11 million since 2010 to ocean acidification research.

Jan Newton, a principal oceanographer with the Applied Physics Laboratory of the University of Washington, said one of Feely's strengths is not staying within his niche; he instead reaches out to other scientists, policymakers and stakeholders.

"Dick is one of the premier ocean acidification scientists in the world, and he and Chris Sabine and others have worked so hard to formulate what the nation's response should be," she said. "It's very clear his leadership has made an enormous difference not only to our global understanding but also our national understanding and our local understanding."

Newton has known Feely "as a human" since 1990, although she said she knew of his research while still a graduate student in the 1980s. In 2008, she invited him on a cruise in Puget Sound, where they found that the waters were more acidic than expected.

The resulting study, authored by Feely, Newton and several others, attributed as much as 49 percent of

the pH decrease in the deep waters of the Hood Canal subbasin to ocean acidification. Other factors -- natural and man-made -- amplified that effect, highlighting how estuaries may see changes more rapidly than the open ocean.

Feely's next focus is helping develop new technology to better measure the global distribution of carbon dioxide. In 2012, he helped create the Global Ocean Acidification Observing Network, which aims to use ship surveys, moorings, floats and gliders that provide necessary data from around the world.

A NOAA-funded project, for example, aims to develop surface wave gliders -- instruments that resemble surfboards -- to take continuous measurements. The agency has also deployed moorings that collect carbon dioxide data from surface seawater every few hours, relaying the information back to scientists.

That's a far cry from how Feely started out, painstakingly taking measurements on monthslong research cruises. He has spent more than 1,000 days at sea -- and continues to jump on a ship about once a year.

He still gets seasick. But, he explained, "after the first couple of days, I'm fine."

Father on the high seas

All those days away meant Feely's wife, a recently retired nurse supervisor, was often left alone to not only handle their three kids but also deal with household emergencies -- including, in one instance, a water main break.

"She always said the major life events occur when you're out to sea," Feely joked. But Sabine jokingly attributed Feely's experience as a father to his success on cruises, where he often oversees a few dozen scientists who are in close quarters and working 12-hour shifts.

On board, scientists are either working, eating, exercising or sleeping -- and maybe watching a "shoot 'em up" movie at the end of a shift. In that environment, personalities clash, but Feely "is good at calming a situation," Sabine said.

Sabine started his career under Feely, meeting him in the late 1980s as a graduate student at the University of Hawaii. He later became part of a global carbon survey where Feely was one of the principal investigators; when the 10-year program ended, Feely hired Sabine to join his lab.

Three years ago, Sabine became Feely's boss, taking over as director of NOAA's Pacific Marine Environmental Laboratory. The switch "could have been totally awkward and weird," Sabine said, but the two longtime friends and colleagues made the transition easily.

At sea, Feely similarly navigates the sometimes complex relationships among scientists.

"He really loves what he does, and he's a great scientist. He's just generally a great and kind person," Sabine said. "Everyone kind of looks to him as a father figure."

Newton agreed. At 2 a.m. in the ship's galley, she said, Feely is always up for a chat about science or just "life stuff."

"He really is thinking about other people and how to make things better for the common good," Newton said. "When you're around a person like that, it just makes the experience a lot nicer because there isn't a hidden agenda, there isn't an ego. You're just dealing with a person who wants to get the best science going forward and then have a very enjoyable time."

WHITE HOUSE:

Obama vetoes measures to kill carbon rule, inks spending deal

Amanda Reilly, E&E reporter

Published: Monday, December 21, 2015

As expected, President Obama has vetoed two resolutions aimed at killing U.S. EPA's carbon rules for power plants.

Congress passed the resolutions quashing the central piece of Obama's climate change agenda in the hope of embarrassing the administration during the recent international negotiations in Paris. S.J. Res. 23 targeted EPA's rule to reduce carbon dioxide emissions from new and modified power plants, while S.J. Res. 24 would eliminate the Clean Power Plan.

Obama had previously threatened to veto both resolutions. The president said Friday in a pair of memorandums explaining his vetoes that the regulations were essential to addressing climate change.

"It is past time to act to mitigate climate impacts on American communities," Obama said of the existing power plant rule. "Because the resolution would overturn the Clean Power Plan, which is critical to protecting against climate change and ensuring the health and well-being of our Nation, I cannot support it."

The Obama administration leaned heavily on the power plant rules at the recent international climate negotiations in Paris to demonstrate the United States' commitment to addressing climate change.

At the talks, nations agreed to prevent global temperatures from rising more than 2 degrees Celsius above preindustrial levels and said countries will "pursue efforts" to limit warming to 1.5 degrees. The deal also requires countries to update their emissions reduction pledges by 2020 and every five years afterward.

Along with vetoing the resolutions Friday, Obama signed into law the omnibus fiscal 2016 spending bill to fund the government through September 2016. The legislation represents a victory for the president's climate change agenda, as congressional Republicans dropped policy riders aimed at killing or weakening the Clean Power Plan.

The spending agreement also allows Obama to make good on his word to provide money for the Green Climate Fund, a U.N.-launched fund to provide developing countries with money to curb their greenhouse gas emissions and address the effects of warming (*Greenwire*, Dec. 16).

House Republicans critical of the administration's climate agenda on Friday introduced a sense-of-Congress resolution in opposition to the Paris deal. Rep. David McKinley (R-W.Va.) introduced the resolution with Republican Reps. Keith Rothfus of Pennsylvania, Morgan Griffith of Virginia and Andy Barr of Kentucky.

In a statement, McKinley criticized the Obama administration for "deliberately" shaping the Paris climate deal to circumvent Congress. He further called the Paris deal "window dressing" and a "feel-good exercise" that would have little impact.

"While the aftermath of the agreement has been full of self-congratulatory applause and high-minded rhetoric about saving the planet, the real impact of the agreement is questionable," McKinley said. "It

appears to be more about President Obama's desire to embellish his legacy than making a tangible difference in global temperatures."

At his year-end press conference Friday, Obama expressed optimism that the climate deal would survive the presidential election next year, regardless of whether a Democrat or Republican enters the White House.

"Do I think there's going to be a lot of noise and campaigning next year about how we're going to stop Paris in its tracks? There will probably be a lot of noise like that," Obama said Friday. "Do I actually think that two years from now, three years from now, even Republican members of Congress are going to look at it and say that's a smart thing to do? I don't think they will" (*E&ENews PM*, Dec. 18).

FEDERAL WORKFORCE:

Obama approves 1.3% pay raise

Kevin Bogardus, E&E reporter

Published: Monday, December 21, 2015

President Obama has signed off on an average 1.3 percent pay raise for federal employees next year.

On Friday, the president issued an executive order that would have much of the government workforce see a bump in salary for 2016. The Office of Personnel Management offered more details in a separate memorandum, also released Friday. The raise will take effect on the first applicable pay period after Jan. 1, 2016.

Some federal employees may even see more money next year. The Obama administration has also created new locality zones that should raise pay for federal employees living in higher-cost areas (*Greenwire*, Oct. 28).

Obama's pay raise for federal employees is in line with his budget proposal earlier this year. It's also an increase from past pay bumps, which had been at 1 percent the last two years after a three-year pay freeze for the federal workforce (*Greenwire*, Dec. 22, 2014).

Democrats and federal worker unions had campaigned earlier this year for a higher raise for government employees, throwing their support behind legislation that would approve a 3.8 percent pay raise. Nevertheless, J. David Cox, the president of the American Federation of Government Employees, told reporters last week that the future looks "a little brighter" for federal employees thanks in part to the higher pay raise signed off by Obama.

"We have gone from three years of a pay freeze to two years of 1 percent. Thank God we're at least 1 plus the locality, about 1.3 or something a little higher in some areas," Cox said. "They left our pensions alone. They left our health insurance alone. So the future does seem to look a little brighter than we were seeing at that point" (*E&ENews PM*, Dec. 16).

WHITE HOUSE:

Inhofe says response from CEQ 'falls far short'

Kevin Bogardus, E&E reporter

Published: Monday, December 21, 2015

Sen. James Inhofe (R-Okla.) is not happy with the White House Council on Environmental Quality.

In a letter sent Friday to Christy Goldfuss, CEQ's managing director, the Senate Environment and Public Works Committee chairman said the council had not resolved his questions nor provided any documents that were requested by the panel.

"As former Chairman [Barbara] Boxer articulated, and former CEQ Chairman [Nancy] Sutley committed, there is an expectation that CEQ officials will cooperate with the EPW Committee's oversight and provide witnesses and documents as requested," Inhofe said in the letter. "Your response falls far short of Ms. Sutley's commitment and my expectation now as Chairman of the EPW Committee."

Inhofe said it was "troubling" that CEQ wouldn't provide "basic information" about its work to his panel.

The committee chairman also said CEQ may not be operating within the law because it does not have a Senate-confirmed official running the council.

"The Obama Administration's attempt to have CEQ managed and overseen on an indefinite basis by a lower-level official who has not been subject to the advice and consent of the Senate is contrary to CEQ's legal authorities and the Vacancies Reform Act and falls far short of the President's constitutional duty to ensure the laws of the United States are faithfully executed," Inhofe said in his letter.

Last month, Inhofe questioned CEQ's legal authority to operate without a chairman approved by the Senate in a letter to President Obama. In a separate letter to Goldfuss, the senator asked for several documents, including operations manuals and legal memorandums (*E&ENews PM*, Nov. 20).

Goldfuss offered a brief response to Inhofe's request, saying the council had "appropriate authority" to operate.

"After Nancy Sutley, the former CEQ chair, resigned in February 2014, senior CEQ officials had appropriate authority to operate," Goldfuss said. "All documents referenced in your letter have been properly issued on behalf of, or in coordination with, CEQ."

The Obama administration hasn't named a nominee to take over CEQ since Sutley's resignation.

PEOPLE:

Prince of Monaco awarded for environmental, climate work

Published: Monday, December 21, 2015

Despite his country's reputation for excess and opulence, Prince Albert II of Monaco has become an outspoken activist for the environment, electric cars and addressing climate change.

The 57-year-old royal's advocacy for biodiversity and climate change research garnered him a U.N. Correspondents Association award, placing him alongside previous winners like former President Clinton and Sir Richard Branson.

Shortly after taking over as prince following the death of his father, the prince's first act was to ratify the

Kyoto Protocol. Since its founding in 2006, the Prince Albert II of Monaco Foundation has awarded nearly $40 million in grants for research into ocean acidification, overfishing and other science.

While it has no heavy industry, Monaco put forward one of the most ambitious greenhouse gas emissions reduction targets -- a 50 percent reduction by 2030 and carbon neutrality by 2050 -- at the recent Paris climate summit.

"It would have been preferable, of course, to start the process many years earlier, and a lot of question marks remain on how nations will ratify it, adhere to it and report their carbon reduction," he said. "But this is a remarkable ray of hope for our planet."

To meet the goal, even the principality's luxurious resorts must adhere to environmental rules about converting garbage into energy, recycling wastewater and sustainable architecture.

The monarch in a country renowned for its auto racing, Prince Albert is also a champion of electric cars, and last year, the country held its first ever FIA Formula E race, part of an international series of races for electric cars. Dubbed "the plugged-in prince," he drives a Tesla, and his palace runs on a fleet of Priuses (Hampton Sides, *New York Times*, Dec. 18). **-- DTB**

KEYSTONE XL:

S.D. regulators mull pipeline's fate

Manuel Quiñones, E&E reporter

Published: Monday, December 21, 2015

TransCanada Corp.'s Keystone XL oil pipeline from Canada is back on the South Dakota Public Utilities Commission's agenda tomorrow, more than a month after President Obama said the project was not in the nation's interest.

Commissioners have for months been reviewing whether to renew an existing permit for KXL to cross the state. It lapsed because of construction delays.

A list of environmental groups and Indian tribes last month asked the PUC to scrap the process following the president's denying KXL permission to cross the international border. Federal approval is among conditions for building the pipeline through South Dakota.

The groups wrote in November, "With the denial of the Presidential Permit, TransCanada is unable to comply with these key conditions imposed by the Commission in the 2010 Permit in that it cannot obtain the Presidential Permit for which it applied and it cannot comply with all applicable laws and rules."

An attorney for the PUC, however, said the company could continue seeking presidential approval. "The Commission simply ordered that construction may not being until a Presidential Permit is obtained," wrote Kristen Edwards this month. "With that in mind, no harm can come from denying the request to revoke the permit at this time."

In Nebraska, TransCanada last month decided to back away from obtaining a permit through the state's Public Service Commission (*Greenwire*, Nov. 18). The company had for years been moving forward under a governor-issued approval before deciding to change course and turn to the PSC.

"We believe it is inappropriate to ask the commission to continue to move forward on a process that has

legally set time lines, while we continue to consider our next course of action," said the company in a statement explaining the Nebraska move.

NUCLEAR POWER:

Calif. plans environmental review of Diablo Canyon

Published: Monday, December 21, 2015

California is planning a comprehensive environmental review of the state's last operating nuclear power plant.

Pacific Gas and Electric Co. is looking to extend its leases for the Diablo Canyon power plant's two structures in San Luis Obispo County. They're set to expire in 2018 and 2019.

Lt. Gov. Gavin Newsom (D) directed the State Lands Commission on Friday to review the coastal plant, arguing it should be fully subject to the California Environmental Quality Act. The plant did not undergo such a review when it opened in 1985.

"On the one hand we have Fukushima etched in our memories, and on the other hand we are tackling fossil-fuel-driven climate change," Newsom said. "This is incredibly complex and of no surprise that decisions have been avoided."

PG&E said it does not believe that issuing a new lease involves the CEQA in any way.

"Diablo Canyon power plant is a safe, clean, reliable and vital energy resource for PG&E's customers and a significant economic engine for the Central Coast," spokeswoman Blair Jones said Friday.

PG&E has faced stiff local opposition to Diablo Canyon's continued operation, with many activists citing the plant's proximity to the ocean and several fault lines (*Greenwire*, July 10; Rory Carroll, Reuters, Dec. 18). **-- BTP**

BIOFUELS:

Algae oil makers turn to kitchens as vehicle demand dries up

Published: Monday, December 21, 2015

Cheap oil and regulatory red tape are forcing many biofuel manufacturers to try new market areas.

Solazyme Inc. was founded to make algae-based car and truck fuel, but its newest product is an algae-based cooking oil. Other biofuel firms are moving to sell anti-aging lotions, algae ice cream, household cleaners and perfumes.

"Take a lack of forward progress and long-term energy policy in Washington and add $40-a-barrel oil to that, and the result is that with great effort we're just breaking even in specialized areas of fuels," Solazyme CEO Jonathan Wolfson said. "We still believe in the long-term potential for fuel, but it's just really hard right there right now" (Amy Harder, *Wall Street Journal*, Dec. 20). **-- BTP**

CYBERSECURITY:

U.S. power grid, dams vulnerable to hackers

Published: Monday, December 21, 2015

Iranian hackers have demonstrated the ability to get into and possibly sabotage the American power grid and other infrastructure such as dams and factories.

While tracking hackers who had taken housing files from the University of California, security researcher Brian Wallace uncovered passwords and diagrams related to dozens of U.S. power plants, according to an Associated Press investigation.

"If the geopolitical situation changes and Iran wants to target these facilities, if they have this kind of information, it will make it a lot easier," said Robert Lee, a former U.S. Air Force cyber warfare officer. "It will also help them stay quiet and stealthy inside" (Jonathan Fahey, AP/*Oklahoman*, Dec. 21).

For example, a small dam near New York City was hacked into from Iran in 2013, prompting worries up to the White House as Americans operate with more and more connectivity among their devices, vehicles and even infrastructure.

"Everything is being integrated, which is great, but it's not very secure," said Cesar Cerrudo, chief technology officer at IOActive Labs, a security consulting firm. The United States has more than 57,000 industrial control systems linked to the Internet, from air-conditioning units to large pipelines. This is more than any other country, according to researchers at the search engine Shodan.

It's more than a hypothetical threat. Last year, hackers took over the control system of a German steel plant and caused "massive" damage to a blast furnace, according to the German government.

The head of the National Security Agency revealed last year that hackers from Iran and other countries had reached the technical capability to take down U.S. power grids and other infrastructure (*EnergyWire*, Nov. 21, 2014).

Security officials were thus very concerned after obtaining intelligence about hackers getting into the controls of the U.S. dam. Though the attack was eventually traced to the very small and inconsequential Bowman Avenue Dam in Rye, N.Y., the White House and other federal officials took the threat seriously (Danny Yadron, *Wall Street Journal*, Dec. 20). **-- BTP**

ELECTRICITY:

Regulators struggle to control pot growers' energy use, emissions

Published: Monday, December 21, 2015

Marijuana-growing facilities are responsible for greenhouse gas emissions equivalent to that of every car, home and business in New Hampshire.

The exploding energy usage from the industry, which is legal for either recreational or medicinal use in 23 states, comes amid no regulations on whether growers have to use energy efficiently as they meet the demand for the drug. Customers who want to prevent the impacts of climate change may also not realize that their marijuana use contributes to significant levels of carbon emissions.

Regulators are still trying to figure out how to manage the growth.

"We are at the edge of this," Pennsylvania Public Utility Commissioner Pam Witmer said. "We are looking all across the country for examples and best practices" (Jennifer Oldham, Bloomberg, Dec. 21). **-- SP**

TRANSPORTATION:

Leaders look toward transformative technology in 2016

Ariel Wittenberg, E&E reporter

Published: Monday, December 21, 2015

Federal transportation officials are preparing for what they say will be a transformative year for the industry shaped by technological advances in everything from autonomous vehicles to energy storage.

Speaking to reporters Friday, Transportation Secretary Anthony Foxx said he will focus 2016 on making the Department of Transportation more agile to respond to these advances, saying the agency must be "a lot fleeter afoot" to keep up.

"Technology is emerging, and it hasn't settled down yet. It's like where mobile phones were 30 years ago -- you were surprised when someone had them, but now you're not," Foxx said. "I don't have an expectation that we will have final answers [in 2016] that are settled for the next 50 years, but I do have an expectation that our department, over the next year, is going to do a serious laying of foundation."

Part of that foundation is writing regulations for things like autonomous vehicles and "vehicle-to-vehicle technology," in which cars communicate in order to avoid accidents. Draft rules for both are expected in early 2016.

But Foxx -- who has marveled that "even George Jetson had to hold the steering wheel" -- said he hopes the department will be more visionary, helping communities to integrate those new technologies with things like zero-emissions vehicles, which are already on the market and growing in popularity as related infrastructure expands.

"I'll be talking a lot next year about technology and transportation and how we capture this moment, where this sector is dealing with a crush of opportunity and how we harness it and make it work for America," he said.

Robert Puentes, director of the Metropolitan Infrastructure Initiative at the Brookings Institution, said that while the transportation sector could be at a critical inflection point, it is incumbent on federal and local governments to think deliberately about how to leverage it.

He noted that not all advances in transportation have had a transformative effect. E-ZPass and other electronic toll payment methods, for example, "updated" highways and turnpikes across the country but did not "revolutionize" them the way that smart and electric vehicles could, Puentes said.

"It's a question of do we want a transportation future that is more high-tech but looks like how it looks today, or looks like something vastly different?" he said.

Puentes said DOT, as well as states and communities, should be thinking about how transportation can serve other policy goals like reducing greenhouse gas emissions or decreasing socio-economic inequity and then decide which technological advances are best-positioned to help those initiatives.

"The problem with transportation is that in the past century, transportation has only been about transportation," he said. "The idea is to take it out of the box and put it where it should be, which is in service of other goals."

Smart Cities

DOT's recently launched Smart Cities competition is one way to do that, experts say. In that contest, municipalities submit plans for how they would ease traffic and reduce greenhouse gases by integrating intelligent transportation systems, connected vehicles and automated vehicles as a means of strengthening transportation infrastructure. The winner will receive a $50 million grant to implement its plan (*Greenwire*, Dec. 8).

Vulcan Inc., the philanthropic organization of Microsoft co-founder Paul Allen, is supplying $10 million of the grant money and will help five finalist cities connect with consultants on how to do everything from installing electric vehicle charging to securing the troves of data that come with insuring smart transportation technology.

Speaking at a forum for contestants last week, DOT Deputy Assistant Secretary for Research and Technology Mark Dowd said the winning city is meant to provide a "playbook" for other cities.

"This is a different approach than the government usually takes," he said. "Usually, we spread the peanut butter as thin as possible so everybody gets some, but this time we decided to spend it all in one city that would get a lot of money so we can show the country what is possible."

Spencer Reeder, senior program officer for climate and energy at Vulcan, said his organization got involved in the project in order to help cities limit their vehicle-generated greenhouse gas emissions.

While electric vehicles are one obvious way to reduce them, Reeder noted that other technologies like smart streetlights that help ease congestion could go a long way toward improving air quality.

Reeder said Vulcan views its $10 million grant as "seed money," an investment whose returns will be reaped when cities other than the initial winner decide to make similar advances.

"Right now, people have a sense that something is actually changing in the transportation sector, but there are still big barriers that are limiting adoption," Reeder said, noting that when it comes to electric vehicles, for example, consumers are worried there are not enough charging stations. "Rather than chip away at those problems with incremental programs or grants, we were interested in doing something much bolder, much more ambitious. It's only through actual implementation and deployment of that holistic approach that other cities will gain the confidence to follow suit."

Stephen Ezell, vice president of global innovation policy at the Information Technology and Innovation Foundation, has advocated for more federal investment in smart transportation infrastructure. In May, he co-authored a report called "From Concrete to Chips," which found that investments in information technology systems for the transportation sector reap nine times the benefits investments in traditional infrastructure like bridges and new highway lanes do.

"Whether it's driverless cars or ridesharing or applications to help drivers avoid traffic and find parking, there is this whole new suite of technology that can be used to benefit society and increase quality of life," he said.

Ezell noted that South Korea had a similar initiative to build the smart city of Songdo from scratch and that other cities are now hoping to emulate that effort by adopting the same technologies.

"As a proof-of-concept test, it shows the maturity and the potential of these technologies," he said. "Many of these technologies are not on the precipice. They are ready. They are mature. The question is just how we are going to deploy them so they can start having real, quantifiable impacts on society."

EPA:

Agency revamping its information technology

Kevin Bogardus, E&E reporter

Published: Monday, December 21, 2015

U.S. EPA is reorganizing its information technology office.

Ann Dunkin, the agency's chief information officer, said EPA realized it needed to update her office soon after her arrival at the agency last year.

"Very shortly after I arrived, we had the first serious conversation about it, and it was quite apparent to me that we needed to change when we started talking about it," Dunkin said in an interview last week with Federal News Radio.

"Currently, we have offices ostensibly focused on collecting data and disseminating data, but those initial concepts which don't really work well today had gotten muddied over time, and offices were very mixed-up and the work load is very uneven between the various offices between the breadth of the work across the various offices."

Dunkin put together a "reorganization team" composed of agency staff from EPA's Washington, D.C., and Raleigh, N.C., offices. That team met with current and former employees, including past chief information officers for the agency, as well as those in the private sector, to discuss how to best rework EPA's digital presence.

Changes are now afoot at the agency, with Dunkin helping to create the new Office of Digital Service and Technical Architecture. In addition, she is setting up an Office of Customer Advocacy, Policy and Portfolio Management, as well as an Office of Enterprise Information Programs.

Those new offices and some other reworked programs under Dunkin's supervision should help streamline many of EPA's services online, making it easier for the agency to manage it for the public to use.

The reorganization has required some staff to shift positions, Dunkin said, and they may need new training. In addition, EPA will have to fill some jobs.

"We are going to have a combination of things going on: vacancies where we have identified high-level needs and we fill those jobs," Dunkin said. "We will have people who are changing jobs, and there is some cross-training that goes on between the previous person and the new person where they bring them up to speed on their work. And I'm sure there will be some folks where there is a real need for specific training and skill set, and we are more than happy to do that."

Dunkin, a former Hewlett-Packard Co. engineer and manager, has also been working to bolster EPA's cybersecurity in the wake of this year's massive data breach that compromised personal information for millions of federal employees (*Greenwire*, July 16).

She has been nominated by President Obama for assistant administrator of the Office of Environmental

Information at EPA. Her nomination, however, has not moved in the Senate yet (*Greenwire*, Dec. 18).

EPA:

Steel mill sets stage for narrow standard for civil rights complaints

Published: Monday, December 21, 2015

A complaint to U.S. EPA's Office of Civil Rights by Flint, Mich., residents in 1997 paved the way for what critics say is the office's high bar for civil rights determinations.

Residents filed a complaint to EPA when Select Steel applied for an air permit with the Michigan Department of Environmental Quality seeking to build a steel mill in the city. The mill would emit up to 100 tons of lead per year as well as other pollutants. State regulators approved the permit in 1998.

Though the mill was never built, EPA ruled against the complainants in the first formal decision it made on an alleged violation of Title VI of the Civil Rights Act of 1964.

EPA determined that adding a new pollution source to a community is not in itself a discriminatory impact. Rather, EPA must determine through data that emission levels will rise above legal limits the agency has developed to determine whether the project will harm the environment and human health.

"All federal agencies, including the EPA, must determine whether there is sufficient harm for a disparate impact complaint to be actionable," EPA said in a statement.

Environmental advocates say it's not that simple.

"Health-based standards have nothing to do with civil rights," said Marianne Engelman Lado, a senior attorney at Earthjustice. "The act of spewing the mercury is a disproportionate effect -- that's bad enough. It doesn't have to be peer-reviewed bad. It just has to be a bad effect" (Buford/Lombardi, Center for Public Integrity, Dec. 18). **-- SP**

NEVADA:

Lawmakers finalize $1B deal to lure Faraday to state

Published: Monday, December 21, 2015

Gov. Brian Sandoval (R) of Nevada signed four bills into law Saturday, finalizing a deal to bring a $1 billion electric car manufacturing plant to North Las Vegas.

Sandoval signed the documents after the Nevada Assembly approved three Senate bills that included tax abatements, tax credits, water and infrastructure at its vacant industrial park site.

Faraday Future, with financial backing from Chinese billionaire Jia Yueting, has laid out a plan to construct a 3-million-square-foot factory that it intends to begin producing electric vehicles by 2017.

During a trade mission to China, Sandoval met with Jia and said he was impressed with Faraday's vision.

"I honestly believe that it is going to change the trajectory and economy in southern Nevada and the state," he said. "This is one of those days we've done a good thing."

To entice the company to build its plant in Nevada, lawmakers approved $215 million in tax abatements and tax credits that will be available when certain benchmarks are met. Over 10 years, tax credits are said to total $38 million and abatements to total $176 million.

Faraday released a statement saying it was "very excited" by the news (Chereb/Whaley, Las Vegas *Review-Journal*, Dec. 20). **-- AK**

NEGOTIATIONS:

C2ES's Perciasepe says U.S. to pay diplomatic price if next administration rejects Paris deal

Published: Monday, December 21, 2015

Following a major turning point in the global discussion on climate change at the Conference of the Parties meeting earlier this month, what role will the private sector and state and local governments play in helping the United States meet its commitments? During today's OnPoint, Bob Perciasepe, president of the Center for Climate and Energy Solutions and the former deputy administrator of U.S. EPA, discusses the next steps for the deal, including Clean Power Plan implementation. He also talks about how a potential party shift in the White House could affect the deal's future.

Click here to watch today's OnPoint.

POWER PLAN HUB:

So it's come to this -- a Clean Power Plan haiku

Emily Holden and Rod Kuckro, E&E reporters

Published: December 21, 2015

In Minneapolis last Thursday, the Center for Energy and Environment offered cocktails and haiku readings by Minnesota Pollution Control Agency Assistant Commissioner David Thornton as primer to a discussion about the role of early-action credits and efficiency programs in meeting the requirements of U.S. EPA's Clean Power Plan.

Minnesota regulators have said the state should be able to meet its obligations under either a mass- or rate-based regulatory approach, thanks to a diversified generation portfolio and strong state energy efficiency and conservation targets. MPCA is still collecting stakeholder input and refining comments to be submitted to EPA in late January. "We think that it's a fair plan," Thornton said.

POWER PLAYS

Each Monday, **Power Plays** previews upcoming moves on the way to Clean Power Plan compliance and recaps the week's developments.

E&E reporter Daniel Cusick attended the event. Other participants in the CEE session included national experts Rodney Sobin of the National Association of State Energy Officials; Sara Hayes of the American Council for an Energy Efficient Economy; and Chris James and Ken Colburn, principals of the Regulatory Assistance Project.

The experts wrapped up a series of meetings with Minnesota regulators, utility officials and other stakeholders Friday. Sobin noted that Minnesota "is pretty well-situated" to regulate power-sector carbon dioxide because its agencies have a history of working with utilities to track emissions and other environmental metrics, Cusick reports.

Here are Thornton's haikus, with writing credit to Anna Henderson of the Minnesota Environmental Quality Board: "Mass or rate-based plan/Want to change and stay the same/Ask the stakeholders." "Fear for the future/Sunk capital investments/Act now or later."

The Michigan Agency for Energy and the state's Department of Environmental Quality will announce Clean Power Plan modeling results tomorrow. The data will show "what Michigan needs to do and by when" to comply with the rule, according to a press release. E&E's Jeffrey Tomich will report on the modeling.

Dec. 31 is the deadline for stakeholders to submit comments to West Virginia's Department of Environmental Protection for a CPP feasibility study it will develop for the state Legislature. That study is due April 20.

The next state meetings aimed at guiding the development of compliance options kick off the first week of January.

The Arizona Department of Environmental Quality on Jan. 5 will take comments on the proposed federal implementation plan and review a menu of potential compliance options. The DEQ will also develop a work plan on outreach to "vulnerable communities."

In Georgia on Jan. 7, the Environmental Protection Division will hold a meeting on EPA's program to provide incentives for early adoption of selected renewable energy measures and for energy efficiency measures for the low-income population. One panel will explore wind and solar projects while a second will look at low-income efficiency programs.

For those state agencies that have developed websites devoted to their Clean Power Plan process, we've started adding links to our state profile pages. Look for them in the left-hand column under "State Resources." See a state agency page missing? Please email us at powerplanhub@eenews.net.

In case you missed it:

- The North Carolina Environmental Management Commission will hold a special hearing in February to vote on its response to EPA's Clean Power Plan, a response that is widely expected to expand the governor's legal challenge to the Obama administration's climate initiative (*EnergyWire*, Dec. 18).

- Arkansas hasn't settled on a potential path for complying with the Clean Power Plan, but the state is seeing interest in a mass-based approach both in its jurisdiction and elsewhere in the midcontinent (*EnergyWire*, Dec. 17).

- The cost impact of the Clean Power Plan in the Midcontinent Independent System Operator's 15-state footprint ranges from a few billion dollars to more than $100 billion over the next two decades, according to an initial analysis by the grid operator (*EnergyWire*, Dec. 17).

- Virginia's second meeting on the Clean Power Plan ended without consensus last week on some of the most basic compliance decisions the state must make (*ClimateWire*, Dec. 16).

- The Wyoming Legislature will hold off on considering bills that would affect the state's Clean Power Plan compliance strategy when it convenes in February, clearing the way for the state to submit an initial plan to EPA in September (*ClimateWire*, Dec. 16).

- Florida's largest electric utility wants the Sunshine State to comply with the Clean Power Plan by requiring power plants to reach an average rate of emissions (*EnergyWire*, Dec. 16).

Reporter Daniel Cusick contributed.

AN E&E PUBLISHING SERVICE

CLIMATEWIRE — Tue., December 22, 2015

READ FULL EDITION

1.CALIFORNIA:

Will state count massive L.A. methane leak when it totals hoped-for GHG cuts?

Multiple investigations are underway into the natural gas leak in Los Angeles County that has forced evacuations and school closures and could mean steep fines for the utility involved.

2.SCIENCE:

Recalculation of leaking methane impacts may affect natural gas market

SAN FRANCISCO -- Environmental advocates are trying to change how policymakers consider the climate impacts of methane, a potent greenhouse gas. The change, if implemented, could make natural gas a less attractive option for generating electricity in power plants.

TODAY'S STORIES

3.ELECTRICITY:

Baltic states open new grid connections to promote cleaner energy, broader European trading

4.FORESTS:

As temperatures rise, pines and firs face massive die-off -- study

5.CLEAN POWER PLAN:

N.D. utilities, regulators raise heck on EPA climate rule

6.EXTREME WEATHER:

El Niño exacerbates severe climate patterns around the globe

7.FOSSIL FUELS:

Mass layoffs put China's coal country 'on edge'

8.BUSINESS:

Companies swap waste to slash costs, emissions

9.PEOPLE:

Calpine CEO criticizes renewable tax extensions

E&ETV'S ONPOINT

10.ENERGY POLICY:

Brownstein Hyatt Farber Schreck's Gore talks omnibus winners and losers

AN E&E PUBLISHING SERVICE

ENERGYWIRE — Tue., December 22, 2015

READ FULL EDITION

1.OIL AND GAS:

Federal challenges, local control dominate year in litigation

In the scrappy world of oil and gas law, 2015 was a year characterized by marquee legal battles, deadlocked debates and new conflicts that will seep into courtrooms in coming years.

THIS MORNING'S STORIES

2.FRACKING:

'Systems approach' leads to more FracFocus disclosure; much data still secret

3.UTILITIES:

Retired linemen help usher in next generation of workers

4.LAW:

Enviros press court to block Chaco-area permitting

5.OFFSHORE:

Atlantic coastal regions turn against drilling plans

6.OIL:

Global price hits its lowest point since 2004

7.FINANCE:

Oil slump throws Shell-BG acquisition into question

8.UTILITIES:

Puerto Rico wrangles with Congress over aid

E&ETV'S ONPOINT

9.ENERGY POLICY:

Brownstein Hyatt Farber Schreck's Gore talks omnibus winners and losers

Brought to you by the Office of General Counsel Law Library

Jennifer Turley, Law Librarian

ASRC Primus Contractor

U.S. Environmental Protection Agency

Office of General Counsel

202/564-3971

turley.jennifer@epa.gov

To: Ex. 6 Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ball, Joel[ball.joel@epa.gov]; Ex. 6
From: Ex. 7
Sent: Wed 12/30/2015 3:46:09 PM
Subject: RE: Audi Q7 Coastdown Vehicle Delivery
MyDocument_2015_12_18_01_12_27.pdf

Hello Ex. 6 and Jim:

The Audi Q7 should have been delivered yesterday. An insurance certificate should accompany the vehicle. I have also attached a copy of the wheel alignment specifications from the service manual. Please let me know if there are any further questions.

Best regards,

Ex. 7

Ex. 7

Emission Regulations and Certification

Engineering and Environmental Office

Volkswagen Group of America, Inc.

Phone

Cell: Ex. 7

Fax:

E-Mail Ex. 7

From: Ex. 6
Sent: Friday, December 18, 2015 6:46 AM
To: Snyder, Jim <Snyder.Jim@epa.gov>; Ex. 7
Cc: Ball, Joel <ball.joel@epa.gov>; Ex. 6
Subject: RE: Audi Q7 Coastdown Vehicle Delivery

Ex. 7

Once you know when it will be delivered, please let Ex. 6 and I know so that we can insure our staff is ready to receive it.

My cell number is listed below as well.

If you have not done so, please also provide the EPA and Jacobs the wheel alignment specifications for this vehicle.

I do have a plate that we can use for the vehicle mileage accumulation and transport.

Please provide an insurance certificate for the vehicle as well.

Ex. 6

Program Manager

Jacobs Technology

EPA Contractor

Ex. 6

EPA Desk Ex. 6

Cell Ex. 6

From: Snyder, Jim
Sent: Thursday, December 17, 2015 6:52 PM
To: Ex. 7
Cc: Ball, Joel; Ex. 6
Subject: RE: Audi Q7 Coastdown Vehicle Delivery

Okay I checked and Joel Ball, Ex. 6 will each be here at various times during the holiday weeks if you need a contact name for delivery drop-off to the lab. Ex. 6 and Ex. 6 are Jacobs guys who handle the vehicle prep and coordinate mileage accum. Ex. 6 number is Ex. 6 Joel's is 4238. We'll be open during the holidays except 12/25 and 1/1.

From: Snyder, Jim
Sent: Wednesday, December 16, 2015 6:54 PM
To: Ex. 7
Subject: RE: Audi Q7 Coastdown Vehicle

- Deliver to our lab location. I'll check if Lynn is the contact or the Jacob's guys.
- A license plate is really handy but our contractor can get one if that's a showstopper for you.
- I think we'd rather just get the vehicle as is.
- I'll ask if there's anything else.

From: Ex. 7
Sent: Wednesday, December 16, 2015 6:42 PM
To: Snyder, Jim <Snyder.Jim@epa.gov>
Subject: Audi Q7 Coastdown Vehicle

Hello Jim:

Are there any special instructions regarding the Audi Q7 coastdown vehicle that we discussed today? I am thinking of things like:

- □□□□□□□ New vehicle prep (?)
- □□□□□□□ License (we supply a manufacturer plate?)
- □□□□□□□ Delivery location and contact person
- □□□□□□□ Other

Best regards,

Ex. 7

Ex. 7

Emission Regulations and Certification

Engineering and Environmental Office

Volkswagen Group of America, Inc.

Phone

Cell:

Fax:

E-Mail

Ex. 7

To: 'a.gusarov@autorc.ru'['a.gusarov@autorc.ru']; 'acelas@tin.it'['acelas@tin.it'];
'adolfo.perujo@ec.europa.eu'['adolfo.perujo@ec.europa.eu'];
'aeeda@depollauto.fr'['aeeda@depollauto.fr']; 'aganguli@siam.in'['aganguli@siam.in'];
'alain.e.petit@renault.com'['alain.e.petit@renault.com'];
'alessandro.marotta@jrc.ec.europa.eu'['alessandro.marotta@jrc.ec.europa.eu'];
'alexander.bergmann@avl.com'['alexander.bergmann@avl.com'];
'alexander.heubuch@maha.de'[alexander.heubuch@maha.de];
'alin.rosca@rarom.ro'['alin.rosca@rarom.ro']; 'alois.krasenbrink@jrc.it'['alois.krasenbrink@jrc.it'];
'ambujsharma@hotmail.com'['ambujsharma@hotmail.com'];
'amourfi_cn@sina.com'['amourfi_cn@sina.com']; 'anders.roj@volvo.com'['anders.roj@volvo.com'];
'andrea.demaria@fptindustrial.com'[andrea.demaria@fptindustrial.com];
'Andreas.EA.Eder@bmw.de'['Andreas.EA.Eder@bmw.de'];
'antonio.erario@mit.gov.it'['antonio.erario@mit.gov.it'];
'apetrofs@volvocars.com'['apetrofs@volvocars.com']; 'ARijnders@rdw.nl'['ARijnders@rdw.nl'];
'arjan.dijkhuizen@toyota-europe.com'['arjan.dijkhuizen@toyota-europe.com'];
'arnaud.duvielguerbigny@aegpl.be'['arnaud.duvielguerbigny@aegpl.be'];
'aurelia.buzgan@rarom.ro'['aurelia.buzgan@rarom.ro']; 'b07@mfa.gr'['b07@mfa.gr'];
'beatrice.lopez@utac.com'['beatrice.lopez@utac.com']; 'Kai(EGNT/2) Behlau
(kai.behlau@volkswagen.de)'[kai.behlau@volkswagen.de];
'Markus.Bergmann@AUDI.DE'[Markus.Bergmann@AUDI.DE];
'bernd.fusshoeller@delphi.com'['bernd.fusshoeller@delphi.com'];
'bertrand.mercier@mpsa.com'['bertrand.mercier@mpsa.com'];
'Bradish.Tracey@epamail.epa.gov'['Bradish.Tracey@epamail.epa.gov']; 'bungo.kawaguchi@toyota-
europe.com'['bungo.kawaguchi@toyota-europe.com']; 'Burrows Adrien
(adrien.burrows@dft.gsi.gov.uk)'[adrien.burrows@dft.gsi.gov.uk]; 'Carli, Stefan, Dr. (EASZ/2)
(Stefan.Carli@volkswagen.de)'[Stefan.Carli@volkswagen.de];
'Cecile.Favre@aecc.be'['Cecile.Favre@aecc.be'];
'celine.vallaude@utac.com'['celine.vallaude@utac.com']; ??? (cha1052@ts2020.kr)[cha1052@ts2020.kr];
'Charmley.William@epamail.epa.gov'['Charmley.William@epamail.epa.gov'];
'chenqs@tsinghua.edu.cn'['chenqs@tsinghua.edu.cn']; 'chosier@ford.com'['chosier@ford.com'];
'christian.bach@empa.ch'['christian.bach@empa.ch'];
'Christian.Gruen@ateel.lu'['Christian.Gruen@ateel.lu'];
'christian.hartmann@maha.de'['christian.hartmann@maha.de'];
'Christian.Vavra@maha.de'['Christian.Vavra@maha.de'];
'christoph.albus@bmvbs.bund.de'['christoph.albus@bmvbs.bund.de'];
'Christoph.Lueginger@bmw.de'['Christoph.Lueginger@bmw.de'];
'Christoph.MC.Mayer@bmw.de'['Christoph.MC.Mayer@bmw.de']; 'cornetti@iol.it'['cornetti@iol.it'];
'covadonga.astorga-llorens@jrc.ec.europa.eu'['covadonga.astorga-llorens@jrc.ec.europa.eu']; 'DIMITRIS
VARTHOLOMAIOS (D.VARTHOLOMAIOS@denso.be)'[D.VARTHOLOMAIOS@denso.be];
'daniel.scherret@de.opel.com'['daniel.scherret@de.opel.com'];
'danitza.fedeli@delphi.com'['danitza.fedeli@delphi.com'];
'detlef.stendel@volkswagen.de'['detlef.stendel@volkswagen.de'];
'didier.pingal@utac.com'['didier.pingal@utac.com']; 'director@araiindia.com'['director@araiindia.com'];
'Dirk.Bosteels@aecc.eu'['Dirk.Bosteels@aecc.eu'];
'dirk.d.baeuchle@daimler.com'['dirk.d.baeuchle@daimler.com'];
'dleveratto@oica.net'['dleveratto@oica.net']; 'donald.nagy@gm.com'['donald.nagy@gm.com'];
'e.bastiaensen@immamotorcycles.org'['e.bastiaensen@immamotorcycles.org'];
'ed.crupi@ec.gc.ca'['ed.crupi@ec.gc.ca']; 'elisa.dumitrescu@unep.org'['elisa.dumitrescu@unep.org'];
'eric.donati@mpsa.com'['eric.donati@mpsa.com']; **Ex. 7**

Ex. 7

'ernst_peter.weidmann@daimler.com'[ernst_peter.weidmann@daimler.com]; 'erwin.segers@honda-
eu.com'['erwin.segers@honda-eu.com']; 'espena@vegvesen.no'['espena@vegvesen.no'];
'euan.macdonald@logos-eu.com'['euan.macdonald@logos-eu.com'];
'eva.iverfeldt@scania.com'['eva.iverfeldt@scania.com']; 'fakmadza@hyundai-
europe.com'['fakmadza@hyundai-europe.com']; 'fcagnolati@landi.it'['fcagnolati@landi.it'];
'Felix.Reutimann@bafu.admin.ch'['Felix.Reutimann@bafu.admin.ch'];

'felix.wellmann@daimler.com'['felix.wellmann@daimler.com'];
'ferenc.pekar@ec.europa.eu'['ferenc.pekar@ec.europa.eu'];
'Annette.Feucht@bmw.de'[Annette.Feucht@bmw.de];
'flavioa.mariani@gmail.com'[flavioa.mariani@gmail.com]; 'gascar@korea.ac.kr'['gascar@korea.ac.kr'];
'georges.verdon@bluewin.ch'['georges.verdon@bluewin.ch'];
'gerben.passier@tno.nl'['gerben.passier@tno.nl'];
'Giorgio.billi@fptindustrial.com'['Giorgio.billi@fptindustrial.com'];
'giorgio.martini@jrc.ec.europa.eu'['giorgio.martini@jrc.ec.europa.eu'];
'giorgio.martini@jrc.it'['giorgio.martini@jrc.it']; 'giovanni.de-santi@ec.europa.eu'['giovanni.de-santi@ec.europa.eu']; 'giovanni.durbano@bafu.admin.ch'['giovanni.durbano@bafu.admin.ch'];
'greg.archer@transportenvironment.org'['greg.archer@transportenvironment.org'];
'guenter.hoermandinger@ec.europa.eu'['guenter.hoermandinger@ec.europa.eu']; Holdik, Hans[Hans.Holdik@bmvi.bund.de]; 'hans-rudolf.hein@bridgestone.eu'['hans-rudolf.hein@bridgestone.eu']; 'hathai@tisi.go.th'['hathai@tisi.go.th'];
'heather.hamje@concawe.org'[heather.hamje@concawe.org];
'heiko.esser@ateel.lu'['heiko.esser@ateel.lu'];
'Heinz.Berger@astra.admin.ch'['Heinz.Berger@astra.admin.ch']; 'Heinz.Steven@t-online.de'['Heinz.Steven@t-online.de']; 'heinz.steven@o2online.de'[heinz.steven@o2online.de];
'henk.baarbe@minienm.nl'['henk.baarbe@minienm.nl']; 'highband@ts2020.kr'['highband@ts2020.kr'];
'hirachan@nrcs.org.za'['hirachan@nrcs.org.za'];
'Werner.Hofegger@avl.com'[Werner.Hofegger@avl.com]; 'hschmidt@tuev-nord.de'['hschmidt@tuev-nord.de']; 'hted@bis.org.in'['hted@bis.org.in'];
'hua.lukarlsson@scania.com'['hua.lukarlsson@scania.com']; 'h-yamada@ntsel.go.jp'['h-yamada@ntsel.go.jp']; 'hypark@katech.re.kr'['hypark@katech.re.kr'];
'ian.hodgson@ec.europa.eu'['ian.hodgson@ec.europa.eu'];
'ian.marshall@aeat.co.uk'['ian.marshall@aeat.co.uk'];
'iddo@sidekickprojects.nl'['iddo@sidekickprojects.nl']; 'ih@acea.be'['ih@acea.be'];
'ikeda@ntceb.be'[ikeda@ntceb.be]; 'ikeda@ntceb.be'['ikeda@ntceb.be'];
'info@federmetano.it'['info@federmetano.it'];
'isabelle.guerin@renault.com'['isabelle.guerin@renault.com']; 'ishii@ntsel.go.jp'['ishii@ntsel.go.jp'];
'j.bozewicz@tdt.pl'['j.bozewicz@tdt.pl']; 'jacek.rostkowski@ec.gc.ca'['jacek.rostkowski@ec.gc.ca'];
'jackson.cleophas@epa.gov'['jackson.cleophas@epa.gov'];
'jacques.dartoy@total.com'['jacques.dartoy@total.com'];
'jacques.marmy@iru.org'['jacques.marmy@iru.org']; 'janghyokko@syu.ac.kr'['janghyokko@syu.ac.kr'];
'jasic@jasic.org'['jasic@jasic.org']; 'jcsarbach@fiev.fr'['jcsarbach@fiev.fr']; 'jean-francois.roy@ec.gc.ca'['jean-francois.roy@ec.gc.ca']; 'jens.huegel@iru.org'['jens.huegel@iru.org'];
'jiaquanli2008@163.com'['jiaquanli2008@163.com']; 'jkubsh@meca.org'['jkubsh@meca.org'];
'jmandel@emamail.org'['jmandel@emamail.org'];
'johan.renders@ec.europa.eu'['johan.renders@ec.europa.eu'];
'jon.andersson@ricardo.com'['jon.andersson@ricardo.com'];
'jon.real@infrastructure.gov.au'['jon.real@infrastructure.gov.au'];
'jps@cambustion.com'['jps@cambustion.com'];
'jseisler@cleanfuelsconsulting.org'['jseisler@cleanfuelsconsulting.org'];
'juhani.laurikko@vtt.fi'['juhani.laurikko@vtt.fi']; 'jwlee@kotsa.or.kr'['jwlee@kotsa.or.kr']; 'ka-koba@shinsa.ntsel.go.jp'['ka-koba@shinsa.ntsel.go.jp'];
'kamal.charafeddine@porsche.de'['kamal.charafeddine@porsche.de'];
'karale.dirspa@araiindia.com'['karale.dirspa@araiindia.com'];
'karsten.strobl@de.gm.com'['karsten.strobl@de.gm.com']; 'katrieng@ts2020.kr'['katrieng@ts2020.kr'];
'kkgandhi@siam.in'['kkgandhi@siam.in']; 'klaus.land@daimler.com'[klaus.land@daimler.com]; 'Kolesa, Konrad, Dr. (I/EA-52) (Konrad.Kolesa@AUDI.DE)'[Konrad.Kolesa@AUDI.DE];
'komarov@niiat.ru'['komarov@niiat.ru']; 'kurt.engeljehringer@avl.com'['kurt.engeljehringer@avl.com'];
'Martin Lange (Martin.Lange@uba.de)'[Martin.Lange@uba.de];
'laroo.chris@epa.gov'['laroo.chris@epa.gov'];
'Laroo.Chris@epamail.epa.gov'['Laroo.Chris@epamail.epa.gov'];
'lennart.erlandsson@avl.com'['lennart.erlandsson@avl.com']; 'les.hill@horiba.com'['les.hill@horiba.com'];
'lianne.noseworthy@ec.gc.ca'['lianne.noseworthy@ec.gc.ca']; 'liuxin@tju.edu.cn'['liuxin@tju.edu.cn'];

'liwl@petrochina.com.cn'['liwl@petrochina.com.cn']; 'lubos.trnka@tuv-sud.cz'['lubos.trnka@tuv-sud.cz'];
'm.seifert@svgw.ch'['m.seifert@svgw.ch']; 'm.vaysblum@autorc.ru'['m.vaysblum@autorc.ru'];
'Maciej.SZYMANSKI@ec.europa.eu'['Maciej.SZYMANSKI@ec.europa.eu'];
'mafh@tsinghua.edu.cn'['mafh@tsinghua.edu.cn'];
'magnus.lindgren@trafikverket.se'['magnus.lindgren@trafikverket.se'];
'manuel.schuster@daimler.com'['manuel.schuster@daimler.com'];
'marc.kwanten@mobilit.fgov.be'['marc.kwanten@mobilit.fgov.be'];
'marc.steen@ec.europa.eu'['marc.steen@ec.europa.eu']; 'maria.spiliopoulou-
kaparia@ec.europa.eu'['maria.spiliopoulou-kaparia@ec.europa.eu'];
'martin.gerstl@de.bosch.com'['martin.gerstl@de.bosch.com'];
'martin.koubek@dot.gov'['martin.koubek@dot.gov'];
'martin.schiess@bafu.admin.ch'['martin.schiess@bafu.admin.ch'];
'martin.sommer@porsche.de'['martin.sommer@porsche.de'];
'massimo.carriero@jrc.it'['massimo.carriero@jrc.it']; 'masui-s559h@mlit.go.jp'[masui-s559h@mlit.go.jp];
'matthias.hartmann@bmw.de'['matthias.hartmann@bmw.de'];
'matthias.maedge@ngvaeurope.eu'['matthias.maedge@ngvaeurope.eu']; 'Naegeli, Matthias (EAMG/1)
(matthias.naegeli@volkswagen.de)'[matthias.naegeli@volkswagen.de];
'Matthias.Tappe@de.bosch.com'['Matthias.Tappe@de.bosch.com'];
'maurizio.parca@bridgestone.eu'['maurizio.parca@bridgestone.eu'];
'mguenthe@ford.com'['mguenthe@ford.com'];
'michael.frank@de.bosch.com'['michael.frank@de.bosch.com'];
'michael.hygrell@volvo.com'['michael.hygrell@volvo.com'];
'michel.loccufier@mobilit.fgov.be'['michel.loccufier@mobilit.fgov.be'];
'mky@chrysler.com'['mky@chrysler.com']; '????? ????' (morita-s263@mlit.go.jp)[morita-
s263@mlit.go.jp]; 'nakhawa.ecl@araiindia.com'['nakhawa.ecl@araiindia.com'];
'nalinee@tisi.go.th'['nalinee@tisi.go.th']; 'Nam.Ed@epamail.epa.gov'['Nam.Ed@epamail.epa.gov'];
'nan@fstyr.dk'['nan@fstyr.dk']; 'narusawa@ntsel.go.jp'['narusawa@ntsel.go.jp'];
'Nico.Schuetze@bmw.de'[Nico.Schuetze@bmw.de]; 'niikuni@ntsel.go.jp'['niikuni@ntsel.go.jp']; 'Bear,
Nigel (N.) (nbear@ford.com)'[nbear@ford.com];
'nikolaus.steininger@ec.europa.eu'['nikolaus.steininger@ec.europa.eu'];
'nlebigot@ccfa.fr'['nlebigot@ccfa.fr']; 'nls8@chrysler.com'['nls8@chrysler.com'];
'noriyuki_ichikawa@mail.toyota.co.jp'['noriyuki_ichikawa@mail.toyota.co.jp'];
'oberg2@volvocars.com'['oberg2@volvocars.com'];
'olechiw.michael@epa.gov'['olechiw.michael@epa.gov'];
'oliver.eberhardt@bmub.bund.de'[oliver.eberhardt@bmub.bund.de];
'oliver.moersch@daimler.com'['oliver.moersch@daimler.com']; 'p.flanker@denso.nl'['p.flanker@denso.nl'];
'p.laurent@clepa.be'['p.laurent@clepa.be']; 'paibanez@mityc.es'['paibanez@mityc.es'];
'panagiota.dilara@jrc.it'['panagiota.dilara@jrc.it']; 'paul.adams@volvo.com'['paul.adams@volvo.com'];
'per.ohlund@transportstyrelsen.se'['per.ohlund@transportstyrelsen.se'];
'p.flanker@denso.nl'[p.flanker@denso.nl]; 'peter.scherm@vdma.org'['peter.scherm@vdma.org'];
'peter.smeds@trafikverket.se'['peter.smeds@trafikverket.se']; 'peter@theicct.org'['peter@theicct.org'];
'pg@acea.be'['pg@acea.be']; 'philip.r.horton@gm.com'['philip.r.horton@gm.com'];
'pierre.bonnel@jrc.it'['pierre.bonnel@jrc.it']; 'PIERRE COGNET
(pierre.cognet1@mpsa.com)'[pierre.cognet1@mpsa.com];
'pilar.perez@ngvaeurope.eu'['pilar.perez@ngvaeurope.eu']; 'pjhy98@korea.kr'['pjhy98@korea.kr'];
'pollak.ivan@kti.hu'['pollak.ivan@kti.hu']; 'PPRICE40@ford.com'['PPRICE40@ford.com'];
'ptinakon@hotmail.com'['ptinakon@hotmail.com']; 'ragnarsson@eaa.be'['ragnarsson@eaa.be'];
'rajendra.petkar@tatatechnologies.com'['rajendra.petkar@tatatechnologies.com']; 'Bjoern Dr. (EASZ/4)
Ramacher (bjoern.ramacher@volkswagen.de)'[bjoern.ramacher@volkswagen.de]; 'Raymond Petrovan
(raymond.petrovan@de.opel.com)'[raymond.petrovan@de.opel.com];
'rdey@ccsglobalgroup.com'['rdey@ccsglobalgroup.com']; 'rene.nulens@toyota-
europe.com'['rene.nulens@toyota-europe.com']; 'rjohannsen@tuev-nord.de'['rjohannsen@tuev-nord.de'];
'rlabza@hyundai-europe.com'['rlabza@hyundai-europe.com']; 'rob.cox@ipieca.org'['rob.cox@ipieca.org'];
'rob.cuelenaere@tno.nl'[rob.cuelenaere@tno.nl]; 'robert.thielgen@ateel.lu'['robert.thielgen@ateel.lu'];
'Romain.Hubert@unece.org'['Romain.Hubert@unece.org'];
'romain.lamberty@snch.lu'['romain.lamberty@snch.lu']; 'rsantafe@idiada.com'['rsantafe@idiada.com'];

'rudi.valgaeren@eur.bosal.com'['rudi.valgaeren@eur.bosal.com'];
's.piccolo@federchimica.it'['s.piccolo@federchimica.it']; 'saenzejc@inta.es'['saenzejc@inta.es'];
'saluck@tisi.go.th'['saluck@tisi.go.th'];
'samarendra.tripathy@renault.com'['samarendra.tripathy@renault.com'];
'Sanchez.James@epamail.epa.gov'['Sanchez.James@epamail.epa.gov'];
'Schrodt.Thomas@epamail.epa.gov'['Schrodt.Thomas@epamail.epa.gov'];
'Seiler@vda.de'['Seiler@vda.de']; 'serge.dubuc@t-online.de'['serge.dubuc@t-online.de'];
'shirish.a.shimpi@cummins.com'['shirish.a.shimpi@cummins.com'];
'simlaoz@mfa.gov.tr'['simlaoz@mfa.gov.tr']; 'simon.davies@dft.gsi.gov.uk'['simon.davies@dft.gsi.gov.uk'];
'Simon.Karl@epamail.epa.gov'['Simon.Karl@epamail.epa.gov'];
'singh.ecl@araiindia.com'['singh.ecl@araiindia.com']; 'SOMNUEK JAROONJITSATHIAN
(somnuek.j@pttplc.com)'[somnuek.j@pttplc.com]; 'spark@korea.ac.kr'['spark@korea.ac.kr'];
'spetrovic@mas.bg.ac.rs'['spetrovic@mas.bg.ac.rs'];
'srmarathe@araiindia.com'['srmarathe@araiindia.com']; 'Stendel, Detlef (EASZ/1)
(detlef.stendel@volkswagen.de)'[detlef.stendel@volkswagen.de];
'stephan.hartmann@volkswagen.de'['stephan.hartmann@volkswagen.de']; Redmann,
Stephan[stephan.redmann@bmvi.bund.de]; 'sylvie.gingras@bnq.qc.ca'['sylvie.gingras@bnq.qc.ca'];
'Takakazu.Fukuoka@toyota-europe.com'['Takakazu.Fukuoka@toyota-europe.com'];
'Takashi_Fujiwara@n.t.rd.honda.co.jp'[Takashi_Fujiwara@n.t.rd.honda.co.jp];
'Tatsumori_A_Matsushita@hm.honda.co.jp'[Tatsumori_A_Matsushita@hm.honda.co.jp]; 'tce@jama-
e.be'['tce@jama-e.be']; 'technique@ccfa.fr'['technique@ccfa.fr']; 'techsec@clepa.be'['techsec@clepa.be'];
'thachapongt@yahoo.com'['thachapongt@yahoo.com']; 'thaniu@jari.or.jp'[thaniu@jari.or.jp];
'thaniu@jari.or.jp'['thaniu@jari.or.jp']; 'thomas.goldbach@gm.com'['thomas.goldbach@gm.com']; 'Thomas
Vogel (thomas.vogel@de.opel.com)'[thomas.vogel@de.opel.com];
'thorsten.leischner@daimler.com'['thorsten.leischner@daimler.com'];
'TKOSMEHL@ford.com'['TKOSMEHL@ford.com']; 'tmayer4@ford.com'['tmayer4@ford.com']; "Yuki Toba'
(toba@jasic.org)'[toba@jasic.org]; 'toba@jasic.org'['toba@jasic.org'];
'toni.lehn@delphi.com'['toni.lehn@delphi.com'];
'Toshihisa_Yamaguchi@hm.honda.co.jp'[Toshihisa_Yamaguchi@hm.honda.co.jp];
'tstoffels@rdw.nl'['tstoffels@rdw.nl']; 'uhlik.krisztian@kti.hu'['uhlik.krisztian@kti.hu'];
'uklein@ford.com'['uklein@ford.com']; 'ulrich.beutke@mtu-online.com'['ulrich.beutke@mtu-online.com'];
'ulrich.gottwick@de.bosch.com'['ulrich.gottwick@de.bosch.com'];
'volker.blum@daimler.com'['volker.blum@daimler.com'];
'volker.rothe@de.opel.com'['volker.rothe@de.opel.com'];
'vustymenko@insat.org.ua'['vustymenko@insat.org.ua']; "wouter.vandermeulen@daimler.com'
(wouter.vandermeulen@daimler.com)'[wouter.vandermeulen@daimler.com];
'Werner.Tober@ifa.tuwien.ac.at'['Werner.Tober@ifa.tuwien.ac.at'];
'william.coleman@volkswagen.de'['william.coleman@volkswagen.de']; 'Wim.van.der.Borght@toyota-
europe.com'['Wim.van.der.Borght@toyota-europe.com'];
'winfried.hartung@de.gm.com'['winfried.hartung@de.gm.com'];
'wolfgang.schindler@avl.com'['wolfgang.schindler@avl.com']; 'wuxf@craes.org.cn'['wuxf@craes.org.cn'];
'y-katsumata@mail.nissan.co.jp'[y-katsumata@mail.nissan.co.jp]; 'y-katsumata@mail.nissan.co.jp'['y-
katsumata@mail.nissan.co.jp']; 'yphou@tongji.edu.cn'['yphou@tongji.edu.cn'];
'yssong@katech.re.kr'['yssong@katech.re.kr']; 'yu.jia@uaes.com'['yu.jia@uaes.com'];
'yuanying@craes.org.cn'['yuanying@craes.org.cn']; 'zisis@auth.gr'['zisis@auth.gr']
Cc: 'Kolesa, Konrad, Dr. (I/EA-52) (Konrad.Kolesa@AUDI.DE)'[Konrad.Kolesa@AUDI.DE]; 'ka-
koba@shinsa.ntsel.go.jp'[ka-koba@shinsa.ntsel.go.jp];
'noriyuki_ichikawa@mail.toyota.co.jp'[noriyuki_ichikawa@mail.toyota.co.jp]
From: Redmann, Stephan
Sent: Wed 12/30/2015 5:29:30 PM
Subject: WLTP IWG No. 13 - documents

Dear members of WLTP IWG,

I hope you all have wonderful and relaxing Season holidays.

Nevertheless, please note that documents for the next IWG meeting have been uploaded:

https://www2.unece.org/wiki/display/trans/WLTP+13th+session

Best regards

Stephan Redmann

Federal Ministry of Transport and digital Infrastructure

Division LA27

Automotive Engineering (Environment)

Robert-Schuman-Platz 1

53175 Bonn, GERMANY

Tel.: +49 (0)228-300- 4371

Fax: +49 (0)228-300-807-4371

email: stephan.redmann@bmvi.bund.de

To: Snyder, Jim[Snyder.Jim@epa.gov]
Cc: Ex. 7
Ex. 7
From: Ex. 7
Sent: Wed 12/30/2015 8:58:55 PM
Subject: VW Group - 2017 Application for test group HVGAJ02.0AAC

Hello Jim,

We have uploaded the application to Verify for the 2017 test group HVGAJ02.0AAC, Audi A4 and A6 models with 2.0l TFSI gasoline engine. This is a carryover from 2016 with the addition of an evaporative family and Audi A4 models for 2017. The A4 quattro fuel economy vehicle in this test group has been scheduled for confirmatory testing at the EPA in January.

We are still in the process of establishing CROMERR signers so a Certification Request will be forthcoming as soon as possible. In the meantime, we would appreciate your review of the application so we can resolve any questions you may have promptly in light of the short lead time we have to the planned launch date of January 30th.

Regards,

Ex. 7

Emissions Certification Engineer

Engineering and Environmental Office

Volkswagen Group of America, Inc.

Phone

E-Mai Ex. 7